Trust Fund Board
Regular Meeting Agenda

Date: Tuesday, May 29, 2018
Time: 10:00 am - 2:30 pm
Location: Islands Trust Victoria Boardroom
200-1627 Fort Street, Victoria, BC

Trust Fund Board
Minutes of Regular Meeting

Date:	Tuesday, April 3, 2018
Time:	10:00 am
Location:	Islands Trust Victoria Boardroom 200-1627 Fort Street, Victoria, BC
Board Members Present	Tony Law, Chair Ronald Bertrand Kate-Louise Stamford (by teleconference) Susan Morrison Robin Williams
Board Members Regrets	Hoops Harrison
Staff Present	Jennifer Eliason, Islands Trust Fund Manager Kate Emmings, Ecosystem Protection Specialist Nuala Murphy, Property Management Specialist Corlynn Strachan, Administrative Assistant Crystal Oberg, Communications & Fundraising Specialist Clare Frater, Director, Trust Area Services (joined the meeting at 12:10 pm and left the meeting at 12:40 pm)

1. CALL TO ORDER

Chair Law called the meeting to order at 10:00 am and acknowledged that the meeting was being held in Coast Salish First Nations territory.

Trustee Stamford joined the meeting by teleconference.

TFB-2018-009
It was MOVED and SECONDED
that the Trust Fund Board agree to waive section 10.1 (b) of the meeting procedures bylaw for Trustee Stamford to attend the meeting by phone for the second time this year.

2. APPROVAL OF AGENDA

By general consent, the Trust Fund Board approved the agenda as presented.

3. CLOSED MEETING

TFB-2018-010
It was MOVED and SECONDED,
that the meeting be closed to the public in accordance with the Community Charter, Part 4, Division 3, section 90 (1) (e) the acquisition, disposition or expropriation of land or improvements, if the board considers that disclosure could reasonably be expected to harm the interests of the Trust Fund Board; (k) negotiations and related discussions respecting the proposed provision of a service that are at their preliminary stages and that, in the view of the board, could reasonably be expected to harm the interests of the trust fund board if they were

held in public; and that Jennifer Eliason, Kate Emmings, Nuala Murphy, Crystal Oberg, and Corlynn Strachan be invited to remain in the meeting.

CARRIED

The Trust Fund Board convened the closed portion of the meeting at 10:05 am and resumed in open meeting at 11:18 am to Rise and Report.

4. RISE AND REPORT

The Trust Fund Board reported on the following items:

- The Trust Fund Board directed Chair Law to sign the Fundraising and Acquisition Agreement with the Lasqueti Island Nature Conservancy regarding the campaign to acquire Salish View, Lasqueti Island.
- The Trust Fund Board agreed to partially fund an Opportunity Fund grant request to the Saturna Wetland Conservation Project for $4,000 towards the cost of a phase one environmental assessment.
- The Trust Fund Board rejected an Opportunity Fund grant request from the Lasqueti Island Nature Conservancy for legal and appraisal costs incurred to date in the securement of Salish View, but requested staff to encourage LINC to reapply for a grant in September.
- The Trust Fund Board approved up to $9,000 from the Lasqueti Island Acquisition Fund towards the purchase of Salish View.

5. MINUTES/COORDINATION

5.1 Minutes of Meetings/Resolutions without Meetings

5.1.1 Approval of the January 30, 2018 Regular Meeting Minutes

By general consent, the Trust Fund Board meeting minutes of January 30, 2018 were adopted.

5.2 Follow-up Action List

The board reviewed the Follow-up Action List.

6. BUSINESS

6.1 Items for Approval

6.1.1 Covenant Initiation – Fairyslipper Forest Nature Reserve, Thetis Island

The Ecosystems Protection Specialist presented the recommendation to Board members, noted the timeline is flexible, and staff have capacity to initiate the covenant negotiation.

TFB-2018-011
It was MOVED and SECONDED,
that the Trust Fund Board approves negotiation of a conservation covenant with the Thetis Island Nature Conservancy and Cowichan Community Land Trust Society on Fairyslipper Forest Nature Reserve (Lot A, District Lots 6 and 10, Township Thetis, Cowichan District, Plan EPP76866, PID:030-332-184).

CARRIED

6.1.2 Conservation Proposal – Dragonfly Commons, Salt Spring Island

Trustee Williams left the meeting at 11:23 am noting a potential conflict of interest.

The Ecosystem Protection Specialist presented the proposal to the board, noted the density of the proposed development could potentially lead to covenant management and enforcement challenges, and advised that the applicant is not willing to provide an endowment, in order to minimize costs and keep the housing units affordable.

TFB-2018-012
It was MOVED and SECONDED,
that the Trust Fund Board decline the Conservation Proposal submitted by Fernando and Tammy Dos Santos regarding a proposed conservation covenant on approximately 2.3 ha of the land known as Dragonfly Commons, PID 004-750-581, Lot A, Section 20, Range 3 East, North Salt Spring Island, Cowichan District, Plan 28650.

CARRIED

Trustee Williams rejoined the meeting at 11:34.

6.1.3 Trust Fund Board Meeting Procedures Bylaw Amendment

TFB-2018-013
It was MOVED and SECONDED,
that Trust Fund Board Bylaw No. 2, cited as "Trust Fund Board Meeting Procedures Bylaw, 2004, Amendment Bylaw No. 1, 2018" be approved.

CARRIED

6.1.4 Regional Conservation Plan and Local Trust Committees

The Board discussed providing briefings to local trust committees and Bowen Island Municipality highlighting the relevant policy statement directive policies and possible options for including information from the Regional Conservation Plan, as well as ways to promote use of the Regional Conservation Plan and associated data in the orientation for trustees next term.

TFB-2018-014
It was MOVED and SECONDED,
that the Trust Fund Board requests staff to provide a briefing to all local trust committees and Bowen Island Municipality requesting that consideration be given to incorporating elements of the 2018 - 2027 Regional Conservation Plan (including associated data and mapping) into Official Community Plans.

CARRIED

6.2 Items for Discussion/Direction

6.2.1 Briefing - Regional Conservation Plan Development Process Evaluation Report

The Ecosystems Protection Specialist summarized the lessons learned report and requested feedback.

Board member comments:

- excellent document and a valuable process
- suggested follow-up and thank you for First Nations involvement
- could have more "buy in" with separate event or workshop for island communities
- trustees may require further explanation of ITF and TFB role
- RCP has lots of detailed information, somewhat overwhelming for trustees
- suggested separate island profiles with pdf link would be helpful on ITF/IT websites

6.2.2 Briefing - Salish View Campaign Plan

The Communications and Fundraising Specialist presented the plan to Board members and requested Trust Fund Board member participation at future special LINC events if available.

Trustee Morrison suggested possible staff or Board member attendance at the Lasqueti Bay Day event scheduled for Sep 2, 2018 from 12:00 pm - 4:00 pm.

6.2.3 Contacts with First Nations through Local Trust Committees

The Board discussed developing relationships with First Nations through meetings local trust committees may be having with First Nations, and providing Islands Trust Fund information through these meetings.

Staff advised the Board that Regional Conservation Plan information would soon be sent to all First Nations.

Trustee Morrison agreed to raise this topic with the Executive Committee, encouraging LTC chairs to include information about the Islands Trust Fund when meeting with First Nations.

6.2.4 Agricultural Land Commission Review Committee

Chair Law reported on his attendance at a recent Agricultural Land Commission (ALC) review committee meeting. Chair Law provided information on the Islands Trust Fund, and informed attendees that ITF would like to work in partnership with the ALC on protecting conservation priorities, noting that the ALC and Trust Fund Board both have a provincial mandate. The ALC review committee suggested follow up with a written submission; Chair Law to draft letter.

6.3 Correspondence

There was no correspondence.

6.4 Updates for Information

6.4.1 Public Acquisitions Report

The Trust Fund Board reviewed the Public Acquisitions Report for information.

6.4.2 Public Covenants Report

The Trust Fund Board reviewed the Public Covenants Report for information.

6.4.3 Regional Conservation Plan Progress Report

The ITF Manager presented the report to the Board, noted this new report combines the information previously provided in the Communications and Fundraising Specialist and Property Management Specialist reports with other progress on objectives from the newly approved RCP, and requested feedback on the format. Board members suggested the report be accumulative and requested italicizing past items.

6.4.4 Budget Report

The Board reviewed the Budget Report for information.

6.4.5 Species at Risk Letter - Painted Turtle

The Board reviewed the letter for information. The Ecosystem Protection Specialist advised that all wetlands and associated water courses on Salt Spring Island have a critical habitat for Western Painted Turtles, and that the Salt Spring Island Conservancy has a member on the recovery team.

7. NEW BUSINESS

There was no new business.

8. NEXT MEETING

The next meeting will take place on May 29, 2018 at 10:00 am.

9. ADJOURNMENT

By general consent, the meeting adjourned at 1:38 pm.

_____
Tony Law, Chair

Certified Correct:

_____
Corlynn Strachan, Recorder

ISLANDS TRUST FUND

Print Date: May 7, 2018

Follow Up Action Report

Trust Fund Board

24-Sep-2010

Activity	Responsibility	Target Date	Status
Staff to work with landowners to clarify wording of Cunningham Covenant regarding vegetation removal, while maintaining conservation as a priority.	Jennifer Eliason	30-Sep-2011	On Going

26-May-2011

Activity	Responsibility	Target Date	Status
Staff to continue working with senior Islands Trust staff to find an opportunity to put forward a request to amend the Islands Trust Act to create the Islands Trust Conservancy.	Jennifer Eliason	30-Jun-2017	Done

31-Mar-2015

Activity	Responsibility	Target Date	Status
Staff to prepare possible revisions to the Trust Council Procedure 2.1.xxi Administration of the Crown Land Acquisition Initiative.	Jennifer Eliason	31-Dec-2016	On Going

07-Feb-2017

Activity	Responsibility	Target Date	Status
The Trust Fund Board will consult the Thetis Island Nature Conservancy (ThINC) during the development of a management plan for the nature reserve on Moore Hill.	Nuala Murphy Jennifer Eliason	31-Mar-2017	On Going

20-Jun-2017

Activity	Responsibility	Target Date	Status

TC-2017-029 Investigate options for increased use of federal or provincial stewardship agreements for species at risk in the Islands Trust Area.	Jennifer Eliason	12-Sep-2017	On Going

18-Jul-2017

Activity	Responsibility	Target Date	Status
Staff to provide a report regarding the organizational implications of acting on the Trust Council request to investigate provincial and federal stewardship agreements as a protection tool	Clare Frater Jennifer Eliason	21-Nov-2017	On Going

03-Apr-2018

Activity	Responsibility	Target Date	Status
Chair Law to draft written submission to the ALC review committee.	Tony Law Jennifer Eliason	31-May-2018	Done
Trustee Morrison to raise following topic with the Executive Committee: encouraging LTC chairs to include either TFB members or information about the Islands Trust Fund when meeting with First Nations to facilitate relationship building.	Susan Morrison	31-May-2018	On Going
Staff to provide a briefing to all local trust committees and Bowen Island Municipality requesting that consideration be given to incorporating elements of the 2018-2027 Regional Conservation Plan (including associated data and mapping) into Official Community Plans.	Jennifer Eliason	31-May-2018	On Going

REQUEST FOR DECISION

To:	**Trust Fund Board**	**For the Meeting of:**	May 29, 2018
From:	**Jennifer Eliason, Manager**	**Date Prepared:**	May 3, 2018

SUBJECT: Request for Support in Principle for Sidney Island Forest Restoration Program

---

RECOMMENDATION: That the Trust Fund Board supports, in principle, Parks Canada's Sidney Island Forest Restoration Proposal.

---

1 **PURPOSE:** Parks Canada is proposing to collaborate with strata land holders on Sidney Island to implement a forest restoration plan that includes the eradication of fallow deer. The Trust Fund Board holds several covenants on the common property of the strata lands and the strata's Ecological Stewardship Committee have asked the Trust Fund Board to consider providing support in principle for the proposal.

2 **BACKGROUND:** The forests and ecological integrity of Sidney Island have been severely impacted by fallow deer, and introduced non-native species. Part of Sidney Island is included in the Gulf Islands National Park Reserve and the remainder, the largest portion, is owned by the members of the Sallas Forest Strata Corporation. Various management efforts by Parks Canada and the strata landholders have occurred since 1981, including 10 years of active culling by the strata landholders. While population numbers have been reduced, Parks Canada has concluded that without a complete eradication, Coastal Douglas-fir forest ecosystems will be unable to regenerate and native species will continue to be negatively impacted.

Parks Canada has now proposed to implement a restoration strategy for the entire island that includes a complete cull of fallow deer, at their expense. Parks Canada has outlined the rationale and proposal in the attached materials. They are in the process of communicating with the Sallas Forest Strata landholders to seek support for the proposal. The Strata will hold a vote in the fall of 2018 to seek the support of its members for the Parks Canada proposal.

Staff have met with the President of the strata council, and the Co-chair of the strata's Ecological Stewardship Committee, who have asked that we brief the board on this proposal and seek support in principle. The Trust Fund Board protects 53.75 hectares of strata common property in eight covenants, and has been supportive of culling/eradicating fallow deer in the past.

January 25, 2006
TFB-2003-600 It was MOVED and SECONDED that the Trust Fund Board supports the removal of fallow deer from Sidney Island and agree to monitor the effects of this removal on the covenant areas on this island.

March 29, 2010
TFB-2010-1141 It was MOVED and SECONDED That the Trust Fund Board respond to the Sallas Forest Strata Corp expressing support in principal of efforts to control the fallow deer population on Sidney Island and request that Sallas Forest Strata Corporation provide more detailed

information on the availability of alternative sites and on the proposal, including fence specifications, proposed dates of operation, restoration plan for impacted area within the covenant, etc.

May 13, 2010
TFB-2010-1160 It was MOVED and SECONDED That the Trust Fund Board approvet he Sallas Forest Strata Corporation's request to install a deer capture pen on the Burnt Snag Covenant Area, Sidney Island, by issuing a written waiver to restrictions in sections 3.2 (a), (b), (g), (h), (i) and (j) of the covenant (covenant # ES065741, Common Property VIS5122), subject to the following conditions:
1) The waiver is provided for the express purpose of constructing a deer pen for the removal of fallow deer and for the culling of the fallow deer population;
2) The waiver does not constitute a right to violate the covenant for any other purpose;
3) The waiver to the covenant will be reviewed by staff on an annual basis;
4) The work to construct the pen, undertake the capture operation and processing must be carried out in July through September, unless written permission is requested and provided for work outside of these months;
5) That Sallas Strata Corporation notifies the Trust Fund when the work begins so that Islands Trust Fund has the option of an onsite monitor;
6) The waiver expires at the end of three years;
7) All structures and materials must be removed by the end of three years and the area where the deer control facility is located must be restored to its current state; and that the Trust Fund Board communicate to Sallas Strata Corp. the strong recommendation that the goal be eradication rather than reduction of the Fallow deer population on Sidney Island.

Jan 20, 2011
TFB-2011-1215 It was MOVED and SECONDED That the Trust Fund Board approves the request from Sallas Forest Strata Corporation to erect up to three deer exclosures on the Windthrow Covenant, Sidney Island, by issuing a written waiver to restrictions in sections 3.2 (a), (b), (g), (i) and (j) of the covenant (covenant # ES065745, Common Property VIS 5122), subject to the following conditions:
1) The waiver is provided for the express purpose of installing fencing for the exclusion of fallow deer;
2) The waiver does not constitute a right to violate the covenant for any other purpose;
3)The project and the waiver to the covenant will be reviewed by Islands Trust Fund staff on an annual basis.

Sept 28, 2015
TFB-2015-76 It was MOVED and SECONDED that the Trust Fund Board approves the request from Sallas Forest Strata Corporation to allow for hunting of European fallow deer in the Sidney Island conservation covenant areas by issuing a written waiver to restrictions in sections 3.2 (i) of the covenants subject to the following conditions:
a) The waiver is provided for the express purpose of culling European fallow deer, either by guide hunter or by permitted landowners and guests;
b) The waiver does not constitute a right to violate the covenant for any other purpose;
c) The waiver to the covenant and the effects of hunting will be reviewed by Islands Trust Fund staff on an annual basis, and the waiver may be revoked by the Trust Fund Board at any time.

3 IMPLICATIONS OF RECOMMENDATION

ORGANIZATIONAL: Supporting the Parks Canada proposal, in principle, is consistent with previous TFB decisions as well as conservation objectives for the Sidney Island covenants. If the Strata votes in favour of the proposal in the fall and Parks Canada proceeds with the implementation of

the restoration plan, the TFB will receive a request to provide approval of the described activities on TFB covenant lands by providing a waiver to specific sections of the conservation covenants.

FINANCIAL: None.

POLICY: None.

IMPLEMENTATION/COMMUNICATIONS: Staff will provide a letter to the Strata Council citing the resolution of the board, and indicating our anticipation of a formal request for a waiver if the proposed project proceeds.

FIRST NATIONS: Parks Canada is consulting First Nations in the development and implementation of their Restoration Program.

4 **RELEVANT POLICY(S):** None.

5 **ATTACHMENT(S):**

a. Sidney Island Forest Restoration Proposal
b. FAQ's Sidney Island Forest Restoration Proposal
c. Sidney Island Forest Restoration Newsletter

RESPONSE OPTIONS

Recommendation:
That the Trust Fund Board supports, in principle, the Sidney Island Forest Restoration Proposal from Parks Canada.

Alternative:

- Request additional information and consider at a later date.
- Decline to offer support in principle.
- Decline to offer support in principle, and wait for a formal request for waiver to the covenants before responding.

Prepared By: Jennifer Eliason, Manager, Islands Trust Fund

Gulf Islands National Park Reserve | Réserve de parc national des Îles-Gulf

A Proposal for Restoring Healthy Forests on Sidney Island

Parks Canada is proposing to collaborate with Sidney Island landowners on an island-wide approach to restoring a globally unique forest ecosystem. Following the winter newsletter for Sidney Island landowners, this detailed, research-based proposal is meant to support landowners in their decision-making process.

Summary
The spectacular Coastal Douglas-fir forests of the southern Gulf Islands region are rich in biodiversity and increasingly at risk.

A compelling body of research has shown that deer have significant impacts on forest ecosystems in BC's southern Gulf Islands. The most extreme example of this is on Sidney Island, where a large population of invasive fallow deer have severely deteriorated the island's forests.

Various management efforts to mitigate the impact of deer and improve forest health have occurred on Sidney Island since 1981, largely through the efforts of private landowners. While conditions have improved, fallow deer continue to thrive and ecosystems continue to suffer.

Consequently, Parks Canada is proposing to work with local landowners and local First Nations to restore the island's forest ecosystems. An initial key step of the proposal is to eradicate fallow deer from the island. This would be followed by extensive efforts to restore forest ecosystems on the island, including future management of black-tailed deer.

Parks Canada would fund the eradication operation on both private and public lands, and also provide funding and support for ecosystem restoration afterwards. This would include the management of both black-tailed deer and invasive plants.

This collaborative effort presents an opportunity for landowners and the federal government to work together to restore and maintain a globally unique ecosystem on Sidney Island.

Research-Based Rationale:
There are four key reasons why Parks Canada has identified Sidney Island as a critical place to restore forest ecosystems, beginning with the removal of invasive fallow deer:

- **I.** Sidney Island is home to a large area of at-risk Coastal Douglas-fir forest;
- **II.** Invasive fallow deer continue to have a devastating impact on at-risk ecosystems on Sidney Island;
- **III.** Efforts to control fallow deer have not been sufficient to allow for a functioning, healthy ecosystem;
- **IV.** Eradication is a feasible option.

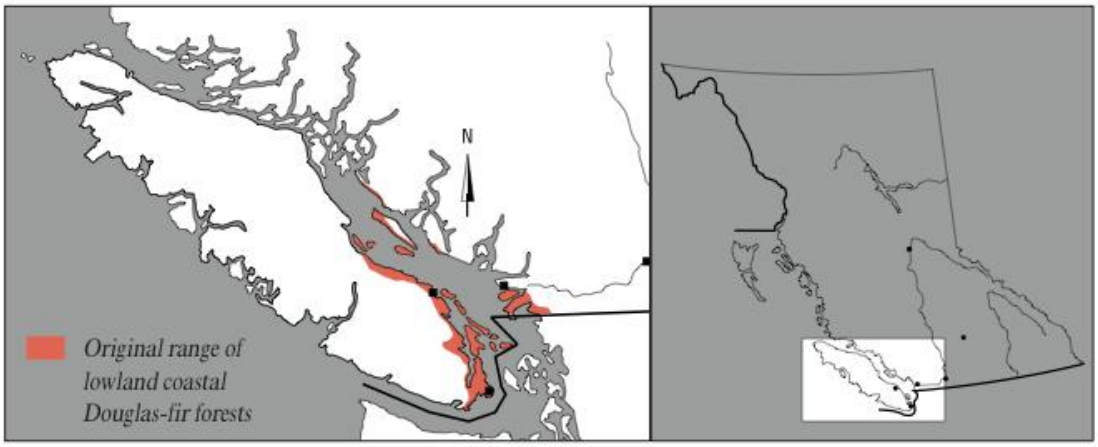
I. Sidney Island is home to a large area of at-risk Coastal Douglas-fir forest

The Coastal Douglas-fir forests found in the southern Gulf Islands are a part of a globally unique biogeoclimatic zone found only in a narrow area encompassing south-east Vancouver Island, the Gulf Islands, and the Sunshine Coast. The zone's Mediterranean-like climate gives rise to a rich biodiversity, encompassing a wide variety of species and ecosystems, including Garry oak. It has the highest diversity of plant species in BC and the highest diversity of over-wintering birds in Canada (Ward et al. 1998; Floberg et al. 2004).

Numerous Indigenous Nations have occupied the Coastal Douglas-fir forest zone since time immemorial, and continue to play a key role in the management of its cultural and ecological landscapes. However, this ecologically and culturally rich zone is increasingly under threat from a variety of pressures and is at risk of losing many of the rich ecological communities which define its very health and beauty. In fact,

data from Parks Canada's ecological integrity monitoring program for Gulf Islands National Park Reserve indicate the forest ecosystems are in poor condition and declining.

This biogeoclimatic zone - the smallest in BC - is also the most vulnerable in the province with the highest number of at-risk species and ecosystems, many of which are ranked as imperilled. More than 250 species in the zone and nearly all of its ecological communities are considered at-risk. Part of this problem is the high incidence of invasive species with more than 150 invasive species found in the region, such as scotch broom (MacDougall et al. 2004). These invaders outcompete native species for space and nutrients.



The South Coast of BC is a very popular part of Canada, with over three-quarters of BC residents living in the region. However, remaining natural spaces in the Coastal Douglas-fir forest zone face significant pressures from development and industrial use. Many of the zone's characteristic ecosystem types, including Garry oak, have lost more than 75% of their original area (CDFCP 2018). Less than 1% of old growth forests remain and almost half have been permanently altered by human activities (Madrone, 2008). It is also the least protected zone in BC with less than 10% of the region designated as a conserved or protected area.

To add to these pressures, cougars and wolves have nearly disappeared from the southern Gulf Islands. The near extirpation of apex predators in this area combined with the suppression of traditional management regimes of Indigenous peoples have contributed to the further degradation of Coastal Douglas-fir forest ecosystems.

The creation of Gulf Islands National Park Reserve occurred in part to conserve this highly vulnerable and highly valuable eco-zone. Likewise, Sidney Island landowners, through thoughtful community design, have preserved a large forested area of the island from development.

On Sidney Island, an exceptional opportunity exists to protect, restore, and maintain at-risk Coastal Douglas-fir forests. A key barrier is the large population of invasive fallow deer.

II. Invasive fallow deer are devastating at-risk ecosystems on Sidney Island

Throughout the world, significant scientific research shows that invasive and hyperabundant deer are a critical impediment to healthy forest ecosystems, impacting ecosystem function, plant richness, diversity, and cover (Wiegmann and Waller 2006; Perrin et al. 2011; Martin et al. 2011; Arcese et al. 2014). Deer also have a dramatic impact on other species dependent on forest ecosystems including invertebrates, small mammals, and songbirds (Moser and Witmer 2000; Stewart 2001; Miyashita et al. 2004; Holt et al. 2011; Martin et al. 2011; Chollet and Martin 2013). Results from Parks Canada's ecological integrity monitoring program in Gulf Islands National Park Reserve show significant impact from hyperabundant

deer to forest understory vegetation (Gonzales et al. 2014; Paleczny 2018) and forest-understory dependent songbirds.

On Sidney Island, invasive non-native fallow deer have been found to be particularly destructive, dramatically impacting forest ecosystem health in Gulf Islands National Park Reserve (Martin et al. 2011). Fallow deer have been present on Sidney Island since the early 20th century (Moody et al 1994; Pearse 2014) and their population has risen dramatically. These animals have now reached an unhealthy population size and their rampant feeding is reducing plant richness, diversity, and cover (Martin et al. 2011; Arcese et al. 2014; Paleczny 2018).

Research conducted in the region by Dr. Peter Arcese indicates that the cover, richness, and diversity of native shrubs was significantly lower in areas with abundant deer compared to areas with little or no deer (Arcese et al. 2014). Recent monitoring data indicates that shrub species richness and cover was lower for Sidney Island when compared to D'Arcy Island where black-tailed deer are hyperabundant, and Portland Island, which has no deer (Paleczny 2018). As a result of its fallow deer population, Sidney Island has the unfortunate distinction of being the least diverse island in the region (Martin et al. 2011).

Songbird communities are a common indicator to clearly show the levels of impact created by hyperabundant deer. This was demonstrated in a study examining the impact of introduced black-tailed deer on forest birds in Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site. On islands with a long history of deer browse (>50 years), forest songbird abundance was 55 – 70% lower than on deer-free islands, and for birds dependent on forest understory, songbird abundance dropped by 93% (Allombert et al. 2005a).

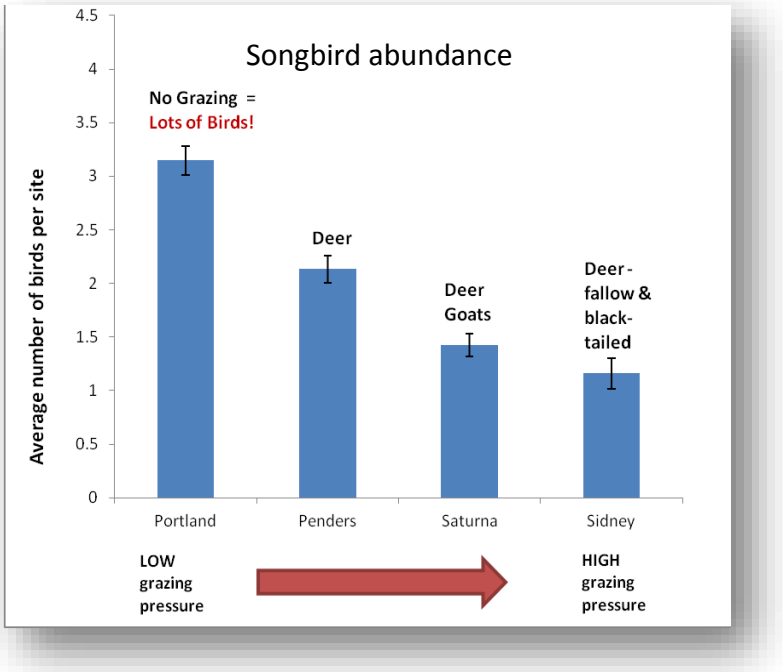


Figure 1: Songbird abundance in Gulf Islands National Park Reserve based on 2014 songbird monitoring research (Parks Canada)

Similar results are observed on Sidney Island. In a survey of 18 islands in the southern Gulf Islands and San Juan Islands, Sidney Island had both the highest density of deer as well as the least diverse songbird community out of all islands studied (Martin et al. 2011). Songbird monitoring studies conducted by Parks Canada indicate that Sidney Island has the lowest abundance of songbirds of island studies in the region (Lawn 2015).

Parks Canada's monitoring program found that the current population of invasive fallow deer on Sidney Island is at least 400% greater than a healthy ecosystem can support. Removing invasive fallow deer is critical to improving forest health on Sidney Island.

III. Efforts to control fallow deer have not been sufficient to allow for a functioning, healthy ecosystem

Management efforts to reduce fallow deer populations on Sidney Island have occurred for more than 35 years. Since 1981, more than 14,000 deer were removed from the island through efforts such as semi-professional, recreational, and First Nations hunts, as well as commercial culls and trapping.

While abundant fallow deer provide a unique hunting experience for some landowners, their presence comes at a steep cost. Invasive fallow deer numbers have never been effectively brought down to a healthy level, causing the island's forests to steadily decline. Despite intensive efforts, largely on the part of private landowners and with some assistance from the Province of BC and Parks Canada, deer populations on Sidney Island continue to deteriorate local ecosystems.

The challenges posed by fallow deer are not unique to Sidney Island. Fallow deer were introduced to Tasmania as a game species in 1836. The population and range of deer has expanded dramatically: an estimated 8,000 fallow deer ranged across 400,000 hectares in 1970. Current estimates place the population at more than 40,000 across 2.1 million hectares. Fallow deer numbers are predicted to exceed one million by 2050. Efforts to control the population through current recreational hunting and crop protection measures are not sufficient to curb the growing population.

Similarly, fallow deer were released into the state of Victoria in Australia in the 1860s. In the 1970s, there were only two small populations of fallow deer in the state, but now this has increased to more than 50 populations spread over 2.1 million hectares, with numbers estimated in the tens of thousands. Despite an active legal hunt which resulted in over 9,000 fallow deer being harvested in 2012-13, populations are only expected to increase (Moloney and Turnbull 2014).

Ongoing hunting is not sufficient to tackle Sidney Island's large and resilient fallow deer population. Eradication is needed to end this ongoing battle to protect the island's forest health.

IV. Eradication is a feasible option

Before embarking on this restoration project, Parks Canada examined other options and worked with experienced eradication practitioners to investigate whether eradication of fallow deer is a feasible and achievable option for Sidney Island.

The *Eradication of Fallow Deer Feasibility Study* identified that, while there are various logistical and technical challenges, eradication is a viable option. The study is available for Sidney Island landowners to consider.

A detailed and draft operational plan for eradication clearly outlining proposed methods, timing, and potential impacts will be developed throughout the spring, following discussions with landowners. The plan will be shared this summer to aid landowners in their decision making process.

Parks Canada examined other options for managing fallow deer and other mechanisms for eradication but these were ultimately ruled out. Some of these methods include:

- *Non-lethal deer control:* Fertility control methods such as immunocontraceptive vaccines or injections of hormones have been used, but are often invasive and can require repeated applications. Relocation is another non-lethal method but is very expensive and time consuming. It also requires sufficient alternative habitat with a welcoming jurisdiction for the animals. Physical and chemical deterrents are not proven to be effective over the long term.
- *Reintroducing predators* can often have a dramatic and long-lasting effect but is rarely a preferred option due to public safety concerns. Reintroducing fear-based impacts can be effective to some extent. For example, hazing by dogs has been effective in influencing use of space by elk, and predator playbacks have shown some success with deer in the southern Gulf Islands.

- *Recreational hunting* is often considered an effective and socially acceptable tool to control populations over a broad area. However, recreational hunting tends to be impractical for effective animal control, as often more than 50% of a population needs to be culled to maintain status quo. Deer quickly compensate for reduced population levels through breeding. Recreational hunters may also choose to target particular sexes or age categories, minimizing their impact on population size. Recreational hunting is often limited to more easily accessible areas, and animals can learn to avoid such areas over time and disperse to less targeted areas that may in fact be more environmentally sensitive.

The targeted eradication operation Parks Canada is proposing for Sidney Island would employ a broad range of methods such as aerial hunting, trapping, and bait station hunting. Such methods are known to be extremely quick and effective at reducing deer populations. For example, as part of a 2002 study on methods to control deer in the 9000 hectare Gum Lagoon Conservation Park in Australia, 65 recreational hunters shot 44 deer over four days. In contrast, a four-hour helicopter hunt in 2007 resulted in 182 deer shot.

Plans and Commitments

Parks Canada is proposing a multi-year project to restore the Coastal Douglas-fir ecosystems on Sidney Island, centred on three key initiatives. Below is a summary of those initiatives along with Parks Canada's commitments.

i. Removal of invasive fallow deer

Removing invasive fallow deer from Sidney Island would be an important first step in forest restoration. An eradication expert has been contracted to develop an eradication plan with input by landowners and First Nations. A team of professionals would lead any operation, likely over a period of four months during the fall or winter of 2019. A monitoring program would continue to track deer abundance, and a biosecurity plan would be put in place to detect any reinvasion of fallow deer from nearby islands such as James Island.

Parks Canada commits to:

- Produce a safe and effective eradication operation plan that reflects the values of landowners. Contractors will meet with landowners to produce a plan that would outline how eradication would take place. The plan would be presented to landowners in advance of any vote to further aid in decision-making.

- Pay for the eradication operation on both private and public lands, if eradication is supported. Parks Canada has secured approximately $1 million for the project. No funds will be sought from landowners. Successful removal of fallow deer would require a variety of techniques and could consider both the semi-urban environment of Sidney Island and the perspectives and rights of residents and First Nations (please see *Eradication of Fallow Deer Feasibility Study* for further detail).

- Ensure Sidney Island landowners have opportunities (through workshops, one-on-one conversations, and a dedicated website) to help shape an eradication operation so methods align with community values and interests.

- Conduct trials of all proposed eradication methods to determine best practices in advance of an eradication operation.

- Ensure eradication operation protects public safety at all times, minimizes inconvenience to landowners, and respects the rights of landowners.

- Ensure eradication techniques respect animal welfare.

- Coordinate processing of deer meat and cover costs. Sidney Island landowners can opt to keep a portion of the meat from the deer killed. The remainder will be provided to local Indigenous communities and potentially donated to local schools or community groups in need.

- Communicate regularly with Sidney Island landowners through the planning, implementation, and restoration phases of the eradication project. Sidney Island landowners would be updated on a daily basis while the eradication operation was underway.

- Implement a biosecurity plan to prevent reinvasion of fallow deer from neighbouring islands.

ii. Management of black-tailed deer

Parks Canada will work with Sidney Island landowners and the Province of BC to develop a management plan for black-tailed deer on Sidney Island. Populations of black-tailed deer will increase in the absence of fallow deer, so hunting opportunities will continue to exist for Sidney Island landowners. First Nations will continue to play a role in supporting Sidney Island's forest ecosystems through traditional deer harvesting on Parks Canada lands.

Parks Canada commits to:

- Continue to monitor black-tailed deer populations on park reserve lands and contribute funds, materials, and expertise to landowners to undertake deer monitoring on private lands over the life of the project.

- Develop a hyperabundant black-tailed deer management plan with Sidney Island landowners, Province of BC, and First Nations, with specific strategies to prevent black-tailed deer from becoming hyper-abundant on Sidney Island.

- Continue to support deer hunting on private and public lands, as appropriate, contributing funds, materials, and expertise to landowners.

iii. Forest restoration

Parks Canada will work with Sidney Island landowners and First Nations to develop a forest restoration management plan to support the recovery of Sidney Island's forest ecosystems after the eradication of fallow deer. Effective forest vegetation restoration will require control of key invasive plant species, such as English Hawthorn and scotch broom, in ecologically important areas.

The reintroduction of native plants in some areas may occur in order to boost natural regeneration. Culturally important native plants such as camas, chocolate lily, fawn lily, shooting star, and native grasses including California oatgrass, blue wildrye, and red fescue have all been successfully propagated and used in restoration projects throughout the Gulf and San Juan Islands.

If community members supported this approach, some areas could be fenced off to support restoration.

Parks Canada commits to:

- Develop a forest restoration plan with Sidney Island landowners, outlining plans and strategies to support restoration objectives of priority to landowners.

- Contribute funds, materials, and expertise to forest restoration on both private and public lands in a way that respects the needs, interests, and desires of landowners over the life of the project.

Conclusion:

Restoration of forest ecosystems on Sidney Island, beginning with the removal of invasive fallow deer, presents a unique opportunity to contribute to the conservation of a globally important and at-risk eco-zone. These efforts would act as a model for collaborative private-public restoration projects and would leave a lasting legacy for future generations of Canadians and landowners.

The proposal will only proceed with clear support from Sidney Island landowners. This will be determined through a community vote arranged by Sidney Island's Stata Council later this year.

Information documents available:

A Proposal for the Eradication of Fallow Deer Newsletter (2018)
Available now

Frequently Asked Questions (2018)
Available now

A Proposal for Restoring Healthy Forests on Sidney Island (2018)
Available now

An Eradication Operation Plan for Fallow Deer on Sidney Island
Summer 2018

A Black-tailed Deer Management Strategy for Sidney Island
Summer 2018

References Cited:

Allombert, S., Gaston, A. J., and Martin, J. L. 2005a. A natural experiment on the impact of overabundant deer on songbird populations. Biological Conservation 126(1): 1–13.

Arcese, P., R. Schuster, L. Campbell, A. Barber, and T.G. Martin. 2014. Deer density and plant palatability predict shrub cover, richness, diversity and aboriginal food value in a North American archipelago. Diversity and Distributions 20: 1368-1378.

Chollet, S., and J-L Martin. 2013. Declining woodland birds in North America: should we blame Bambi? Diversity and Distributions 19: 481-483.

Coastal Douglas-fir & Associated Ecosystems Conservation Partnership (CDFCP). 2018. Why is the CDFCP at risk? (http://www.cdfcp.ca/index.php/about/why-is-the-cdf-at-risk) (accessed February 2018).

Floberg, J., M. Goering, G. Wilhere, C. MacDonald, C. Chappell, C. Rumsey, Z. Ferdana, A. Holt, P. Skidmore, T. Horsman, E. Alverson, C. Tanner, M. Bryer, P. Iachetti, A. Harcombe, B. McDonald, T. Cook, M. Summers, D. Rolph. 2004. Willamette Valley-Puget Trough-Georgia Basin Ecoregional Assessment, Volume One: Report. Prepared by The Nature Conservancy with support from the Nature Conservancy of Canada, Washington Department of Fish and Wildlife, Washington Department of Natural Resources (Natural Heritage and Nearshore Habitat programs), Oregon State Natural Heritage Information Center and the British Columbia Conservation Data Centre

Gonzales, E.K., P.L. Lilley, and A. Boag. 2014. Vegetation monitoring for effectiveness of deer management activities on Sidney Island, Gulf Islands National Park Reserve: 2013 data analysis report. Report prepared for Parks Canada. Parks Canada, Gulf Islands National Park Reserve, Sidney British Columbia. 54pp.

Holt, C.A., R.J. Fuller, and P.M. Dolman. 2011. Breeding and post-breeding responses of woodland birds to modification of habitat structure by deer. Biological Conservation 144: 2151–2162.

Lawn, P. 2015. Songbirds condition monitoring, 2014 data. Parks Canada, Gulf Islands National Park Reserve, Sidney BC.

MacDougall, A.S., B.R. Beckwith, and C.Y. Maslovat. 2004. Defining conservation strategies with historical perspectives: a case study from a degraded oak grassland ecosystem. Conservation Biology. 18: 455-465

Madrone Environmental Services. 2008. Terrestrial ecosystem mapping of the Coastal Douglas-fir Biogeoclimatic zone. For Integrated Land Management Bureau. Madrone Environmental Services, Duncan BC.

Martin, T.G., P. Arcese, and N. Scheerder. 2011. Browsing down our natural heritage: deer impacts vegetation structure and songbird assemblages across an island archipelago. Biological Conservation 144: 459 – 469.

Miyashita, T., M. Takada, and A. Shimazaki. 2004. Indirect effects of herbivory by deer reduce abundance and species richness of web spiders. Ecoscience 11:74–79.

Moloney, P.D. and Turnbull, J.D. (2014). *Estimates of harvest for deer, duck and quail in Victoria: results from surveys of Victorian Game Licence holders in 2014*. Unpublished Client Report for the Game Management Authority. Arthur Rylah Institute for Environmental Research, Department of Environment and Primary Industries, Heidelberg, Victoria.

Moody, A., B. Burtin, and R. Moody. 1994. An investigation into the ecology of fallow deer of Sidney Spit Provincial Park. Occasional Paper No.1. BC Parks, Ministry of Environment, Lands and Parks. Victoria, BC.

Moser, B.W., and G.W. Witmer. 2000. The effects of elk and cattle foraging on the vegetation, birds, and small mammals of the Bridge Creek Wildlife Area, Oregon. International Biodeterioration and Biodegradation 45:151-157.

Paleczny, N. 2018. Forest Understory Health – Summary of Preliminary 2017 Data. Parks Canada, Gulf Islands National Park Reserve, Sidney BC.

Pearse, P. 2014. A Natural Selection: Building a Conservation Community on Sidney Island. Walhachin Press, Vancouver BC.

Perrin, P.M., F.J.G. Mitchell, D.L. Kelly. 2011. Long-term deer exclusion in yew-wood and oakwood habitats in southwest Ireland: Changes in ground flora and species diversity. Forest Ecology and Management. 262 (2011): 2328-2337.

Stewart, A.J.A. 2001. The impact of deer on lowland wood land invertebrates: a review of the evidence and priorities for future research. Forestry 74: 259 - 270.

Ward, P., G. Radcliffe, J. Kirkby, J. Illingworth, and C. Cadrin. 1998. Sensitive Ecosystems Inventory: East Vancouver Island and Gulf Islands 1993-1997. Volume 1: Methodology, Ecological Descriptions and Results. Technical Report Series No. 320. Canadian Wildlife Service, Pacific and Yukon Region, BC.

Wiegmann, S.M., and D.M. Waller. 2006. Fifty years of change in northern upland forest understories: Identity and traits of “winner” and “loser” plant species. Biological Conservation 129(1): 109-123.

Frequently Asked Questions

Parks Canada's proposal to eradicate fallow deer on Sidney Island to restore forest ecosystems

GENERAL QUESTIONS:

Q. Why is Parks Canada looking to eradicate fallow deer from Sidney Island?
A. Sidney Island contains a significant area of at-risk Coastal Douglas Fir ecoregion. These forests have outstanding species diversity but are under extreme pressure throughout the region due to urbanization and industrial activity. On Sidney Island, a major pressure is invasive fallow deer. Removing the fallow deer from Sidney Island is the single most effective step landowners and Parks Canada can towards improving the ecological health of the island, and restoring one of the most at risk ecosystems in Canada.

Q. How much will this cost landowners?
A. Parks Canada is proposing to cover the costs of the eradication effort on both Parks Canada and private lands. Parks Canada also has funding to support forest restoration activities on Parks Canada and private lands following the removal of fallow deer.

Q. What will Parks Canada do if Sidney Island landowners do not support eradication?
A. If Sidney Island landowners do not support the removal of fallow deer from their property, Parks Canada will respect the decision and limit its scope to focus on removal efforts on Parks Canada lands only.

Q. Are fallow deer a problem on other neighbouring islands?
Fallow deer were also introduced on Mayne Island, where they currently pose a similar threat to the forest ecosystem. Parks Canada plans to organize a tour of neighbouring islands so landowners can compare and contrast local island environments experiencing different levels of deer impacts.

Q. Can't we just continue to manage fallow deer through hunting?
A. Since 1981, a variety of methods have been used to reduce the fallow deer population on Sidney Island, including guided hunting, limited entry hunts, ongoing recreational hunts, capturing, and large-scale commercial cull operations. Over 14,000 deer have been removed from the island over the last 36 years. And yet, Sidney Island continues to have some of the lowest species diversity in the region and a high fallow deer population. And if at any time momentum for fallow deer management declined, all past efforts would be undone. Eradication is a feasible, cost-free option for Sidney landowners to consider.

ERADICATION OPERATION

Q. How would eradication of fallow deer on Sidney Island work?
A. Eradication would likely involve ground and aerial hunting, with follow-up monitoring to ensure no fallow deer remain. Ground hunting techniques could involve various strategies such as bait stations, stands, dog tracking teams, and live traps. Aerial hunting is done by experienced pilots and highly trained marksmen. Other methods could also be considered to target remaining deer such as shoreline hunting from boats, and tracking deer through the use of radio collars.

Q. How would Parks Canada ensure eradication methods work on Sidney Island?
A. Parks Canada is committed to conducting trials of all proposed eradication methods to determine best practices in advance of an eradication operation.

Q. Who would play a role in eradicating deer from Sidney Island?
A. Eradication requires a strategic approach undertaken by a relatively small highly-trained and experienced team. A ground hunting team is typically composed of three highly-skilled and experienced hunters while the aerial hunting team includes a marksmen, experienced pilot, and support crew for the helicopter. Additional staff oversee management operations and assist with logistics. Other experts such as veterinarians or meat processors are brought in as needed.

Q. How long would eradication take?
A. Active eradication would likely unfold over four subsequent months in the late fall or winter, much like current hunting periods on Sidney Island.

Q. When would eradication start?
A. If supported, eradication would likely start in the winter of 2019-20.

Q. What about other methods of eradication?
A. Hunting by commercial or recreational hunters can reduce a deer population, but these methods do not tend to result in full eradication, take much longer and can actually cost more over time.

Q. What would happen to the deer meat and carcasses if eradication took place?
A. Parks Canada is willing to fund and arrange to have the meat processed for landowners, local First Nations, schools, and community groups in need. Deer pelts and antlers could also be shared with First Nations to use for cultural purposes such as traditional regalia and drums.

Q. How would eradication operation affect landowners?
A. Landowners would be fully informed well in advance of any operation, and would be given daily updates on the eradication operation once underway. Residents would not be required to leave the island, but there would be temporary disturbance from:

- Firearm discharges – noise
- Helicopter activity – noise
- Human presence both on and off trails
- Use of vehicles and ATVs on island roads and trails
- Vessels around the island and use of dock and ramp facilities

EFFORTS FOLLOWING ERADICATION:

Q. Will black-tailed deer be targeted during an eradication effort?
A. No. If an eradication effort proceeds, the work would be conducted by experts who would target fallow deer in particular.

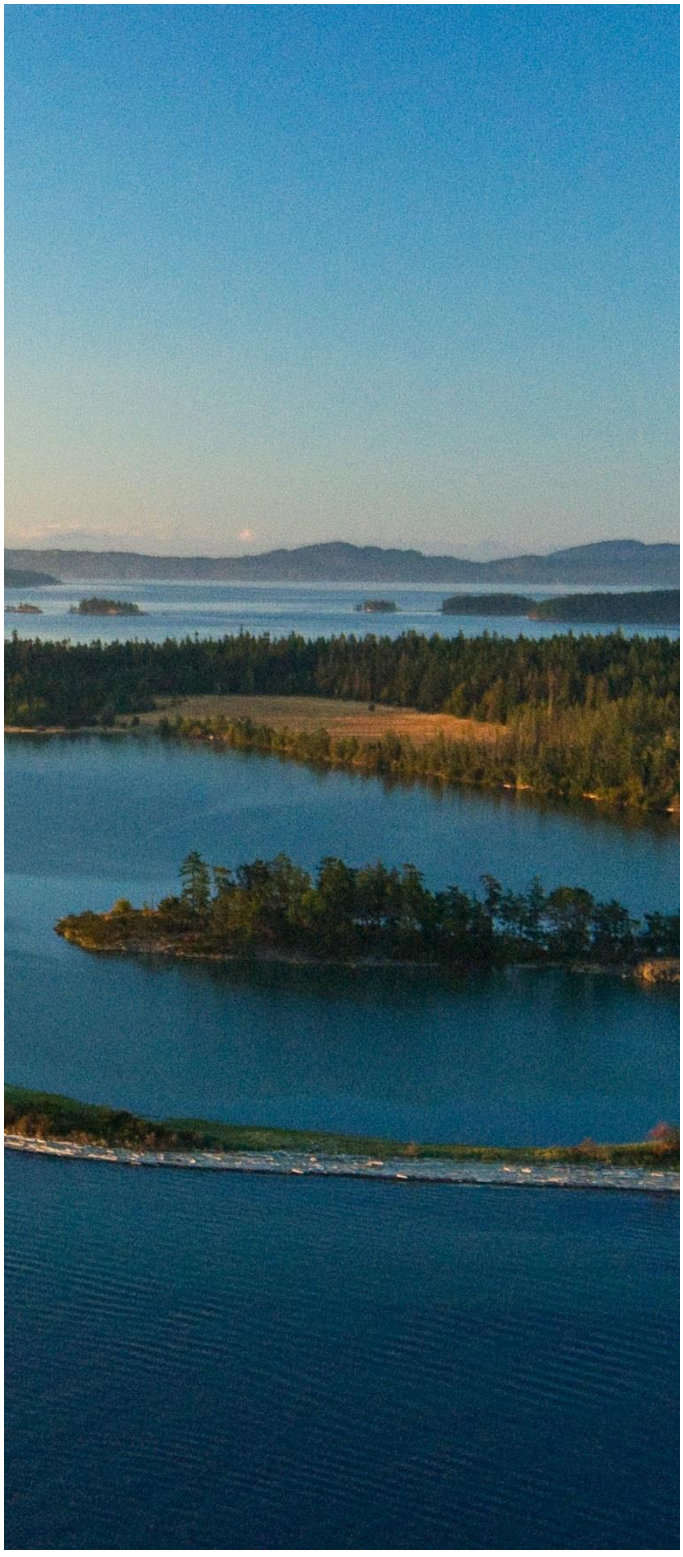
Q. If fallow deer were eradicated, would black-tailed deer cause the same problems?
A. While black-tailed deer do not tend reach the same density as invasive fallow deer, black-tailed deer can still become hyper-abundant causing negative impacts on native plants and other wildlife. Parks Canada would work with landowners, researchers, the Province of BC, and others to develop a black-tailed deer management plan, including ongoing monitoring to ensure that black-tailed deer populations remain at healthy numbers. Hunting of black-tailed deer would continue on Sidney Island.

Q. What plans does Parks Canada have to restore the island following fallow deer eradication?
A. Eradication of the fallow deer is the first step in a broader forest recovery program that would help make Sidney Island one of the healthiest stretches of at-risk Coastal Douglas Fir ecosystem in Canada. Following fallow deer removal, Parks Canada would contribute funds, materials, and expertise to forest restoration on both private and public lands in a way that respects the needs, interests, and desires of landowners. Restoration would likely involve management of invasive species such as English Hawthorn and scotch broom in ecologically important areas. The reintroduction of native plants in some areas may also be required. Culturally important native plants such as camas, chocolate lily, fawn lily, shooting star, and native grasses including California oatgrass, blue wildrye, and red fescue have all been successfully propagated and used in restoration projects throughout the Gulf and San Juan Islands.

In anticipation of these issues, Parks Canada is developing a forest restoration management plan to manage changes to invasive species, reintroduce native species and a biosecurity plan to address potential reinvasion of fallow deer from neighbouring areas, as well as a black-tailed deer.

Gulf Islands
National Park Reserve

A Proposal for the Eradication of Fallow Deer from Sidney Island



Forests on Sidney Island are at risk due to excessive feeding from fallow deer, which were introduced to the island many years ago. Parks Canada is currently proposing to safely and humanely eradicate fallow deer from Sidney Island. Parks Canada believes this is the single most effective step we can take to improve the island's ecological health.

Eradication will not happen without support from Sidney Island landowners and local First Nations. Parks Canada is committed to engaging with landowners to provide information about the proposal and develop a project collaboratively that reflects the values and perspectives of all involved.

What's inside?

Impact of fallow deer on Sidney Island

At first glance, the forest of Sidney Island is a beautiful place – Douglas-fir, arbutus, and cedar trees reach up to the sky while resident deer travel through the open forest floor.

But the island's understory, where a variety of plants usually cover the forest floor, is barren – a tell-tale sign of an ecosystem with a bleak future. The seedlings for the next generation of trees like arbutus, Garry oak, bigleaf maple, aspen, and alder are missing. There is a stark absence of young ocean spray plants and wildflowers that bring diversity and beauty to the island. Typical shrub species, such as Saskatoon berry and huckleberry, are disappearing. Many of the songbirds, particularly those that nest in the forest understory, are also absent.

What is causing these plants and animals to disappear? Fallow deer.

Fallow deer are not native to Sidney Island and are considered an invasive species. These animals have reached very high numbers and are decimating understory plants through excessive feeding on both low-lying plants and woody bushes and saplings – a kind of feeding behavior known as browsing. This impacts native birds and endangered plants that are key components of the local ecosystem. Even small mammals, reptiles, and insects are affected by fallow deer as the plants, shrubs, and soil they inhabit are eaten and trampled by the deer.

With these widespread impacts, fallow deer continue to undermine the community's outstanding efforts at conservation. The island is home to some of the most at-risk ecosystems in Canada, including Garry oak ecosystems, but excessive feeding by fallow deer has made Sidney Island one of the least diverse islands in the region.

Did you know? *In a comparison to 18 other Gulf Islands and San Juan Islands, University of British Columbia researchers Dr. Tara Martin and Dr. Peter Arcese found Sidney Island to have the lowest cover of understory vegetation and lowest abundance of songbirds that rely on this understory for foraging and nesting.*

Figure 1: Camas and mixed-herbaceous site with deer.

Figure 2: Camas and mixed-herbaceous site with no deer. Photos: T. Martin

A look at decades of fallow deer culls

Fallow deer were introduced to Sidney Island in the early 20th Century for sport hunting. While this introduction was well-intentioned, the population of fallow deer increased dramatically in the 1970s. A decade later, researchers estimated that the island had one of the densest populations of fallow deer in the world.

With the forest understory rapidly disappearing, Sidney Island residents began organizing fallow deer hunts and working with others to address the problem.

Since then more than 14,000 deer have been removed from the island through guided hunting, limited entry hunts, trapping, and large-scale cull operations. This significant accomplishment has been achieved largely through the tremendous effort and investment of Sidney Island landowners, with some support from both the provincial and federal governments.

But decades later, the problem still persists. While gains have been made – we are just beginning to see the odd wildflower return, such as camas– the fallow deer population remains extremely high. In fact, Parks Canada's monitoring program has found that the current population of fallow deer on Sidney Island is at least 400% greater than a healthy ecosystem can support.

Ongoing investments in fallow deer management have not enabled the forest to fully recover. Ongoing culls and hunts are unlikely to result in full restoration of healthy forests or be feasible both financially and in terms of sustained effort.

Did you know? *Fallow deer originated from the Duke of Devonshire's estate in England. They have been introduced to more than 20 countries around the world and are decimating a variety of ecosystems. Several of these countries, including Great Britain, are now developing or already implementing strategies to manage fallow deer and their impacts on forest health. In Australia, the federal government has identified fallow deer as an extreme threat due to their impact on plants, animals, and farmland.*

Figure 3: Fallow deer on Sidney Island.

Eradication as an effective last resort

Eradication of an invasive species is always a difficult decision for Parks Canada. But when an introduced species dramatically impacts the survival of native plants and animals, a decision must be made to either control the invasive species or allow the overall ecosystem to degrade.

Our research, coupled with extensive culling efforts, has led Parks Canada to conclude that until the fallow deer population has been removed, the restoration of Sidney Island's devastated forests is not realistic.

Eradication, funded by Parks Canada, is an opportunity to truly restore the island's native forests and songbirds. Here are some of the key reasons why.

Effective

Globally, eradication is a proven technique. Nearly 300 successful ungulate eradication projects have occurred on islands throughout the world. In contrast to fallow deer culls, which have to take place on Sidney Island each year to reduce population size, an eradication operation could completely remove all fallow deer in a matter of months.

Affordable

Eradication requires a significant upfront cost. Parks Canada is prepared to fund this initiative, making this a very affordable option for Sidney Island residents. Costs to restore the island post-eradication would be quite minor and involve funding support from Parks Canada.

Parks Canada expects to invest approximately $1 million to eradicate fallow deer on Sidney Island due to the complexities involved in undertaking a safe, efficient, and effective operation.

In contrast, fallow deer culls and hunts that have been organized for years on Sidney Island require an indefinite investment. While these costs are low, as they accumulate, they eventually surpass the cost of eradication. If at any point Sidney Island landowners were no longer able to invest in fallow deer management, population numbers would climb again, undermining decades of work.

Sustainable

If fallow deer were eradicated from Sidney Island, Parks Canada would begin a long-term restoration plan with strategies to control invasive plants, support the growth of native plants, and ensure black-tailed deer population numbers remain at healthy levels. We've outlined these plans in more detail on Page 10 'Working together after eradication'.

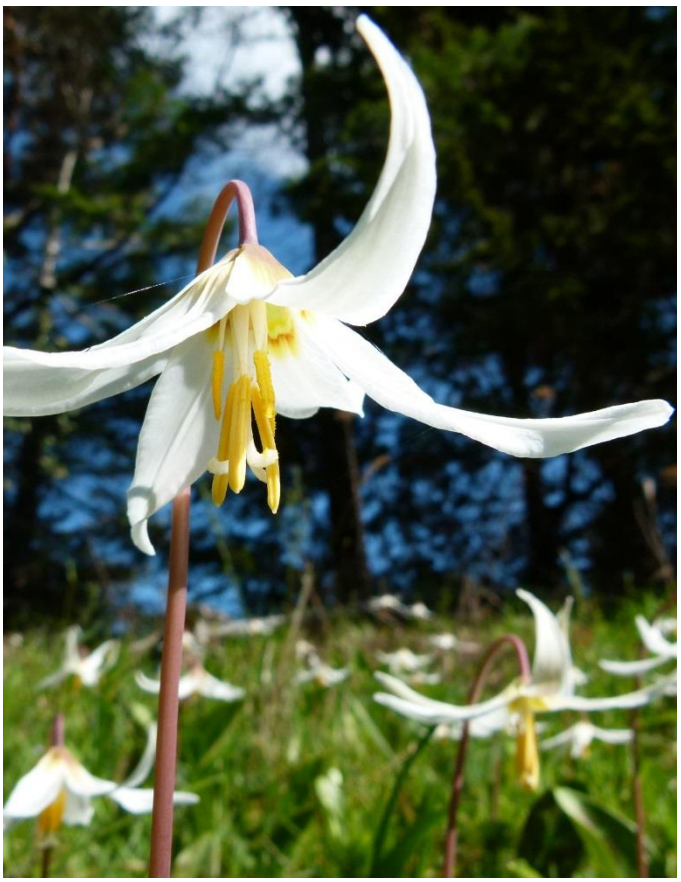


Figure 4: Field of fawn lilies on Eagle Islet in Sidney Lagoon. Photo: Pippi Lawn

Did you know? *In 2008, the US Park Service estimated that controlling invasive deer populations at Point Reyes Nations Seashore in California – a population similar in size to that of fallow deer on Sidney Island – would cost $13 million over a 55 year period. The US Park Service opted for eradication instead. After successfully removing the invasive deer, the park service is now working on restoring populations of native animals such as Tule Elk, whose numbers declined during the rise of the invasive deer.*

When is eradication ethical?

One resource that Parks Canada refers to for guidance on culling or eradicating a species is a framework on ethical wildlife control developed by an international panel of experts. Below is a breakdown of how the seven principles outlined by the panel apply to the possible eradication of Sidney Island's fallow deer. Check out 'Further reading' on page 10 for an in-depth look at the panel's recommendations.

Principle 1: Consider whether the problem can be solved by changing human practices.
Public education efforts by both Parks Canada and Sidney Island's Strata Council have reduced conflict between people and deer by outlining behaviours to avoid such as feeding or approaching deer. While conflict can be minimized, no change in human behaviour can effectively solve the problem of fallow deer overbrowsing.

Principle 2: Consider whether the harm caused by the animal justifies removing or eradicating the species.
Substantial evidence gathered by Parks Canada and other researchers have confirmed the severe impact that fallow deer have on the health of Sidney Island's forest ecosystem, which now has some of the lowest levels of plant and bird biodiversity in the region.

Principle 3: Determine whether eradication is a clear and achievable goal.
Parks Canada conducted a feasibility assessment that confirmed eradication of fallow deer from Sidney Island is possible, factoring in animal behaviour, island geography, and preferred methods. We are currently working with contractors to develop an eradication operation plan. Eradication methods would be tested in advance to ensure effectiveness. Parks Canada is prepared to cover the full costs of the operation.

Principle 4: Ensure the proposed eradication methods minimize suffering.
Animal welfare is important to Parks Canada. Any plan to eradicate fallow deer from Sidney Island would ensure the humane treatment of wildlife. Eradication techniques would need to meet requirements from Parks Canada's Animal Care Committee, which involve reducing animal stress and suffering, while also avoiding non-target animals. Parks Canada would also work with the Society for the Prevention of Cruelty to Animals to review eradication plans and ensure high animal welfare standards.

Principle 5: Consider community values on eradication.
Parks Canada's proposal to eradicate fallow deer from Sidney Island will not proceed without support from local First Nations and Sidney Island landowners. If there is support, Parks Canada will continue to reach out to all involved throughout the eradication process to ensure other's values are respected.

Principle 6: Consider how eradication fits into long-term area management.
Eradication planning is a continuation of the significant work already undertaken on the island by private residents, the Province of BC, and Parks Canada to reduce the population of invasive fallow deer on Sidney Island. It also supports extensive research on the island confirming a link between fallow deer and a deteriorating forest ecosystem.

Eradication would serve as a crucial step forward in a long-term forest restoration project. Following the removal of fallow deer from Sidney Island, Parks Canada would develop strategies to control invasive plants, support the growth of native plants, and ensure black-tailed deer population numbers remain at healthy levels. Find out more on page 10 'Working together after eradication'.

Principle 7: Check that labels aren't influencing management decisions.
If fallow deer weren't an invasive species introduced for sport, would Parks Canada take steps to control their population numbers? Yes. Parks Canada is not considering the eradication of fallow deer simply because they are an introduced species – their habits and numbers differ greatly from black-trailed deer.

Fallow deer are able to reach higher densities than the solitary black-tailed deer. Since fallow deer eat both grasses and shrubs, they remove much more of a forest's understorey than black-tailed deer. Fallow deer have also proven that they are able to bounce back from any culling effort. It is for these key reasons that Parks Canada has determined that fallow deer eradication provides the best opportunity for the forest ecosystems on Sidney Island to thrive.

How eradication operations work

Eradication means the complete removal of all fallow deer from Sidney Island. Parks Canada conducted an initial feasibility study on this proposal and determined that the most appropriate techniques for eradication would involve ground and aerial hunting, with follow-up monitoring to ensure no fallow deer remain. These techniques have proven to be quick and effective in over 250 other ungulate eradication operations worldwide.

Of course, Sidney Island is a unique environment and fallow deer have distinct behavioural patterns. An eradication operation would consider these factors, and also be shaped by the values and input of Sidney Island landowners and First Nations, who have an important voice in the management of Parks Canada's lands. Those with experience hunting could also make important contributions to the operation plan as regional knowledge of the landscape and fallow deer would be invaluable.

Below is an outline of the three phases of eradication most commonly relied upon to remove a deer species from an island.

Phase 1: Ground hunting and trapping are first used to reduce a significant portion of the invasive deer population. Ground hunting involves various strategies (e.g. bait stations, stands, spotlights) employed by skilled professionals. In some cases, specially trained dogs are used to detect and track deer, which are then dispatched by hunters. Drop nets or live traps are used to capture small groups of deer which are then killed.

Phase 2: Once invasive deer populations are reduced, aerial hunting is added to the ground hunting and trapping techniques. Aerial hunting is done by experienced pilots and professional sharpshooter and has proven to be an extremely efficient and effective way of removing deer from islands, even in heavily treed environments such as Haida Gwaii.

Other methods can also be considered for Phase 2 to target invasive deer that are more difficult to find. Boats can be used for shoreline hunting. Select deer can also be trapped, sterilized and outfitted with a radio collar to be released back onto the island. Since some species such as fallow deer tend to herd, tracking a deer with a radio-collar can help lead hunters to remaining deer.

Phase 3: Once eradication is complete, follow-up monitoring is done at regular intervals for at least a year to confirm that all animals have been removed.

Eradication Phase 1: *Targeting large herds of fallow deer*	• **Team: Small group of hunters + support staff** • **Activities: installing and pre-baiting of traps, trapping, and ground hunting**
Eradication Phase 2: *Targeting small groups and individuals*	• **Team: Small group of ground hunters, helicopter pilot, aerial hunter + support staff** • **Activities: aerial hunting, trapping and ground hunting**
Eradication Phase 3: *Efficacy monitoring*	• **Timing: Three visits at 3, 6, and 12 months post-eradication** • **Team: Small group of ground hunters, helicopter pilot, aerial hunter + support staff** • **Activities: ground hunting if any animals found**

Frequently Asked Questions

Q. Who would play a role in eradicating deer from Sidney Island?
A. Eradication requires a strategic approach undertaken by a relatively small highly-trained and experienced team. The ground hunting team is typically composed of three highly-skilled and experienced hunters while the aerial hunting team includes an expert sharpshooters, an experienced pilot, and support crew for the helicopter. Additional staff oversee management operations and assist with logistics. Other experts such as veterinarians are brought in as needed.

Q. How long would eradication take?
A. Significant effort goes into planning an eradication operation to ensure safety and success. If we receive support from Sidney Island landowners and First Nations, it would likely take at least a year to finalize an operation plan for eradication and run trials on possible eradication methods. Active eradication would likely unfold in the late fall or winter, much like current hunting periods on Sidney Island. In the year following eradication, multiple surveys would be conducted to confirm the removal of all deer.

Q. When would eradication start?
A. If supported, eradication could start as early as the winter of 2019-20. Prior to the eradication operation, we would be testing out proposed methods, undertaking accurate deer counts, monitoring ecosystem conditions, and planning for a safe, efficient, and effective operation. We would also be continuing to meet and consult with landowners and First Nations over this time.

Q. How would eradication operation affect landowners?
A. Public safety is a top priority for Parks Canada. Any eradication measures would be designed to minimize risk and inconvenience to local landowners and visitors. During an eradication operation, there would be temporary disturbance from:

- Firearm discharges – noise
- Helicopter activity – noise
- Human presence both on and off trails
- Use of vehicles and ATVs on island roads and trails
- Vessels around the island and use of dock and ramp facilities

People would not be required to leave the island, and hunting operations could be adjusted to accommodate the needs of landowners as much as possible. During eradication operations, certain portions of the island could be temporarily closed to facilitate safe hunting. Operation managers would communicate regularly with landowners to inform them of daily hunting plans.

Q. What about other methods of eradication?
A. Hunting by commercial or recreational hunters is often identified as an effective and less costly way of eradicating a species. While such hunting can reduce a deer population, these methods do not tend to result in full eradication and can actually cost more over time. As deer density decreases, the cost and time involved in removing remaining deer increases. In the end, prolonged hunting actually results in more animal deaths than an eradication operation, since deer continue to breed while targeted hunts take place year after year. This fact is already apparent on Sidney Island where an eradication effort would likely involve the destruction of fewer than 1,000 deer, while ongoing hunting and culls have killed approximately 14,000 deer to date.

Q. What would happen to the deer meat and carcasses if eradication took place?
A. If eradication took place on Sidney Island, part of the pre-planning would involve speaking with local First Nations and Sidney Islands landowners about ways to maximize use of the culled deer. Parks Canada could fund and arrange to have the meat processed for landowners, local First Nations, schools, and community groups in need. Deer pelts and antlers could also be shared with First Nations to use for cultural purposes such as drum-making.

Thoughtfully distributed deer meat and carcasses have already made a difference to communities surrounding Gwaii Haanas National Park Reserve, National Marine Conservation Reserve and Haida Heritage Site. Parks Canada is currently undertaking a deer eradication project for invasive Sitka deer in that area to allow the forest understory to recover. As part of this project, deer meat is successfully being distributed to both Indigenous and non-Indigenous community members, schools, and food banks.

Fall 2018 - Fall 2019 Approx. 1 year	Oct 2019 - Feb 2020 Approx.16 weeks	Feb 2020 - onwards Annually
Eradication planning	Phase 1 Ground hunting and trapping	Phase 3 Monitoring at 3, 6, 12 months post-eradication
Fallow deer population census	Phase 2 Ground hunting, aerial hunting, and trapping	Annual monitoring
Permits and orders	Meat distribution	Forest Rrvegetation
Testing of techniques		Black-tailed deer monitoring and management

Table: Possible timeline for eradication if proposal moves forward. These timelines are based on the best case scenario: all methods work effectively and all properties are accessible. Trials would be conducted on any eradication method in advance of the operation to evaluate effectiveness.

Figure 5: Exclosure on Sidney Island. Between 1989 and 2004, vegetation cover inside the exclosure increased from 50% to 100%, while cover outside the exclosure decreased from 50% to less than 40%.

Did you know? *On Kangaroo Island in Australia, targeted hunting, rather than an eradication operation, has been used as a method to remove feral deer from the island. Between 2006 and 2013, 225 deer were shot, yet the time taken to destroy a deer rose from 40 hours per deer in 2007 to 160 hours per deer in 2013. Deer continue to impact the island ecosystem, and the effort has cost more than $1.2M to date.*

Working together after eradication

Ecosystems have a tremendous ability to recover. If fallow deer were eradicated from Sidney Island, Parks Canada would work in collaboration with Sidney Island landowners to successfully restore the island and manage potential risks. We would also work closely with First Nations on the management of Parks Canada's lands.

Here are a few of the key steps we would take following eradication.

Support growth of native plants

- Parks Canada would support the regrowth of native species – many of which have cultural significance – by developing a long-term vegetation management plan for the whole of Sidney Island in collaboration with local landowners and First Nations. Active restoration work would happen for at least three years following eradication. Plants such as camas, chocolate lily, fawn lily, shooting star, and native grasses including California oatgrass, blue wildrye, and red fescue have all been successfully propagated and used in restoration projects throughout the Gulf Islands and San Juan Islands. Parks Canada's species-at-risk nursery in Colwood would play an important role in the success of these projects.

Remove invasive plants

- After eradication, invasive plant species such as Scotch broom and English hawthorn could pose a problem by competing with sensitive native plant populations. Parks Canada would draw on its expertise, resources, and extensive volunteer base to help manage invasive plant species both on private and Parks Canada lands. This could involve volunteer events such as annual Scotch broom pulls, which Parks Canada already organizes on Sidney Spit and across Gulf Islands National Park Reserve. It would also involve targeted activities undertaken by staff and regional experts.

Monitor and manage black-tailed deer

- Although native black-tailed deer populations do not reach the same densities as herding fallow deer, black-tailed deer can still become hyper-abundant causing negative impacts on native plants and other wildlife. Parks Canada would work with landowners, researchers, the Province of BC, and others to develop a black-tailed deer management plan, including ongoing monitoring to ensure that black-tailed deer populations remain at healthy numbers.
- The eradication of fallow deer on Sidney Island would not spell the end of hunting, as hunting would likely play an integral role in keeping black-tailed deer numbers at a healthy level.
- Those who enjoy deer sightings would continue to see black-tailed deer on the island.

Monitor forest health

- Parks Canada would monitor forest health each year and report our findings to Sidney Island landowners and local First Nations. As part of our monitoring work, we would also watch for any potential re-invasion of fallow deer from a neighbouring island, which would be removed.

FURTHER READING

Below are a number of studies that explore the ecosystem impacts from overpopulation of deer. These have been helpful resources for Parks Canada and can be shared with any interested members of the public. The studies marked in bold involve research on Sidney Island. The rest are in alphabetical order.

The journal article noted on page 6, that explores ethical eradication, can be found here:
Dubois, S., et al. 2017. International consensus principles for ethical wildlife control. Conservation Biology 31(4): 753-760.
http://onlinelibrary.wiley.com/doi/10.1111/cobi.12896/full

Arcese, P., R. Schuster, L. Campbell, A. Barber, and T.G. Martin. 2014. Deer density and plant palatability predict shrub cover, richness, diversity and aboriginal food value in a North American archipelago. Diversity and Distributions 20: 1368-1378. https://taramartin.org/publications/

Coastal Conservation. 2012. Sidney Island restoration and conservation initiative: eradication of fallow deer feasibility study. Parks Canada, Gulf Islands National Park Reserve, Sidney BC. 92pp.

Martin, T.G., P. Arcese, and N. Scheerder. 2011. Browsing down our natural heritage: deer impacts vegetation structure and songbird assemblages across an island archipelago. Biological Conservation 144: 459 – 469. https://taramartin.org/publications/

Chollet, S., and J-L Martin. 2013. Declining woodland birds in North America: should we blame Bambi? Diversity and Distributions 19: 481-483.

Chollet, S., C. Bergmann, A.J. Gaston, and J-L Martin. 2014. Long-term consequences of invasive deer on songbird communities: going from bad to worse? Biological invasions. 16pp.

Côté, S.D., T.P. Rooney, J-P. Tremblay, C. Dussault, and D.M. Waller. 2004. Ecological impacts of deer overabundance. Annual Review of Ecology, Evolution, and Systematics. 35: 113-147.

DeNicola, A.J., K.C. VerCauteren, P.D. Curtis, and S.E. Hygnstrom. 2000. Managing white-tailed deer in suburban environments: a technical guide. Cornell Cooperative Extension, Wildlife Society. Ithaca, New York.

Gonzales, E.K., and P. Arcese. 2008. Herbivory more limiting than competition on early and established native plants in an invaded meadow. Ecology 89(12): 3282 – 3289.

Holt, C.A., R.J. Fuller, and P.M. Dolman. 2011. Breeding and post-breeding responses of woodland birds to modification of habitat structure by deer. Biological Conservation 144: 2151–2162.

Husheer, S.W., and C.M. Frampton. 2005. Fallow deer impacts on Wakatipu beech forest. New Zealand Journal of Ecology 29(1): 83-94.

Pellatt, M.G., Z. Gedalof. 2014. Environmental change in Garry Oak (Quercus garryana) ecosystems: the evolution of an eco-cultural landscape. Biodiversity Conservation 23: 2053 – 2067.
https://taramartin.org/publications/

Stewart, A.J.A. 2001. The impact of deer on lowland wood land invertebrates: a review of the evidence and priorities for future research. Forestry 74: 259 - 270.

Suraci, J.P., M. Clinchy, L.Y. Zanette., C.M.A. Currie, and L.M. Dill. 2015. Mammalian mesopredators on islands directly impact both terrestrial and marine communities. Oceologica. 14pp.

Turner, N.J. 1988. “The importance of a rose”: evaluating the cultural significance of plants in Thompson and Lillooet Interior Salish. American Anthropologist 90(2): 272 – 290.

Wright, D.M., A.J. Tanentzap, O. Flores, S.W. Husheer, R.P. Duncan, S.K. Wiser, and D.A. Coomes. 2012. Impacts of culling and exclusion of browsers on vegetation recovery across New Zealand forests. Biological Conservation 153: 64 – 71.

Parks Canada is seeking input:

Parks Canada is seeking the support and input of Sidney Island landowners and local First Nations as we explore fallow deer eradication. We would like to hear your thoughts and discuss eradication options with you in the months ahead through in-person meetings and presentations, as well as written updates. We will continue to let you know about upcoming opportunities to learn more about the project. To contact us, please call 250-654-4000 or write us at gulf.islands@pc.gc.ca

REQUEST FOR DECISION

To:	**Trust Fund Board**	**For the Meeting of:**	May 29, 2018
From:	**Nuala Murphy**	**Date Prepared:**	May 16, 2018

SUBJECT: Medicine Beach Nature Sanctuary Management Plan, North Pender Island

---

RECOMMENDATION:
That the Trust Fund Board approve the 2018 Medicine Beach Nature Sanctuary Management Plan, dated May 16, 2018.

---

1 **PURPOSE:** To approve an updated management plan for Medicine Beach Nature Sanctuary on North Pender Island.

2 BACKGROUND:
Islands Trust Fund policy (TFB 2.3) indicates that "The Board will prepare and approve a management plan for each property it acquires as a Nature Reserve. The Board will approve a management plan for its properties within one year of acquisition, and will update each management plan approximately every 10 years". Islands Trust Fund management plans:

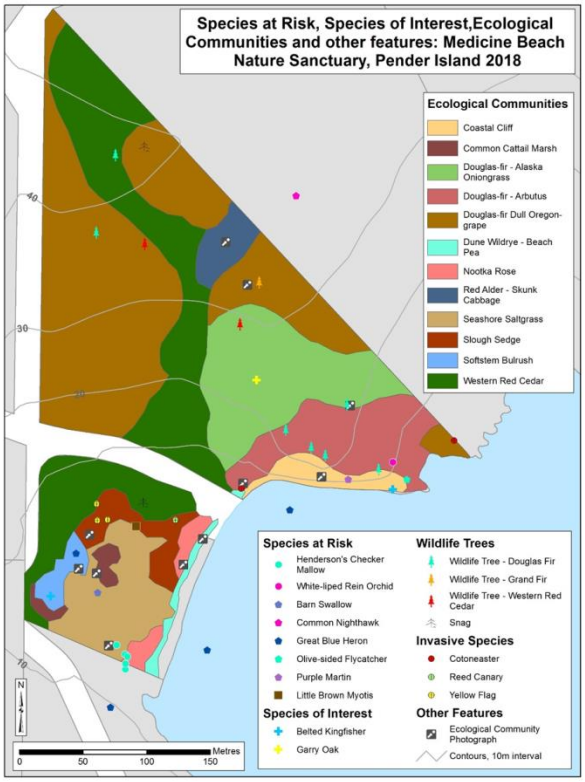
- Provide general and descriptive information on the property, including location, history, and land use;
- Set out the conservation goals and objectives for the property;
- Identify the property's ecological and/or cultural values and features;
- Describe the management issues associated with the property; and
- Provide short and long-term management recommendations (action items or tasks) on issues such as: invasive species management; species at risk protection; public access and safety; educational and research opportunities; and
- Signage needs

The Medicine Beach Nature Sanctuary, known as E,HO, to the W̱SÁNEĆ First Nations, is 8.44 ha (20.12 acres) in size and includes a 2 ha (5 acre) brackish marsh which is extremely rare on the Gulf Islands. Located at the head of Bedwell Harbour, the property includes 201 metres of beach front with spectacular views. The ocean frontage north of the Schooner Road is a bluff 23 m high and 76 m long whereas the ocean frontage south of the road is a low bank berm 115 m long that separates the marsh from the ocean. The remainder of the lot includes maturing Douglas-fir and Arbutus and Western Redcedar trees. The beach front is one of the largest undeveloped beaches remaining on North Pender Island and has been used for thousands of years by First Nations and for many years by residents and visitors for recreational purposes.

The Islands Trust Fund (ITF) has managed the protected area since 1995. The original management plan was completed in 1997, with a revision in 2006, making this the second revision of the management plan. ITF will continue to take into consideration new findings in species and management techniques over the course of the lifetime of the plan. Pender Islands Conservancy Association is a key management partner and a conservation covenant, registered on the property in 2000, is held by the Nature Conservancy of Canada and Habitat Acquisition Trust, adding an

extra layer of protection. The 2018 Management Plan was completed by Carrina Maslovat, RPBio and has been provided to all three partners for their input and initial approval.

The Medicine Beach Nature Sanctuary contains several species and ecosystems at risk.



See sections 3.10 and 3.11 of the management plan for additional details.

The ITF objectives of the management of the Sanctuary are:

- Preserve the Medicine Beach marsh and adjacent forested areas as an undisturbed natural area and wildlife sanctuary;
- Protect the distinct ecological communities and the species at risk that depend on them;
- Protect the archaeologically and culturally significant feature of the berm/midden;
- Protect and, where necessary and feasible, restore the plant and animal communities and ecological processes at the site;
- Provide low impact public access in areas where such uses are compatible with protection of ecological and archeological values;
- Support ongoing inventory, mapping and monitoring to guide management provided it does not interfere with Species at Risk protection; and,
- Allow the natural ecological processes and functions to proceed unimpeded without human intervention, except in the case of wildfire or other exceptional situations where remediation is considered imperative.

The plan identifies the following action items:

Immediate Action Items (1-2 years)

- Designate a volunteer warden who visits the site regularly to work with PICA or may be a member of PICA, to monitor the property and identify management concerns such as trespassing, tree cutting, camping, beach fires, dogs in marsh and other issues. The warden would have the appropriate contact numbers and criteria for alerting RCMP, Report all Poachers and Polluters (RAPP), Conservation Officer contacts, etc.

- Continue to keep adjacent landowners informed on the importance of the area and be aware if a local stream monitoring group develops on the Penders or other potential partner groups to help implement water quality monitoring (especially flows at culverts on Wallace Road and Canal Way) and to educate about the sensitivity of shoreline habitats and the impacts from pollution.
- Send a letter and a copy of the Management Plan to the North Pender Local Trust Committee to state the importance of good land use planning for the upstream areas.
- Investigate placing a Rockfish Conservation Area sign to inform users of the area and to raise awareness.
- Consider the feasibility and rationale to start a baseline of salinity monitoring and to evaluate erosion of the berm and the impacts of driftwood to determine the impacts of saltwater inflow and outflow to the marsh. Obtain partner input, explore CRD sea level rise predictions, zoning and permit and/or archaeological assessment requirements.
- Assess how best to monitor Henderson's Checker-mallow to determine long-term trends and evaluate fencing removal or replacement. Cutting of Nootka Rose is prohibited by the conservation covenant and would require a special waiver if recommended.
- Continue communications with the North Pender Local Trust Committee to determine the status of the rezoning of the foreshore.
- Communicate with companies that we know have asked for a permit to use Schooner Way, Bedwell Harbour Road and the foreshore of the Sanctuary to transport houses explaining the ecological impacts. A copy of all correspondence should also be sent to all parties who manage the foreshore including the Ministry of Transportation and Infrastructure.
- Consider a survey for Western Screech-Owl to determine if this species is present on the Sanctuary.

7.2 Short term Actions (3-5 years)

- Depending on results of the feasibility and rationale study take next steps: no human intervention or investigate funding to employ a coastal engineer to evaluate or conduct berm/midden monitoring to determine long-term erosion rates, all in partnership with the PICA, HAT and NCC.
- Set up a monitoring program of the Henderson's Checker-mallow if funding allows. If the population is declining, consider development of a restoration plan, including consideration of fence removal, as a short-term action.
- If necessary, develop a restoration plan for Henderson's Checker-mallow
- Assess how best to monitor native amphibian populations to determine population trends and provide early detection of Bullfrog invasion.
- Prepare a wildfire management plan that considers both forest ecology and prevention of damage to surrounding neighbourhoods in consultation with the Pender Island Volunteer Fire Department and the BC Wild fire Service.

7.3 Long term Actions (5+ years)

- Work with PICA and any landowners of adjacent land who would like to achieve protection mechanisms (such as covenants) to create a buffer zone on neighbouring properties to protect the quality and quantity of water flowing to the Nature Sanctuary.

7.4 Ongoing or Annual Action Items

- Conduct annual monitoring to monitor covenant compliance and identify management concerns including public use (e.g. trail monitoring) and invasive species.
- Communicate annually with NCC and HAT to provide updates on the Sanctuary, seek approvals for stewardship activities as necessary and maintain compliance with the conservation covenant.

- Continue to remove invasive, non-native species in cooperation with PICA. Target Yellow Flag Iris and Cotoneaster for removal and continue to remove re-sprouts.
- Conduct ongoing maintenance and management of structures, signs and trails.
- Continue to monitor garbage on the Sanctuary and support continued PICA coordinated beach cleanups.
- Continue to monitor the need to provide a dog waste disposal service.
- Support PICA and volunteer wardens to monitor the property and identify management concerns such as trespassing, tree cutting, camping, dogs in marsh, trail and sign damage and other issues.
- If funding allows conduct monitoring of Henderson's Checker-mallow to determine long-term population trends.
- Maintain communication with North Pender Local Trust Committee to determine the status of the rezoning of the foreshore.
- Continue to inform the general public of the natural values of the site and the permitted and prohibited uses through information placed in local publications from time to time by the management group.

3 IMPLICATIONS OF RECOMMENDATION

ORGANIZATIONAL: This management plan will guide the management of this property and assist staff in budgeting property management funds over the next 10 years.

FINANCIAL: The property management budget is allocated each year depending on available funds and the work that is most needed, balanced between all TFB properties. This is a very well used protected area and there have been many management issues from trail safety to derelict and abandoned boats.

POLICY: Consistent with policy.

IMPLEMENTATION/COMMUNICATIONS: Staff will provide the final version of the management plan to the covenant holders, Nature Conservancy of Canada and Habitat Acquisition Trust, for their final approval. Staff will also provide the final version to the Pender Islands Conservancy Association, the local land trust partner who does management work on the Sanctuary. Staff will send a letter and a copy of the management plan to the North Pender Local Trust Committee to state the importance of good land use planning for the upstream areas. The TFB's property monitors will be provided with the management plan and it will be posted to the ITF website.

FIRST NATIONS: Relevant First Nations were contacted as part of the community engagement process during the development of the plan.

OTHER: None.

4 **RELEVANT POLICY(S):** TFB 2.3 Acquisition and Management of Land Procedure
2.3.2 Management Preparations for ITF Properties and Property Interests

5 **ATTACHMENT(S):** ITF_2018-05-16_Medicine Beach NS Management Plan_Final.docx

---

RESPONSE OPTIONS

Recommendation: As above

Alternative: That the Trust Fund Board approve the Medicine Beach Nature Sanctuary Management Plan as amended.

Prepared By: Nuala Murphy, Property Management Specialist

Reviewed By/Date: Jennifer Eliason, Manager, Islands Trust Fund

Medicine Beach (E,HO,)
Nature Sanctuary
Management Plan
Pender Island

Prepared for

ISLANDS TRUST FUND

Prepared By:

Pender Islands Conservancy Association (PICA) - November 1997
Doreen Ball, Kathryn Curtis, Lamorna White and Steven Wright

REVISED 2006 by Trust Fund Board Resolution No. TFB 06/836
REVISED 2017 by Carrina Maslovat, RPBio #1407**,** 175 Stewart Road, Salt Spring Island, BC
by Trust Fund Board Resolution No. TFB XX, Date

i. Executive Summary

The Medicine Beach Nature Sanctuary is located at the head of Bedwell Harbour on North Pender Island. The Sanctuary is 8.44 ha (20.12 acres) in size and includes a 2 ha (5 acre) brackish marsh and 201 metres (660 feet) of ocean shoreline with spectacular views. The remainder of the lot includes maturing Douglas-fir, Arbutus and Western Redcedar trees and a Red Alder swamp.

Medicine Beach, known as E,HO, to the W̱SÁNEĆ First Nations, has a long history of use by First Nations and was the historical location of a summer village site of the W̱SÁNEĆ people. There is an extensive archaeological midden that stretches along the shoreline. The beach front is one of the largest undeveloped beaches remaining on North Pender Island and has been used for many years by residents and visitors for recreation. There are hiking trails throughout the northern portion of the property.

The Pender Islands Conservancy Association (PICA) raised funds for the acquisition of Medicine Beach Nature Sanctuary and the land was transferred to the Trust Fund Board (TFB) by PICA in 1995. The Islands Trust Fund and the Pender Islands Conservancy Association work in partnership to manage and protect, in perpetuity, the marsh, upland forests, coastal bluffs and beach. A conservation covenant held by the Nature Conservancy of Canada and Habitat Acquisition Trust was registered on the property in 2000, adding an extra layer of protection.

There are ten red and blue Provincially listed ecological communities that have been identified on the property and the tidal marsh (S1- red) is of special significance because these ecosystems are extremely rare on the Gulf Islands. There are 11 red and blue Provincially listed species that have been noted on the property including five birds, one bat, one dragonfly and four plants. The Sanctuary is home to many other mammals including eight bat species and the sandy beach is important spawning area for Surf Smelt.

Threats to the property include a lack of protection to the upper watershed that provides freshwater to the marsh, and possible limits to tidal flow which maintain the brackish conditions of the marsh. Protection and survival of Henderson's Checker-mallow is of concern and invasive species are present though have been kept in check by ongoing removal by PICA. Erosion to the midden may damage the archaeological site and impact the hydrology of the marsh. The high level of public use may impact the Sanctuary by allowing dogs to disturb nesting birds, use under the license for commercial hauling on the beach would impact forage fish spawning, and human impacts from camping and associated risk of wildfire, tree harvesting, litter and excessive noise.

The Sanctuary will continue to be open to the public for hiking, use of the beach and nature appreciation. Trails and built structures including stairs, benches, fences and signs will require ongoing maintenance to ensure public safety. Further monitoring is recommended for three of the rare plant species to confirm their presence and determine trends over time.

Monitoring is recommended to determine if ecological restoration activities are required including assessment of erosion on the old logging road, to determine if the berm/archaeological midden are eroding and to determine if tidal flow is sufficient to maintain the ecological community of the marsh.

In cooperation with the PICA, invasive species removal should continue since the control efforts to date have been highly successful. Removal efforts should include Yellow Flag Iris in the marsh and Cotoneaster (next to stone block with plaque) since both these species are present in small numbers and are currently easily controlled. A volunteer warden program would be useful to conduct regular monitoring of the property and provide early detection of management concerns such as trespassing, tree cutting, camping, new invasive plant introductions, dogs off leash and other issues.

ii. Tables and Lists

Table of Contents

List of Figures

List of Tables

List of Photos and Credits

All photo credit is C. Maslovat unless otherwise noted.

List of Appendices

Acknowledgements

The author thanks the Pender Islands Conservancy Association (PICA) for preparing earlier drafts of this Management Plan and to the Nature Conservancy of Canada for their previous studies of Henderson's Checker-mallow and the marsh. Special thanks to Graham Boffey (PICA) for describing key management issues on site and providing important background information. Thanks to Nuala Murphy (Islands Trust Fund-ITF) for her dedication in managing ITF's reserves and sanctuaries and her commitment to species at risk inventories. Thanks also to Ren Ferguson and Laura Matthias for their excellent company in the field.

1.0 Introduction

The Medicine Beach Nature Sanctuary is 8.44 ha (20.12 acres) in size and includes a 2 ha (5 acre) brackish marsh which is extremely rare on the Gulf Islands. Located at the head of Bedwell Harbour, the property includes 201 metres (660 feet) of beach front with spectacular views. The ocean frontage north of the Schooner Road is a bluff 23 m (75 ft) high and 76 m (250 ft) long whereas the ocean frontage south of the road is a low bank berm 115 m (377 ft) long that separates the marsh from the ocean. The remainder of the lot includes maturing Douglas-fir and Arbutus and Western Redcedar trees. The beach front is one of the largest undeveloped beaches remaining on North Pender Island and has been used for many years by residents and visitors for recreational purposes (PICA 2006).

Medicine Beach, known as E,HO, to the W̱SÁNEĆ First Nations, has a long history of use by First Nations and was the location of a summer village site of the W̱SÁNEĆ people. There is an extensive archaeological midden that stretches across the top of the beach and has been designated as a protected site under the *Heritage Conservation Act* (Archaeology Branch 1974).

The Pender Islands Conservancy Association (PICA) raised funds totaling $533,997 for the acquisition of Medicine Beach Nature Sanctuary and the land was transferred to the Trust Fund Board by PICA in 1995 (PICA 2006). PICA remains committed to the long term management of the Nature Sanctuary and works in partnership and under contract to the Islands Trust Fund to carry out management activities in accordance with the Management Plan. A conservation covenant held by the Nature Conservancy of Canada and Habitat Acquisition Trust was registered on the property in 2000, adding an extra layer of protection.

The Management Plan for the Medicine Beach Nature Sanctuary was first developed in 1997 by the PICA and was revised in 2006 by the Trust Fund Board in consultation with PICA and again in 2018.

1.1 Islands Trust Fund (ITF) and the Trust Fund Board (TFB)

In 1974 the Province of British Columbia recognized the islands between Vancouver Island and the mainland as a special place within the province where the unique beauty, rural character and diverse ecosystems should be protected for future generations. Through the *Islands Trust Act*, the province established the Islands Trust, a local government, with the following mandate (known as the Object of the Islands Trust):

> "*To preserve and protect the trust area and its unique amenities and environment for the benefit of the residents of the trust area and of British Columbia generally, in cooperation with municipalities, regional districts, improvement districts, other persons and organizations and the government of British Columbia"* (Islands Trust 2018a).

In 1990, through the enactment of a section of *Islands Trust Act*, the ITF was established as a conservation land trust to assist in carrying out the "preserve and protect" mandate. Part 6

of the *Islands Trust Act* establishes the corporate status, responsibilities, and governance structure of the TFB. The TFB is one of sixteen corporate entities[1] charged to uphold the Object of the Islands Trust. It is responsible for the actions of the ITF and since 1990 has protected over 1,184 hectares (2,926 acres) of land as nature reserves, nature sanctuaries and conservation covenants.

The vision of the ITF is that the islands and waters of the Strait of Georgia and Howe Sound will be a vibrant tapestry of culture and ecology where humans live and work in harmony with the natural world. This special place will have a network of protected areas that preserve in perpetuity the native species and natural systems of the islands. Engaged residents and conservation partners will work together to protect large natural areas and key wildlife habitat. Viable ecosystems will flourish alongside healthy island communities.

The mission of the ITF is to protect special places by encouraging, undertaking and assisting in voluntary conservation initiatives within the Islands Trust Area. ITF Nature Reserves are managed to maintain, preserve and protect the natural features and values of ecosystems. This level of protection is similar to the International Union for Conservation of Nature (IUCN) protected area Category 1B: Wilderness area:

> "*large area of unmodified or slightly modified land and/or sea; retaining its natural character and influence, without permanent or significant habitation, which is protected and managed in order to preserve its natural condition"* (Lockwood 2006).

1.2 Purpose of Islands Trust Fund Management Plans

The ITF management plans provide background information and set out the direction of property management as follows:

- Provide general and descriptive information on the property, including location, history, and land use;
- Set out the conservation goals and objectives for the property;
- Identify the property's ecological and/or cultural values and features;
- Describe the management issues associated with the property; and,
- Provide short, medium and long-term management recommendations (action items or tasks) on issues such as: Species at Risk protection; ecological restoration; public access; educational and research opportunities; invasive species management; and signage needs.

Once the management plan process is complete, the ITF will work to carry out the management actions or strategies identified in the plan, as resources allow. Following general practice and as outlined in the conservation covenant and statutory right of way, the ITF will revise the Management Plan every ten years.

[1] The Corporate entities charged to uphold the Object of the Islands Trust include the Trust Council, the Executive Committee, thirteen local trust committees, the TFB.

1.3 Protected Area Purpose

The purpose of Medicine Beach (E,HO,) Nature Sanctuary is to protect, in perpetuity, the brackish marsh, upland forest, coastal bluffs and beach for the benefit of the flora and fauna of the Sanctuary, and to allow for low impact recreation and nature appreciation opportunities for visitors to the Sanctuary.

1.4 Protected Area Objectives

The objectives for the Medicine Beach (E,HO,) Nature Sanctuary are:

1. Preserve the Medicine Beach marsh and adjacent forested areas as an undisturbed natural area and wildlife sanctuary;
2. Protect the distinct ecological communities and the species at risk that depend on them;
3. Protect the archaeologically and culturally significant feature of the berm/midden;
4. Protect and, where necessary and feasible, restore the plant and animal communities and ecological processes at the site;
5. Provide low impact public access in areas where such uses are compatible with protection of ecological and archeological values;
6. Support ongoing inventory, mapping and monitoring to guide management provided it does not interfere with Species at Risk protection; and,
7. Allow the natural ecological processes and functions to proceed unimpeded without human intervention, except in the case of wildfire or other exceptional situations where remediation is considered imperative.

2.0 Property Information

The Medicine Beach (E,HO,) Nature Sanctuary is 8.44 ha (20.12 acres) in size and includes 201 m (660 ft) of ocean shoreline. The property boundary only extends down to the high-tide line.

2.1 Location

Medicine Beach (E,HO,) is found along the southern shoreline of North Pender Island. From the Otter Bay Ferry Terminal take Otter Bay Road. Turn right on Bedwell Harbour Road which will become Canal Road and later Aldridge Road (approx. 8 km). Before the road curves sharply to the right to become Schooner Way, turn left, and bear left to the parking area at the beach.

The area can also be accessed via a hiking trail from Aldridge Road.

2.2 Legal Description

Parcel Identifier No. (PID): 004-014-171.
The Medicine Beach (E,HO,) Nature Sanctuary is described in the land registry as: Lot 1, Section 7, North Pender Island, Cowichan District, Plan 16534.

2.3 Legal Access

Legal access to the property is by Schooner Way, a public road which bisects the property, north of the marsh.

2.4 Local and Regional Context

Medicine Beach (E,HO,) Nature Sanctuary is in an area of residential lots with lot sizes ranging from 6.5 ha (16 acres) to 0.7 ha (1.7acres). The southeastern boundary is the ocean at Bedwell Harbour and the west side of the property borders Aldridge and Wallace Roads. Privately managed property is on the north and south borders (Figure 1).

It is one of several small protected areas on North Pender Island. The closest protected parcel is Prior Centennial Park (Gulf Islands National Park Reserve) which is 180m to the northwest. Pender Canal (Gulf Islands National Park Reserve) is 600m to the east and Oak Bluffs Park is 1 km to the south. Mount Norman and Beaumont (Gulf Islands National Park Reserve) is a large protected area on South Pender is just over 1 km southeast across Bedwell Harbour. There is also a Rockfish Conservation Area between North and South Pender to the southeast of the Sanctuary.

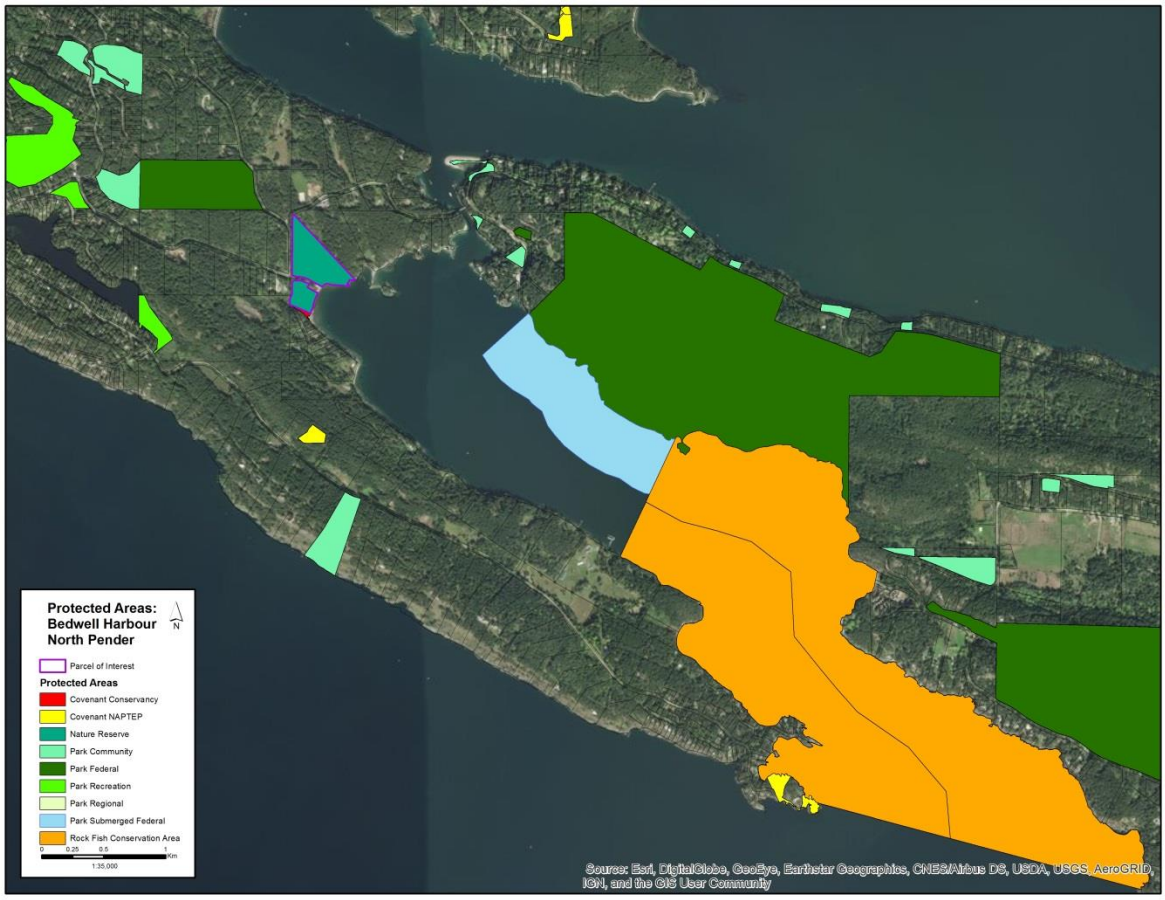


Figure 1. Map of Protected Areas near Medicine Beach Nature Sanctuary 2018

2.5 Adjacent Land Use and Connectivity

The lands adjoining the Medicine Beach (E,HO,) Nature Sanctuary are zoned for a mixture of uses including rural residential (RR), rural (R), commercial (C), and community services (CS) (North Pender Island OCP 2015). The high density of properties in the area results in high use of the Sanctuary by the public.

To the south of the marsh is a Rural Residential (RR2) subdivision; Lot A, Section 7 (Plan 46157) borders the marsh. Each lot must provide its own water and sewage disposal (North Pender Island OCP 2015). PICA holds a conservation covenant on a portion of this lot to protect the most important inflow channel and the only outflow channel for the marsh (Boffey pers. comm. 2017).

The parcel to the west (Lot 40, Section 7) is a 60-acre parcel which extends to the south end of Magic Lake with frontage on Pirates Road as well as Wallace Road. It is zoned Rural and may be subdivided into six 10-acre lots. Under the North Pender Island Official Community Plan Bylaw 171, this lot has been mapped under Schedule D: Land Potentially Subject to Park Dedication (North Pender OCP 2007). At the time of subdivision, the owner must provide parkland in an amount not exceeding 5% of the land proposed for subdivision, if more than 3 additional lots are created (North Pender Island OCP 2007).

At the corner of Schooner Way and Aldridge Road (Lot 6 Section 7 Plan 1695) is a property zoned Commercial 1, which is currently home to three businesses. The north corner of the Sanctuary is next to a lot zoned Community Service with frontage along Canal Road. The remainder of the lots adjacent to the Sanctuary are zoned Rural (North Pender Island OCP 2015).

2.6 Site History

2.6.1 First Nation Use

Medicine Beach (E,HO,) was the location of a summer village site of the W̱SÁNEĆ people. The W̱SÁNEĆ First Nations are Straits Salish People also known as the “saltwater people” and consist of the Tsartlip, Tsawout, Tseycum and Pauquachin First Nations. The Straits Salish First Nations extend beyond present-day British Columbia south of the international border into the states of Washington and Oregon.

North Pender Island, known as S,DÁYES, in the SENĆOŦEN language, was a location for summer fishing, spiritual renewal and food and medicinal plant collecting. In addition, plant materials were collected for clothing, cooking utensils, manufacturing of tools and other important functions in this hunter-gatherer society. Bedwell Harbour was the location of a reef-net fishery, a traditional form of fishing presently undergoing a revival throughout BC (Elliot pers. comm. 2016).

Evidence found following archaeological excavations at the canal site between North and South Pender Islands estimates that indigenous people have had a presence on the Pender Islands for more than 5,100 years (Carlson & Hobler, 1993).

A shell midden which stretches across the top of the beach is designated as a protected site (Site no. DeRT-15) under the *Heritage Conservation Act* (Archaeology Branch 1974). When the site was surveyed in 1974, the shell midden spit measured 190 m x 10 m and the deposit was at least 1 meter deep. The survey did not include test pits or excavation (Archaeology Branch 1974). Archaeological potential modelling indicates there are other areas on the property with high potential to contain unknown/unrecorded archaeological materials (Archaeology Branch 2017).

Studies of shell middens in the Gulf Islands suggest that some middens were formed to create a lagoon to trap and net fish as a food resource. Some of these lagoons may have developed into spawning grounds for salmon (PICA 2006).

The name Medicine Beach is thought to denote the area as a medicinal herb gathering site. It may, however, refer to Medicine Beach as a place of spiritual healing (PICA 2006).

2.6.2 Post Contact Use[2]

European settlement on Pender Islands is believed to have started with sheep farmers as early as 1877. The area was pre-empted from the Crown in 1898. Logging took place in the area until 1910. Two early families, the Adams and the Mumfords, may have used the area for grazing sheep and cattle. The Medicine Beach (E,HO,) property was held by the Atkins family from 1970–1995 and was used as a seasonal retreat (PICA 2006).

The property was purchased from the Atkins family by the Pender Islands Conservancy Association (PICA) in May 1995 and was transferred later that year to the Trust Fund Board. PICA raised a total of $533,997 for this acquisition. Of this amount, the Pender Island community contributed $267,000; the Atkins family (former owners of the property) donated $127,000; the Habitat Conservation Fund of the BC Ministry of the Environment contributed $70,000; Wildlife Habitat Canada contributed $50,000; Nature Conservancy of Canada contributed $10,000; and the Capital Regional District contributed $10,000. The total purchase cost was $477,000. The remaining funds held by PICA were put into a management account for the property (PICA 2006).

In 1996, an old cabin was removed from the property (NCC 2005a).

In 1998, PICA worked with the ITF to manage the Sanctuary based on the Management Plan which was approved by the TFB in 1997. A conservation covenant held by the Nature

[2] The Trust Fund Board recognizes that the language commonly used to refer to land may be disrespectful to First Nations. For example, notions of 'private' and 'Crown' land do not appropriately recognize aboriginal title and imply a belief in the concept of terra nullius, the idea that land was not owned prior to the assertion of European sovereignty. The Trust Fund Board acknowledges that terra nullius is a concept that doesn't apply to the Islands Trust Area. The words "provincially-managed land or federally managed land" will be used in place of "Crown". "Privately managed" will be used in place of "private" and "land holder/steward" instead of "land owner".

Conservancy of Canada and Habitat Acquisition Trust was registered on the property in 2000.

In 2002, a public meeting was held on North Pender Island to assess residents' interest in transferring the Medicine Beach (E,HO,) Nature Sanctuary to the new Gulf Islands National Park. A split vote by the public resulted in the following resolution by the Board:

> **"Resolution #TFB 02/373.** It was MOVED and SECONDED that the Board will not transfer the Medicine Beach Nature Sanctuary on Pender Island to Parks Canada. If, once the management plan for the Gulf Islands National Park Sanctuary is completed, Parks Canada submits a new conservation proposal then the Board is willing to reassess this position" (PICA 2006).

In 2002, a gate and a sign attached to the gate were installed on the trail next to Aldridge Road to prevent vehicles in the Nature Sanctuary. In 2004, a trail improvement plan was developed and implemented by the PICA. PICA installed stairs, a bench and railings on the high bank foreshore north of the road. The trail was resurfaced with gravels in 2004 (NCC 2005a). In 2004, a wire and t-post fence was erected to protect the provincially rare plant called Henderson's checker-mallow (*Sidalcea hendersonii*) from the deer population (NCC 2005b). The fence has since collapsed.

In 2007, two homes were barged on to the beach and there were concerns at this time due to evidence of oil discharged on to the road near the stream running on the side of the road and possible contamination to the marsh. There was disturbance to the beach and the logs on the beach were moved and piled to one side to accommodate the steel ramps and large flatbed trucks. Permits can be obtained from the Ministry of Transportation and Infrastructure to use Schooner Way to access the beach.

2.7 Undersurface Rights

Undersurface rights for Medicine Beach Nature Sanctuary are currently held in favour of Her Majesty the Queen in Right of the Province of British Columbia.

2.8 Notations, Charges, Liens and Interests

A Section 219 Covenant and Section 218 Statutory Right of Way (EP081049, EP081052) were registered on the land July 31, 2000 in favour of the Nature Conservancy of Canada and the Habitat Acquisition Trust. The general intent of the Agreement is to:

1) protect, preserve, conserve, maintain, enhance or restore the Land and the Amenities, in a natural state; and
2) to prevent any occupation or use of the Land that will impair or interfere with the natural state of the Land or the Amenities;
3) to preserve the land as a nature reserve in perpetuity.

2.9 Local Planning Designations

In the North Pender Official Community Plan Bylaw No. 171, 2007 (Consolidated: June 1, 2017) Schedule B the Medicine Beach (E,HO,) Nature Sanctuary is zoned Conservation (CO) . The North Pender Island Local Trust Committee Land Use Bylaw No. 103, 1996 (Consolidated: March 1, 2018) designates the Sanctuary as an Ecological (ECO) Zone which does not allow subdivision and prohibits all buildings and structures.

The foreshore is designated "M" in the Official Community Plan (OCP) which is the general marine zone and is currently classified as Water 1 (W1) Zone in the North Pender Island Local Trust Committee Land Use Bylaw No. 103, 1996 which prohibits any commercial or industrial activity or use. In 2004, the TFB asked the North Pender Local Trust Committee (LTC) to rezone the area outside the foreshore in front of the Nature Sanctuary to classify it as a "Water Conservation Zone". To date, the change in zoning has not been completed.

The ocean frontage within the Sanctuary is protected by Development Permit Area (DPA) 6 which protects intertidal sensitive ecosystems. There is a very small portion of the northeast corner of the Sanctuary that is mapped DPA 1 (Woodland) (Figure 2). A permit and adherence to DPA guidelines are required before land can be altered within the boundaries of the DPA.

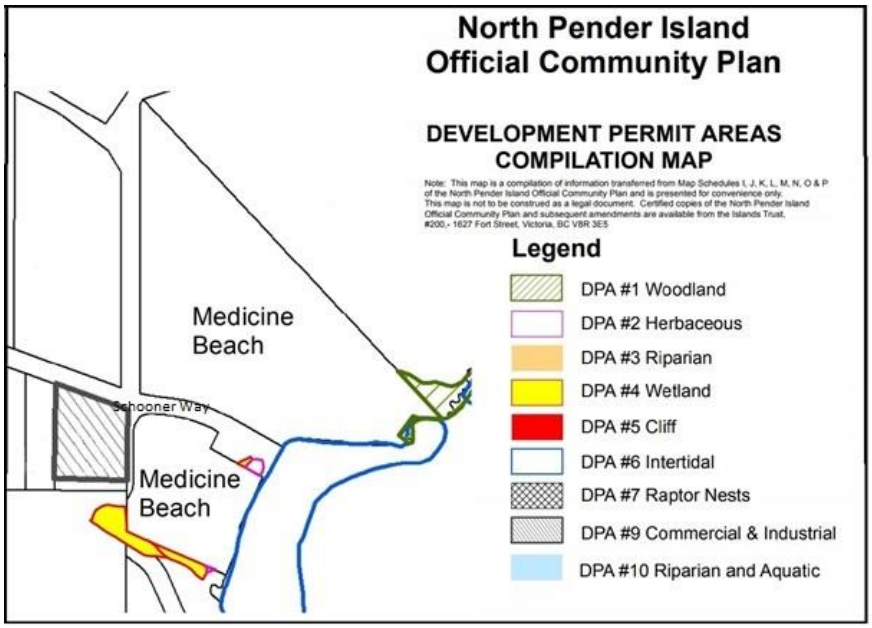


Figure 2. Map showing Development Permit Areas

A small portion of the Schooner Way right of way (which bisects the Sanctuary) is protected by DPA 4 (wetland) and DPA 2 (herbaceous) sensitive ecosystems. The property to the south of the Sanctuary is protected under both DPA4 and DPA 6 (Figure 2). The local trust committee implements the provincial Riparian Areas Regulation through the designation of DPA 10 which is not mapped in the Sanctuary (North Pender Island OCP 2007).

2.10 Existing Public Use and Anthropogenic Features

There is a well-maintained parking lot at the end of the Schooner Way next to the beach. There is a well-marked trail that leads north of the road via a stairway to the top of the bluff and from there to the Sanctuary entrance off Aldridge Road (Figure 3). The beach is used extensively by the public.

There are two benches at the top of the bluff and there is a fence along the edge of the bluff for public safety. There is also a wooden fence along the edge of the parking area to limit public access to the marsh. There is a metal gate across the old logging road at the Aldridge Road entrance to the Sanctuary to limit vehicle use (Photo 1 and Figure 3).

Photo 1. Gate and Signs at Sanctuary Entrance off Aldridge Road

Photo 2. Bench at Top of Bluff Overlooking Bedwell Harbour

Figure 3. Map of Trails and Other Features

3.0 Ecological Inventory

3.1 Ecological Significance

Medicine Beach (E,HO,) Nature Sanctuary protects a 2 ha (5 acre) brackish marsh. Tidal shoreline marshes are extremely rare on the Gulf Islands and the Medicine Beach marsh is in good condition with few invasive species (Cadrin 1994). Although the marsh is small in size, the plant community is more diverse than others of its type (Kirkby 1996). The 660 feet of beach front is a rich forage fish site (De Graaf 2013). The low beach front has an extensive midden which is protected as an archaeological site. Open rocky bluffs stretch along the remainder of the shoreline. The upland portion of the lot includes maturing Douglas-fir and Arbutus forests and there is a forested wetland in the eastern part of the property.

3.2 Climate

The Gulf Islands have a climate pattern of warm, dry summers with mild, wet winters. The maritime influence moderates the effect of elevation, latitude, and aspect on local temperature and precipitation. Annual precipitation is approximately 870 mm and most of it comes in the form of rain rather than snow (PICA 2006).

Climate Normals are not available for North Pender Island and the nearest Environment Canada weather station is on Mayne Island which is 10 km from Medicine Beach Nature Sanctuary (Environment Canada 2018). On Mayne, average daily temperatures peak in the summer months (July and August) at 17°C and are lowest in the winter at 4°C. The reverse is true for precipitation with the winter months from November to January having the highest rainfall (averaging 120-130 mm) and with July and August being the driest months (22-28 mm) (Environment Canada 2018).

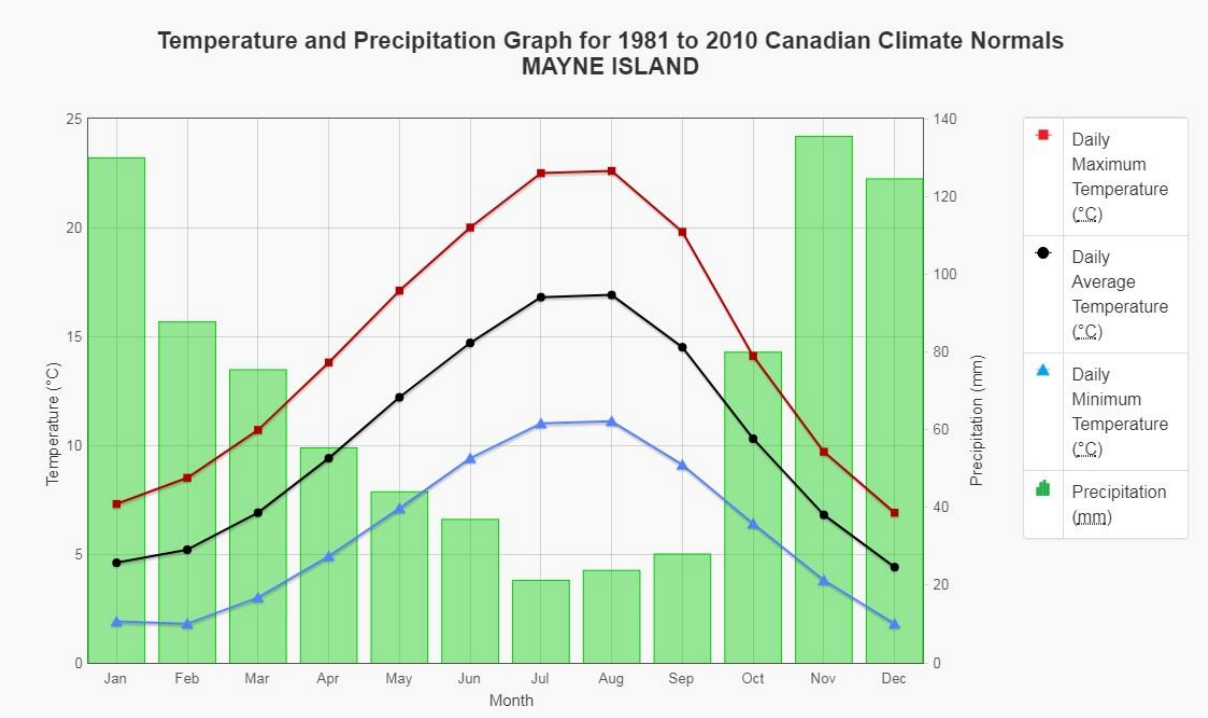


Figure 4. Temperature and Precipitation of Canadian Climate Normals

The future impacts from climate change are unknown although a summer drying trend and an increase of storm events are predicted. More powerful storms may cause increasing erosion along the shoreline and may alter the salinity of the brackish marsh, either by increasing the tidal surges or by increasing freshwater accumulation from higher than normal precipitation events. Dryer summers will impact the inland wetlands and may shift the vegetation community away from Western Redcedar, allowing the spread of Douglas-fir and Arbutus.

3.3 Geology and Physiography

North Pender Island is in the Nanaimo Lowland subdivision of the Georgia Depression physiographic unit of British Columbia (Kenney *et al.* 1988).

The Medicine Beach (E,HO,) property is roughly triangular with the base of the triangle along the shoreline. Elevation increases rapidly from sea-level to 100 meters in the upland forest area in the northern portion of the property. The marsh lies in the southwest corner. A bluff rises steeply along the northern edge of the beach front (PICA 2006).

The bedrock geology of Medicine Beach is described by Ostrinsky et al (1995 in PICA 2006) as three formations of the Cretaceous age Nanaimo Group. These formations include in ascending order: Protection (mid Campanian; 80 million years), Cedar District, and De Courcy (late Campanian state; 75 Ma). The Protection Formation comprises thin to thick bedded, medium to coarse grained sandstone with subordinate amounts of siltstone, shale, and coal. It outcrops along the ridge to the south of Medicine Beach. The Cedar District Formation, which underlies the Medicine Beach area, includes thin bedded silty shale and siltstone with minor amounts of fine grained sandstone. These sediments were deposited in a relatively deep marine setting, the bottom of which has been estimated at 200–600 meters water depth. The De Courcy Formation is composed of mostly thick bedded, medium to very coarse-grained sandstone and occasional conglomerate, consisting of chunky rocks within a finer matrix, and outcrops on the ridge to the north of Medicine Beach (Otrinsky 1995 in PICA 2006).

Topography and thus drainage are largely controlled by the bedrock geology. No major faults occur in the study area (although there are two elsewhere in the island.) The very fine grain material (clastics) of the Cedar District Formation eroded more easily leaving the valley occupied by Bedwell Harbour and the Medicine Beach area. This fine siliclastic also restricts groundwater flow and may impact the location and maintenance of the tidal marsh. The coarse-grained Protection and De Courcy formations represent the major aquifers in the area. Contacts between these formations and the Cedar District Formation may represent particularly good conduits for water flow. The steep generally easterly dip of the beds directs flow. The steep dip affects the marshy area and makes it susceptible to drying if discharge into the marsh is significantly reduced (PICA 2006).

3.4 Hydrology

Medicine Beach Marsh is fed by three main watercourses with associated watershed areas. The total watershed area was estimated from cadastral scale plans as 120 ha (Reimer and Grange 1995). The marsh has a salinity of 5-20 parts per thousand. Saltwater enters the marsh through a channel at the southern part of the marsh and through percolation through the berm (Kirkby 1996). Freshwater enters the marsh from the north and west slopes above the marsh (Kirkby 1996).

The first watershed (A) has an estimated area of 31 ha. It includes the area between Schooner Way and Magic Lake to the west and extends to the south approximately 1/3 of

the length of Wallace Road. The watershed is well treed generally and shows a low level of disturbance and there is a large (1ha) wetland. The stream is in a very natural state, with spring-fed flows persisting through the summer months. Flow was measured at +/- 3000 litres/day and the stream enters the marsh through a culvert (Reimer and Grange 1995).

The second watershed (B) lies to the north of the first, extending as far as Lively Peak in Magic Lake subdivision. It has an estimated area of 42 ha and includes a small part of Prior Park. The area contains developed lands, and ongoing land clearing and construction. There are over 20 residential lots in this watershed. This water course passes under Schooner Way and parallels the road to the marsh, where it crosses Wallace Road via culvert to enter the marsh. The stream is ephemeral (Reimer and Grange 1995).

The third watershed (C) has an estimated area of 47 ha and includes most of Prior Provincial Park. There is a large wetland (2ha) near Canal Road and the elementary school but it was unclear what proportion of the wetland flows into the marsh. This water course passes through a culvert under the school grounds and under Canal Road before passing through the upland forested area of the Nature Sanctuary and entering the marsh through a culvert under the public access road is ephemeral (Reimer and Grange 1995).

Drainage of the cliff face is moderately well to imperfect with some water trapped at the lower slope between exposed layers of mudstone. There is no apparent seepage (Kronen n.d.).

3.5 Soils

There is a diverse mix of soils at Medicine Beach Nature Sanctuary with 7 soil map units (Kenney *et al.* 1988). The brackish marsh is composed primarily of Metchosin soils which are well decomposed, organic deposits greater than 160cm deep. The soils are poorly drained and are found at a slight depression which is below sea level at high tide (Kenney *et al.* 1988).

The cliffs north of Schooner Road are mapped as Pender Island soils which are composed of channery and gravelly sandy loam, colluvial and glacial drift materials less than 100 cm deep over sandstone or conglomerate bedrock (Kenney *et al.* 1988). They are well drained and the cliffs at Medicine Beach are a convex irregular slope with an angle of 47 degrees (Kronen n.d.). The overburden is colluvial and is composed of very fine silt, sand and clay mixed with angular pebble and cobble sized blocks of mudstone (Kronen n.d.). The mudstone bedrock is a soft sedimentary rock that is cemented in thin layers by siltstone or sandstone (Kronen n.d.). The mudstone layers are angled to the direction of the slope. There does not appear to be any evidence of undercutting of the slope by wave action but there is evidence of a former debris avalanche on the bluff (Kronen n.d.).

On both sides of Schooner Road beside the ocean and further upland above the cliff face in the northern part of the Sanctuary are gradually sloping, poorly drained Parksville-Tolmie soils which are sandy loam to loamy sand marine or fluvial deposits, 30-100cm deep over

silty clay loam to silty clay marine deposits. These soils support the forested wetland in the northern part of the Sanctuary (Kenney *et al.* 1988).

Along Aldridge road is Haslam soils which are channery and shaly sandy loam to loam colluvial, residual and glacial drift materials less than 100cm deep. These soils are well drained (Kenney *et al.* 1988).

There are also small areas with Beddis soils (sandy loam to sand fluvial, marin or eolian deposits more than 150 cm deep), Galiano soils (shaly loam colluvial, residual and glacial drift less than 100cm deep) and Tolmie (loam to silty clay marine deposits more than 100cm deep) in the Sanctuary along Aldridge Road south of Schooner Road (Kenney *et al.* 1988).

3.6 Ecological Classifications

Medicine Beach Nature Sanctuary is within the Coastal Douglas-fir Biogeoclimatic Zone in the moist maritime subzone (CDFmm). It is within the Pacific Maritime Ecozone and the Georgia Puget Basin Ecoregion.

3.7 Maps of the Protected Area

A map of Medicine Beach Nature Sanctuary showing the property lines, contours, trails, roads, and built structures is included in Figure 3. A map showing natural features, ecological communities, rare species and invasive species is included in Figure 5.

3.8 Ecological Communities and Site Series

An ecological inventory of biological features was conducted in the Sanctuary on July 4th and 5th, 2017 by three consulting biologists. Four site series were identified using A Field Guide for Site Identification and Interpretation for the Vancouver Forest Region (Green and Klinka, 1994) (map in Figure 2). Four wetland site associations were identified using MacKenzie and Moran (2004). Two ecological communities (Dune Wildrye/Beach Pea and Trembling Aspen/Pacific Crab Apple/ Slough Sedge) were not classified in either of these resources but are ecological communities that are listed by the BC Conservation Data Centre (2018). These site series and the corresponding ecological communities are summarized (Table 1) and described below. Complete tables with percent cover are included in Appendix A.

There have been no significant changes to the ecological communities or site series since the last Management Plan was written, other than those expected with a maturing forest.

A list of all plant species is included in Appendix B and list of bird species observed during the July 2017 survey can be found in Appendix C. Appendix D contains a list of bat species and Appendix E lists invertebrates. Locations of photopoints and other photograph locations are given in Appendix F.

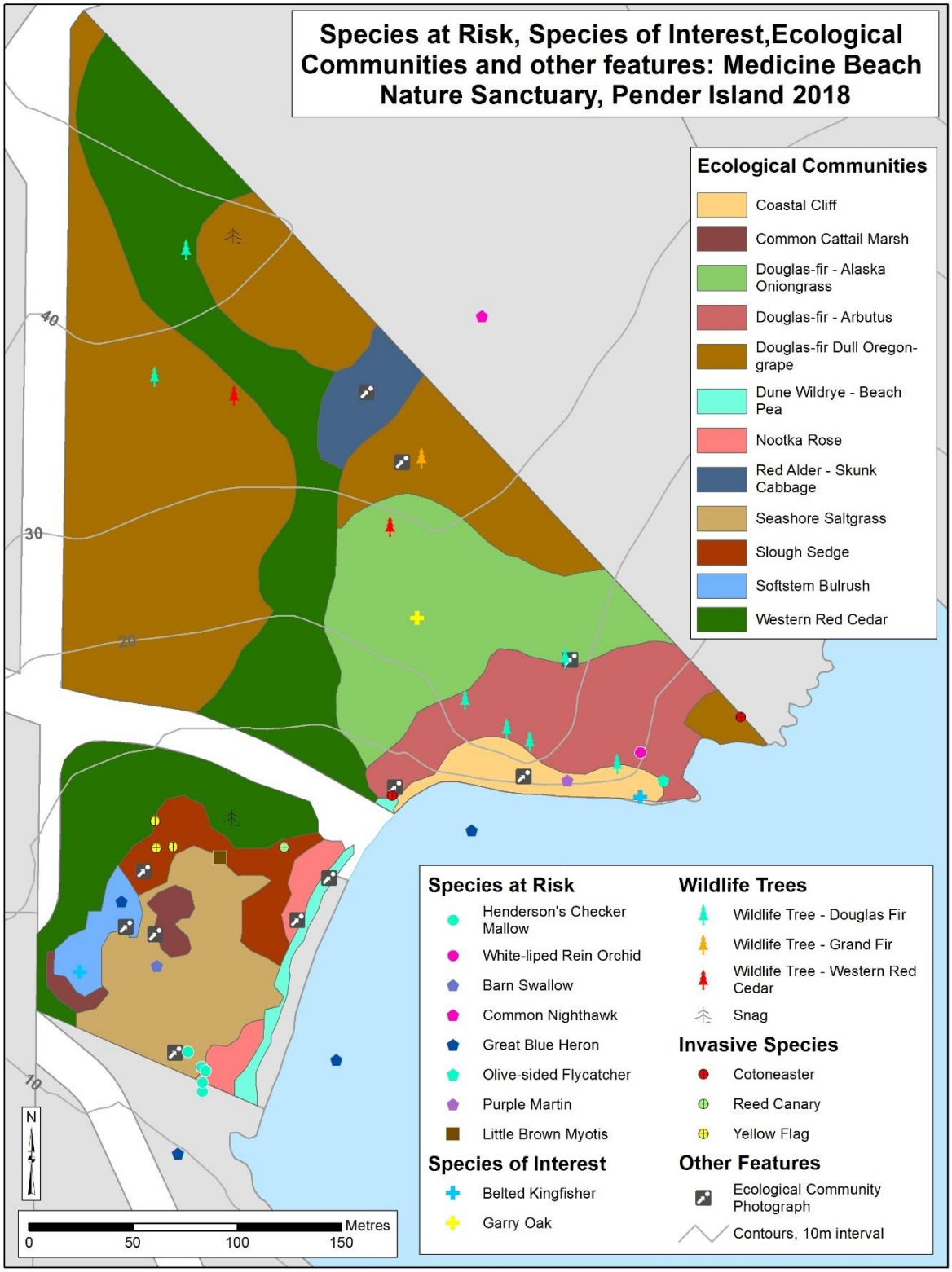


Figure 5. Map Showing Location of Ecological Communities, Species at Risk and Invasive Species

Table 1. Ecological Communities found in Medicine Beach Nature Sanctuary

Community Number	Community Name	Site Series
1	Coastal Cliff	
2	70% Douglas-fir/Arbutus 30% Douglas-fir/ Dull Oregon-grape	CDFmm/02 CDFmm/01
3	Douglas-fir/ Alaska Oniongrass	CDFmm/03
4	Douglas-fir/ Dull Oregon-grape	CDFmm/01
5	Red Alder-Skunk Cabbage	CDFmm/Ws52
6	Western Redcedar/ Douglas-fir/ Oregon Beaked Moss	CDFmm05
7	Dune Wildrye/ Beach Pea	
8	Nootka Rose berm	
9	Seashore Saltgrass herbaceous vegetation	CDFmm/Em03
10	Common Cattail marsh	
11	Hard-stemmed Bulrush deep marsh	
12	Trembling Aspen/Pacific Crab Apple/ Slough Sedge	CDFmm/ 00

3.8.1 Ecological Community 1: Coastal Cliff

Photo 3. Coastal Cliffs at Medicine Beach Nature Sanctuary

Ecological Community 1 is found in northeast portion of the Sanctuary, north of Schooner Road next to the ocean (map in Figure 2). It is dominated by a steep cliff face with thin soils and marine influence. Exposed rock/bare soil covers approximately 80% of the vegetation type. Slopes are steep, soils are shallow or non-existent except at the top of the cliff face. There are no dominant tree species due to the steep slopes, eroding soils and the influence of salt spray. The aspect is south.

3.8.2 Ecological Community 2: 70% Douglas-fir/Arbutus (CDFmm/02) (Pseudotsuga menziesii /Arbutus menziesii) Young Forest: 30% Douglas-fir/ Dull Oregon-grape (Pseudotsuga menziesii/ Berberis nervosa) Young Forest (CDFmm/01)

Photo 4. Douglas-fir/ Arbutus Ecological Community

Ecological Community 2 is found above the coastal cliffs north of the Schooner Road. It is a young forest of mixed Douglas-fir/Arbutus and Douglas-fir/Salal. Green and Klinka (1994) refer to the site series as Douglas-fir/Salal and on this site, it corresponds to the BC CDC ecological community of Douglas-fir/ Dull Oregon-grape (CDFmm/01). The terrain is sloped to the south with an open exposure because of the adjacent cliffs. The dominant trees are Douglas-fir and Arbutus and the trees are young (less than 40 years old). There is a diversity of native shrubs including a small amount of the non-native Scotch Broom. There is a mix of native and non-native forbs and grasses. Both the dominant and secondary ecological communities are red-listed by the BC Conservation Data Centre (BC CDC 2018).

3.8.3 Ecological Community 3: Douglas-fir/ Alaska Oniongrass (Pseudotsuga menziesii/ Melica subulata) ***(CDFmm/03)***

Photo 5. Douglas-fir/ Alaska Oniongrass Ecological Community

Ecological Community 3 is found north of Schooner road in the northeastern portion of the Sanctuary. There is a young forest of Douglas fir with small amounts of Western Redcedar. The terrain is gently sloping (15 °) with a south facing aspect (200°). There is a diverse understory with many native shrubs and a small amount of the non-native Evergreen Spurge-laurel. There is a rich layer of forbs and grasses which includes Alaska Oniongrass and a range of mosses.

3.8.4 Ecological Community 4: Douglas-fir/ Dull Oregon-grape (Pseudotsuga menziesii/ Berberis nervosa) (CDFmm/01)

Photo 6. Douglas-fir/ Dull Oregon-grape Ecological Community

Green and Klinka (1994) refer to the site series as Douglas-fir/Salal and on this site, it corresponds to the BC CDC ecological community of Douglas-fir/ Dull Oregon-grape (CDFmm/01). It is a young forest with trees that are less than 60 years old. Douglas-fir is the dominant canopy species and there is a mix of Western Redcedar, Grand Fir and Red Alder either in the main canopy or in the secondary canopy. In areas with large numbers of Grand Fir in the understory, the vegetation will transition to Grand Fir/ Dull Oregon-grape (CDF mm/04). There is a diverse native shrub layer and the only non-native shrub noted was Evergreen Spurge-laurel. The herbaceous layer and mosses are relatively limited. The slope is predominantly gradual and overall aspect is to the south. Douglas-fir/ Dull Oregon-grape is red-listed by the BC CDC (2018).

3.8.5 Ecological Community 5: Red Alder-Skunk Cabbage (Alnus rubra/Lysichiton americanus) (CDFmm/Ws52)

Photo 7. Red Alder/ Skunk Cabbage Ecological Community

This site was classified using MacKenzie and Moran (2004). The main canopy is dominated by Red Alder with a sparse secondary canopy of Grand Fir and Western Redcedar. Dominant understory shrubs include Salmonberry, Swordfern and Salal with small amounts of the non-native Evergreen Spurge-laurel and English Holly. Slough sedge and Skunk Cabbage are present in the herb layer. The area is level to slightly depressed with small degrees of slope in other areas. This ecological community is red-listed by the BC CDC (2018).

3.8.6 Ecological Community 6: Western Redcedar/ Douglas-fir/ Oregon Beaked Moss (Thuja plicata/Pseudotsuga menziesii/Eurhynchium oreganum) (CDFmm05)

Ecological Community 6 is found primarily north of Schooner Road along the creek which feeds into the marsh. The site is moisture receiving and supports larger trees than were found in the rest of the Sanctuary. This classification was applied by Linnaeus (2005) although on the Islands Trust MapIt site, the dominant community is classified as Western Redcedar/Grand Fir/Foamflower (Islands Trust 2018b).

3.8.7 Ecological Community 7: Dune Wildrye/ Beach Pea (Leymus mollis/Lathyrus japonicus) (CDFmm)

Photo 8. Dune Wildrye/ Beach Pea Ecological Community

This ecological community is found along the low-bank berm which separates the brackish marsh from the ocean. There are no trees and very few shrubs due to the influence of salt spray. There is an extensive shell midden that forms the substrate of the ecological community and the berm. There are large amounts of driftwood both on the surface and in the substrate and the driftwood accumulation has helped to create the berm. The aspect faces southeast (110°) with little to no slope (0-5°) and the elevation is at sea level. This is a red-listed ecological community (BC CDC 2018).

3.8.8 Ecological Community 8: Nootka Rose (Rosa nutkana) Berm (not SEI)

Photo 9. Nootka Rose Dominated Berm (note Beach Wildrye in foreground)

This ecological community is found along the low-bank berm which separates the brackish marsh from the ocean, just above the Dune Wildrye-Beach Pea Community. There are no trees but there are large shrubs including Douglas Hawthorn and Pacific Crab Apple which are sparse throughout the plant community. There is a thick shrub layer, composed primarily from saltspray-tolerant Nootka Rose. The aspect faces southeast (110°) with little to no slope (0-5°) and the elevation is at sea level. This ecological community has been mapped as polygon #4819 and as not Sensitive Ecosystem Inventory (SEI) since it has been classified as shrub/herb Douglas-fir/Salal (Islands Trust 2018b). The marsh was divided into smaller areas than the SEI mapping to better track vegetation composition over time.

3.8.9 Ecological Community 9: Seashore Saltgrass (Distichlis spicata) ***Herbaceous Vegetation*** *(CDFmm/ Em03)*

Photo 10. Seashore Saltgrass Herbaceous Vegetation Ecological Community

The Seashore Saltgrass is the primary classification of the brackish marsh and there are smaller inclusions of the remaining ecological communities. There are no trees and no shrubs due to the presence of brackish water that enters the marsh at high tide. There are dense patches of Seacoast Bulrush and Spiked Rush within the community. There is no slope and the elevation is at sea level. There is a small amount of scattered driftwood on the surface. This is a red-listed ecological community (BC CDC 2018).

3.8.10 Ecological Community 10: Common Cattail (Typha latifolia) Marsh

Photo 11. Common Cattail Marsh Ecological Community

The Common Cattail Marsh is a small inclusion within the dominant vegetation of Seashore Saltgrass within the brackish marsh. The area remains saturated with water for most of the growing season. There are no trees and no shrubs due to the presence of brackish water that enters the marsh at high tide. There is no slope and the elevation is at sea level. Nutrients are high and there is a well-developed layer of decomposed organic matter at the surface. There is a small amount of standing water beside the Common Cattail where the alga Stonewort (*Chara* sp.) and Common Duckweed (*Lemna minor*) occur. The ecological community Common Cattail Marsh is blue-listed (BC CDC 2018).

*3.8.11 Ecological Community 11: Hard-stemmed Bulrush **(Schoenoplectus acutus) Deep Marsh***

Photo 12. Hard-stemmed Bulrush Deep Marsh (on right) with Seashore Saltgrass (on left) and Open Water (middle)

The Hard-stemmed Bulrush is a small inclusion within the dominant vegetation of Seashore Saltgrass within the brackish marsh and next to the Common Cattail Marsh. There are no trees and no shrubs due to the presence of brackish water that enters the marsh at high tide and plant diversity is low. There is a small amount of open water next to the Hard-stemmed Bulrush. There is no slope and the elevation is at sea level. There is a small amount of standing water next to the bulrushes. The Hard-stem Bulrush ecological community is provincially blue-listed (BC CDC 2018).

3.8.12 Ecological Community 12: Trembling Aspen/Pacific Crab Apple/ Slough Sedge (Populus tremuloides/ Malus Fusca/Carex obnupta) (CDFmm/ 00)

Photo 13. Trembling Aspen/ Pacific Crab Apple/ Slough Sedge Ecological Community

This ecological community is not described by MacKenzie and Moran (2004) although it is listed by the BC Conservation Data Centre (2018). Slough Sedge is a small inclusion within the dominant vegetation of Seashore Saltgrass within the brackish marsh. There are no trees and no shrubs due to the presence of brackish water that enters the marsh at high tide. There are shrubs and small trees along the edge of the community which include Pacific Crab Apple (*Malus fusca*), Western Redcedar (*Thuja plicata*) and Pacific Willow (*Salix lucida*). No Trembling Aspen (*Populus tremuloides*) was noted. There are small patches of invasive Yellow Flag Iris (*Iris pseudacorus*) and Reed Canarygrass (*Phalaris arundinacea*). There is no slope and the elevation is at sea level. Trembling Aspen/ Pacific Crab Apple/Slough Sedge is ranked as red-listed by the BC CDC (2018).

3.9 Vegetation Type from the ITF Sensitive Ecosystem Mapping

Sensitive Ecosystem Mapping on the Islands Trust MapIt site identifies 17 ecosystem units (Islands Trust 2018b). Ground truthing in 2017 determined that on the ground, some of the ecosystems are different from what has been previously mapped.

The coastal cliff area north of the road was mapped on MapIt as herbaceous/herbaceous with the primary unit classified as *Cladina*- Wallace's Selaginella (Polygon 4363) (Islands

Trust 2018b). Although Selaginella is present in small numbers, no *Cladina* was observed and the site is better described as a Coastal Cliff (as per MacKenzie 2002).

The ecological community Douglas-fir/Alaska Oniongrass was found north of the road in MapIt polygon #3249 which was labelled as a young forest with 70% Douglas-fir/Salal and 30% Douglas-fir/Arbutus (Islands Trust 2018b). The presence of Alaska Oniongrass is distinctive in this portion of the Sanctuary. The presence of Douglas-fir/Alaska Oniongrass community was also noted in previous studies (Linnaeus 2005).

The wetter portions of the Sanctuary, north of the road were mapped as mixed forests containing primary ecosystems of either Western Redcedar/ Grand Fir/ Foam Flower or Douglas-fir/ Grand Fir/ Oregon-grape. These were identified as Western Redcedar/ Douglas-fir/ Oregon Beaked Moss by Linnaeus (2005).

On MapIt, the marsh is mapped as 80% Seashore Saltgrass with 20% Cattail (Islands Trust 2018b). In this report, these are divided into separate ecological communities in order to track changes in their distribution over time. Hard-stemmed Bulrush and Trembling Aspen/ Pacific Crab Apple/ Slough Sedge were also components of the marsh complex.

3.10 Red and Blue Listed Communities

The following ecological communities found in Medicine Beach Nature Sanctuary have been red and blue listed by the BC Conservation Data Center (BC CDC 2018).

Table 2. Red and Blue Listed Ecological Communities in Medicine Beach Nature Sanctuary

Community Number	**Ecological Community**	**Biogeoclimatic Unit**	**Provincial Rank**
Community 2 Community 4	Douglas-fir / Dull Oregon-grape (*Pseudotsuga menziesii/Berberis nervosa*)	CDFmm/01	Red List S2 (2010)
Community 3	Douglas-fir / Alaska Oniongrass (*Pseudotsuga menziesii/Melica subulata*)	CDFmm/03	Red List S1 (2006)
Community 2	Douglas-fir / Arbutus (*Pseudotsuga menziesii/Arbutus menziesii*)	CDFmm/02	Red List S2 (2004)
Community 6	Western Redcedar /Douglas-fir Oregon Beaked Moss (Linnaeus 2005)	CDFmm/05	Red-list S1 (2013)
Community 5	Red Alder / Skunk Cabbage Swamp (*Alnus rubra-Lysichiton americanus*)	CDFmm/Ws52	Red List S2 (2010)
Community 7	Dune Wildrye/ Beach Pea (*Leymus mollis* ssp. *mollis/ Lathyrus japonicus*)	CDFmm	Red List S1S2 (2008)
Community 9	Seashore Saltgrass Herbaceous Vegetation (*Distichlis spicata* var. *spicata*)	CDFmm/Em03	Red List S1S2 (2016)
Community 10	Common Cattail (*Typha latifolia*) Marsh (small pocket within Seashore Saltgrass)	CDFmm/Wm05	Blue List S3 (2004)
Community 11	Hard-stemmed Bulrush (*Schoenoplectus acutus*) Deep Marsh (small pocket within Seashore Saltgrass)	CDFmm/Wm06	Blue List S3 (2004)

Community 12	Trembling Aspen/Pacific Crab Apple/ Slough Sedge (*Populus tremuloides/ Malus Fusca/Carex obnupta*)	CDFmm/00	Red List S1S2 (2013)

3.11 Red and Blue Listed Species

The following species at risk have been found on the Medicine Beach Nature Sanctuary. These species are listed as at risk either provincially by the BC Conservation Data Centre or federally by the Committee on the Status of Endangered Wildlife in Canada. Except where otherwise noted, these species were identified during surveys for Islands Trust Fund in 2017 (Maslovat *et al.* 2017).

Table 3. Red and Blue Listed Species Found in Medicine Beach Nature Sanctuary

Species Common Name	**Species Latin Name**	**Provincial Rank[3]**	**COSEWIC Rank[4]**	**SARA Status**
Barn Swallow	*Hirundo rustica*	Blue List S3S4B (2015)	Threatened (2011)	Schedule 1 – Threatened (2017)
Common Nighthawk	*Chordeiles minor*	Yellow List S4B (2015)	Threatened (2007)	Schedule 1 – Threatened (2010)
Great Blue Heron	*Ardea herodias fannini*	Blue List S2S3B, S4N (2009)	Special Concern (2008)	Schedule 1 – Special Concern (2010)
Olive-sided Flycatcher	*Contopus cooperi*	Blue List S3S4B (2015)	Threatened (2007)	Schedule 1 – Threatened (2010)
Purple Martin	*Progne subis*	Blue List S3B (2015)		
Little Brown Myotis	*Myotis lucifugus*	Yellow List S4 (2015)	Endangered (2013)	Schedule 1 – Endangered (2013)
Western Pondhawk	*Erythemis collocata*	Blue-list S3S4 (2015)		
Carolina Meadow Foxtail*	*Alopecurus carolinianus*	Red List S2 (2015)		
Henderson's Checker-mallow	*Sidalcea hendersonii*	Blue List S3 (2015)		
Macrae's Clover**	*Trifolium dichotomum*	Red List S2 (2016)		
White-lipped Rein Orchid	*Piperia candida*	Red List S2 (2015)		

* This species was listed as an associated species in the Element Occurrence Record with data from a 1996 Royal BC Museum herbarium specimen (BC CDC 2017b). It was not observed during the 2017 survey.

** There is an element occurrence of Macrae's Clover at Medicine Beach Nature Sanctuary listed by the BC CDC (2017c).

[3] BC Conservation Data Centre (BC CDC 2018)

[4] Committee on the Status of Endangered Wildlife in Canada (Government of Canada 2017)

Photo 14. Western Pondhawk (Photo: L. Matthias

Western Pondhawk (*Erythemis collocata*) is one of six dragonflies identified in Medicine Beach (list in Appendix E).

A Henderson's Checker-mallow (*Sidalcea hendersonii*) population monitoring study was initiated by NCC in 2005 (NCC 2005a). In 2005, a total of 151 individuals were found in seven patches with 45 flowering plants. One third of the total number plants were found within the fenced area (NCC 2005a). That same year found most of the plants that were not protected either by the fence or by Nootka Rose thickets were grazed (NCC 2005b).

Plants were not counted in 2017 and a comprehensive survey was not made: however, only one plant was noted to be in bud. Comparing the current distribution to previous photographs, the number of plants appears to have declined over time and they appear less vigorous. Within the fenced area, the Nootka Rose has formed a dense thicket which may be competing with the Henderson's Checker-mallow. The fence which was installed to protect the Checker-mallow has collapsed and is no longer effective at keeping out deer.

Photo 14. Henderson's Checker-mallow in Bud

White-lipped Rein Orchid (*Piperia candida*) was noted next to the more common Royal Rein Orchid (*Piperia transversa*) during the 2017 surveys next to the trail at the top of the bluffs. It may be at risk of trampling due to its proximity to the trail.

Carolina Meadow Foxtail (*Alopecurus carolinianus*) was not observed during 2017 surveys and the appropriate vernal pool habitat was not noted. The 2017 survey was too late in the season to confirm the presence of Macrae's Clover (*Trifolium dichotomum*). In 1996, the BC CDC element occurrence record for the species noted 400 plants over the length of the slope on slaty, loose 40° slope (BC CDC 2017c).

Photo 15. White-lipped Rein Orchid in Medicine Beach Nature Sanctuary (Photo: L. Matthias)

There are active Peregrine Falcon nests in nearby locations on Pender Islands (BC CDC 2018) although none were observed during 2017 surveys. Five bird species at risk were noted in the Sanctuary but nesting habitat is not available for all species. There is some potential for Great Blue Heron to nest in the reserve as the forest matures. Olive-sided Flycatcher require openings and perch snags and as the forest matures there could be potential for this species to nest here. There is some habitat for Common Nighthawk to breed either on the upper beach and on open areas above the cliff however because of the amount of human activity, it is doubtful nesting would be attempted. Purple Martin nest in boxes on a weir north of the reserve. Barn Swallow would nest in local barns or other structures.

Virginia Rail (*Rallus limicola*) is known to breed at Medicine Beach Nature Sanctuary and are sensitive to disturbance by park visitors and dogs (NCC 2005a). Virginia Rail is ranked S4S5 and is on the yellow-list was a species of interest in previous monitoring reports (NCC 2005a).

3.12 Wildlife Species

Many different mammal species use Medicine Beach Nature Sanctuary. Black-tailed Deer (*Odocoileus hemionus*) and River Otter (*Lontra canadensis*) scat were observed during the survey to update the Management Plan (Maslovat *et al.* 2017). Harbour Seals (*Phoca vitulina*) were observed in the ocean off Medicine Beach.

Eight species of bat were detected using an acoustic bat detector set up over the marsh. Over a 7-night period, there were 838 recordings triggered by bats, with each file containing one or more bats (Table 4) (survey report in Appendix D).

Table 4. Animal Species (Excluding Birds) Observed in Medicine Beach Nature Sanctuary and Adjacent Ocean

Common Name	**Latin Name**
American Mink	*Neovison vison*
Black-tailed Deer	*Odocoileus hemionus*
Harbour Seal	*Phoca vitulina*
Raccoon	*Procyon lotor*
River Otter	*Lontra canadensis*
Big Brown Bat*	*Eptesicus fuscus*
Brazilian Free-tailed Bat*	*Tadarida brasiliensis*
California Myotis*	*Myotis californicus*
Hoary Bat*	*Lasiurus cinereus*
Little Brown Myotis*	*Myotis lucifugus*
Long-eared Myotis*	*Myotis evotis*
Silver-haired Bat*	*Lasionycteris noctivagans*
Yuma Myotis*	*Myotis yumanensis*
Northwestern Gartersnake	*Thamnophis ordinoides*
Pacific Chorus Frog	*Pseudacris regilla*
Western Terrestrial Garter Snake **	*Thamnophis elegans*
Surf Smelt	*Hypomesus pretiosus*

* Bat species were detected using an Anabat Express bat detector (serial number 314197, microphone number 314386) with a sensitivity setting of 115 and set for "night only" recording. The detector was mounted 1.7 m above the ground attached to a snag located at 10 U 480267 E 5400942 N. It was left on site from July 4th-11th. Examination of acoustic spectrograms was done by Peter Ommundsen.
** Western Terrestrial Garter Snake was noted in the NCC Monitoring Report (NCC 2005a).

Pacific Chorus Frogs (*Pseudacris regilla*) were heard calling and tadpoles and froglets were seen in the marsh (Maslovat *et al.* 2017). Sharp-tailed Snakes (*Contia tenuis*) are known to occur on North Pender. Although there are suitable sites within the open bluff habitats that may support the endangered Sharp-tailed Snake, none were observed. Older residents describe historical runs of Cutthroat Trout at the south end of the marsh (Kirkby *pers. comm.* 2018). Questionnaire respondents also noted Muskrat.

The diverse shrub and tree layer around the marsh is excellent habitat for nesting birds. Avian surveys in 2017 identified a total of 50 avian species (list in Appendix C) (Maslovat *et al.* 2017). Breeding was confirmed for Dark-eyed Junco (*Junco hyemalis oreganus*), Brown-headed Cowbird (*Molothrus ater*), Yellow-rumped Audubon's Warbler (*Setophaga coronata auduboni*), Common Yellowthroat (*Geothlypis trichas*), Orange-crowned Warbler (*Oreothlypis celata*), American Robin (*Turdus migratorius*), Marsh Wren (*Cistothorus palustris*), Brown Creeper (*Certhia americana*), Chestnut-backed Chickadee (*Poecile rufescens*), Pacific-slope Flycatcher (*Empidonax difficilis*) and Virginia Rail (*Rallus limicola*).

A wide range of invertebrate species were noted in 2017 including three gastropods, 6 dragonflies, 3 butterflies and 3 insects (survey results in Appendix E).

Medicine Beach is an important site for forage fish, which are a critical prey source for marine predators including marine fish, seabirds and marine mammals (De Graaf 2013). It was mapped as suitable habitat for both Surf Smelt (*Hypomesus pretiosus*) and Pacific Sandlance (*Ammodytes hexapterus*) (De Graaf 2013) and recent monitoring by the Pender Island Conservancy Association confirms that Surf Smelt are spawning at Medicine Beach Nature Sanctuary (PICA 2017; Boffey pers. com. 2018).

3.13 Expected Change over Time

3.13.1 Changes to the Marsh

The marsh ecosystem is in good quality and condition and has a high diversity of ecological communities for its small size. There have been small changes to zonation and species composition as a function of natural successional processes (Linnaeus 2005). From 1993 to 2005, there was an increase in Creeping Bentgrass (*Agrostis stolonifera*), an introduced grass that is common in brackish marshes. There was also an increase in Creeping Spike-rush (*Eleocharis palustris*) and Slough Sedge (*Carex obnupta*) (Linnaeus 2005). Eutrophication was noted as a concern in 2005 due to the blockage of the inflow/outflow stream limiting tidal flow. Further studies are required to determine if this trend continues.

In comparing photographs from 2005 to 2018, the amount of standing water has decreased substantially. Comparing maps prepared by the BC CDC (in MacDonald 2000), the area covered by Common Cattail (*Typha latifolia*) and Slough Sedge have increased.

3.13.2 Changes to the Upland Forest

The second growth forests in the upland portions of the Sanctuary are in good condition and will continue to mature and diversify over time. In some areas, the Douglas-fir may eventually be replaced by Grand Fir which is dominant in the secondary canopy. Over-browsing by deer will continue to affect biodiversity.

3.13.3 Changes to Henderson's Checker-mallow

The 2005 monitoring report described the Checker-mallow population as stable (Linnaeus 2005). There was also a 2005 Monitoring Report for Medicine Beach Nature Sanctuary and addendum (Nature Conservancy of Canada 2005a; 2005b) which contained a full population enumeration for Henderson's Checker-mallow and concluded that deer/herbivore browse was the primary factor regulating the population at that time. A fence was built around some of the patches and some were left outside the fencing. Follow up monitoring visits by the author Ian Giesbrecht where completed and in 2009 he concluded that the population outside the fence had not drastically increased or decreased in number since 2005 (they showed signs of browse with flowering stalks gone but also looked unhealthy with signs of disease in addition to herbivory) while plants inside the fence were large, quite vigorous and had a high rate of flower production (Giesbrecht pers. comm. 2009).

Without a comprehensive survey, it is difficult to determine recent trends; however, comparing photographs from 2005 to 2018, the population appears to be much reduced in vigour, flowering capacity and distribution. The area within the fence has much denser Nootka Rose (*Rosa nutkana*) growth. Although the rose protects the Checker-mallow to some extent, it also competes with it for light and resources and no flowering plants were observed under the roses.

4.0 Threats

The following threats were identified in previous versions of the Management Plan. The threat, the status in 2005, the current condition and expected changes are described.

Table 5. Threats and Management Issues from 1996-2018

Threat	**Prior Status**	**Status in 2018 and Expected Changes**
Natural Resource Protection		
Freshwater Watershed Integrity/ Recharge	Water flow into the marsh is restricted by culverts; Larger watershed still unprotected which may impact integrity of the marsh; No monitoring of water quality in watershed; Possibility of water	No observable change from 2005; Larger watershed still unprotected; No monitoring of water quality. Upslope clearing could increase

	flow diversion towards Browning Harbour associated with development in Watershed B.	erosion, siltation and nutrient loading to the marsh.
Saltwater Flow into Marsh	Basic report recommended baseline studies to monitor salinity in the marsh (Kirkby 1996). Logs at entrance to marsh may be limiting tidal flow and berm erosion may impact inflow and outflow.	Unknown if there are changes from 2005. Salinity studies have not been done due to resource constraints. Further studies by a coastal engineer are recommended to evaluate berm erosion and the associated impacts to inflow/outflow of salt water to the marsh. Studies should include an evaluation of the driftwood which changes the inflow and outflow channels. A rise in sea level associated with climate change may increase salt water intrusion.
Removal of Driftwood	Removal of driftwood was mentioned by Kirkby (pers. comm.) 2018 and Boffey (pers. comm.) 2018. Formerly RCMP placed a public notice in the newspaper asking the public to not take driftwood. Driftwood is also moved to create forts. Both driftwood removal and fort making may lead to greater berm erosion and issues related to salt water inflow/outflow.	Currently, there are many logs on the beach although fort building continues. Removal of logs, sand and seaweed was noted as a threat in a public questionnaire.
Watershed Pollution	Increased storm water runoff in marsh with increased nutrient inflow probable cause of eutrophication; Marsh is surrounded by road on two sides upslope which may be source of pollution; No monitoring of activities in or near inflow streams (drum of chemicals with lid off was observed ~3 feet from stream off Wallace Rd.); Pig farm, motorcycle repair, gravel pit activity in watershed; Garbage left within few feet of streams.	There is now monitoring of activities in the watershed and the pig farm, motor cycle repair and chemical garbage are no longer present. Landowner education program in 2008 has raised awareness of the watershed areas and how to protect these areas. Ongoing potential threat of pollution of oil and other pollutants from the road above the marsh.
Ocean-borne Pollutants	5 mooring buoys offshore invite boaters; Toxic and disintegrating creosote-treated pilings were lashed together and anchored to one of the buoys over the winter (now removed); Boating traffic and anchoring close to beach increasing with	There has been a reduction in the number and use of mooring buoys. Ongoing potential threat of pollution from boating traffic; Risk of pollution from ocean spills;

	popularity of and space limitations at Poet's Cove Marina.	Debris including Styrofoam, floats and garbage wash up on the beach; Derelict boats.
Protection of Checker-mallow	The larger population of Henderson's Checker-mallow was fenced in 2005 but a small population remained unfenced.	The fence has collapsed and is not protecting plants from deer grazing; Nootka Rose has expanded into a dense thicket to the edge of the fenced area. Species-specific monitoring recommended. NCC was in discussions with ITF and PICA about fencing a larger exclosure in 2011 but some parties had concerns about the size and location of the exclosure. More discussion and research is recommended. Ongoing declines may lead to extirpation.
Hyperabundant Deer	Deer grazing was noted on Henderson's Checker-mallow.	Over-grazing limits biodiversity in the reserve by selecting for less palatable species. This is a pervasive threat on all of the larger Gulf Islands.
Invasive Plant Species	Invasive plants recorded include Scotch Broom, Evergreen Spurge-laurel, English Ivy, English Holly, Himalayan Blackberry, Thistles, Orchard-grass and Creeping Bentgrass (NCC 2005a). Scotch Broom was previously abundant in the dry bluff portion of the Sanctuary but removal efforts by PICA have helped keep this and other invasive plants from spreading in the Sanctuary (NCC 2005a).	No English Ivy nor Himalayan Blackberry was observed; Small numbers of all other invasive species were seen but current control efforts by PICA appear to be very effective. Ongoing removal will be required because these invasive species form large seed banks.
Amphibian Protection/ Bullfrog Invasion	Decline of local frog population was noted but causes are unknown (NCC 2005a).	Population size of frogs unknown. Further studies required. Bullfrogs are on North Pender Island and have recorded 2.3 kilometers away, east of Buck Lake Reservoir.
Cultural Resource Protection		
Damage to Midden	Midden erosion noted as early as 1974 (Archaeology Branch 1974); Erosion ongoing as evidenced by exposed soils and sparse vegetation; Erosion likely exacerbated by human activities such as	Logs being used to build forts on beach may increase midden erosion; Large logs in front of the berm continue to offer some protection from winter storms;

	removing driftwood and/or soil-disturbing foot traffic; Monitoring techniques were established to determine changes to the midden/berm over time prior to 2005 (NCC 2005a).	Monitoring should be continued to determine if erosion has increased since 2005. More information and data collection is needed.
Public Use		
Disturbance of Marsh Nesting Birds and foraging Great Blue Herons by Dogs	Disturbance by dogs has been reduced by installation of signage and educational approach (NCC 2005a); Residents still run their dogs off-leash in beach area (Linnaeus 2005)	No change from 2005; No evidence of trampling by people or dogs in marsh but dogs off leash was mentioned as a management issue at the Open House.
Commercial Hauling	Browning Harbour Beach, which has easier access is generally preferred for hauling.	No change from 2005; No legislation exists to prevent the use of the beach area for hauling. Permission is given by the Ministry of Transportation and Infrastructure by a permit process.
Trails: Use and Erosion Potential	Construction of steps to the bluff disturbed the sensitive habitat but overall net gain in protection of coastal bluff ecosystem because the steps and trail keep hikers on the trail; Steps up to bluff, fencing, and a seating area have greatly reduced risk to hikers; New steps allow older residents access to the bluff portion for the first time; Soil erosion and incised gully noted on the old logging road; Gully may divert water from adjacent ephemeral stream and change hydrology (NCC 2005a).	No erosion noted on bluff and visitors appear to keep to the trail except for small path next to stairs; Minor erosion on the trail leading to the shell beach at the east side of the property; Small section of trail closed and signed but still receives small amount of use; If public use increases due to establishment of GINPR, erosion may increase; Bushwacking and shortcuts noted as a threat to the reserve in a questionnaire; Road and parking lot maintenance requested in public questionnaire.
Boat Launch from Beach	Not mentioned in previous Management Plan.	Noted as a threat in public questionnaire.
Camping	No formal monitoring program for the Sanctuary; Campers in the forested area above the marsh can easily escape detection.	Annual covenant monitoring looks for camping damage; PICA have been acting as sanctuary warden but a more official voluntary warden would be a welcome addition; Beach fires (which may harm forage fish) noted as threat in public questionnaire; several public respondents requested an outhouse whereas others saw construction of any kind as a threat.

Excessive Noise	No increase in noise –not a concern.	No change from 2005.
Tree Felling	In 2003, a resident took fallen trees from the Sanctuary; no harvest since.	No obvious tree felling or collection observed in 2017.
Fire Risk	High risk from campfires in bluff area.	High risk from cigarettes or escaped fires.
Garbage/ Littering	Beach clean-up days sponsored by PICA help to control garbage at the site.	No garbage was observed during 2017 surveys; PICA continues to sponsor annual beach cleaning days and does frequent checks to remove garage on site and to report derelict vessels which are a concern after large storms. Garbage left on beach is still noted as a threat in public questionnaire; Dogipot installed in parking area with waste removed every two weeks or every week from June-September by Pender Island Waste Management Ltd. although dog waste still noted as a concern in questionnaires.
Traffic	Still manageable; increased commercial activity (island tours) a concern.	Still manageable.
Trespassing on Adjacent Lands	Signage on the south side of the marsh near boathouse and sign at end of the trail on the top of the bluff has helped to reduce trespass; Sanctuary boundary sign required in upland portion.	Signage at south side of marsh and at gate on Aldridge Road still in place; Adequate signage at Aldridge Road entrance.
Vandalism	No recent reports of vandalism.	No evidence of vandalism.

5.0 Stakeholder Consultation

5.1 Adjacent Landowners

In 2008 a Medicine Beach Watershed Awareness and Landowner Contact was executed by PICA and ITF to educate landowners in the three Medicine Beach watershed areas about what they can do to protect the watersheds. A pamphlet and map were developed to distribute to the landowners as part of this initiative and can be found in Appendix G. Stakeholder Contact 2008. The total number of landowners/tenants/managers contacted were 87 including 52 properties visited. There was also an outreach event held on July 4, 2008 with displays from ITF, PICA and Pender Straitkeepers with 50 people attending who were engaged by their love of the area and awareness was raised about the importance of the watershed throughout the community. There have been no issues reported to the ITF since 2008 from neighbour damage to the watersheds.

In 2017, in preparations for the revised Management Plan, letters were sent to all adjacent land holders and neighbours on January 3, 2018. A total of 19 letters were sent by mail to residents on Schooner Way, Canal Rd and Wallace Rd. The letters contained information on

the Medicine Beach Nature Sanctuary, a link to the current Management Plan and a link to the online survey (see Appendix H).

5.2 First Nations

Letters via email were sent to the following 14 First Nations on January 3, 2018:
Cowichan Tribes
Halalt First Nation
Lake Cowichan First Nation
Lyackson First Nation
Malahat Nation
Pauquachin First Nation
Penelakut Tribe
Semiahmoo First Nation
Songhees First Nation
Stz'uminus (Chemainus) First Nation
Tsartlip First Nation
Tsawout First Nation
Tsawwassen First Nation
Tseycum First Nation

The letters asked how the Islands Trust Fund's management planning and actions for this protected areas on North Pender Island can acknowledge and respect the cultural significance and traditional use of this area. The letters contained information on the Medicine Beach Nature Sanctuary, a link to the current Management Plan and a link to the online survey (see Appendix I). To date, there has been no response from any of the First Nations Tribes.

5.3 Conservation Partners and Community Members

Islands Trust Fund held a public consultation meeting on February 17th, 2018 to seek input on the draft Management Plan and discuss management planning for the reserve. Maps and photographs were on display and residents were asked for their input at that time. There were 8 people who attended the meeting.

An online survey was also made available and was completed by 39 people.

5.4 Consultation Results

The consultation results were summarized by Survey Monkey. Respondents were primarily residents with only 10% living off-island. Most respondents (56%) visit the marsh once a month or more and most engage in accessing the beach (82%), hiking/walking (79%) and wildlife viewing (62%). The most important values were conservation for the intrinsic value of nature (82%), protection of habitat for species at risk (82%) and ecosystem services (51%), with recreational opportunities valued by only 26% of respondents.

6.0 Management Plan

The first Management Plan for the property was drafted in 1996, revised in 2006 and again in 2018.

6.1 Discussion

The purpose of Medicine Beach Nature Sanctuary is to protect, in perpetuity, the brackish marsh, upland forest, coastal bluffs and beach for the benefit of the flora and fauna of the Sanctuary, and to allow for low impact recreation and nature appreciation opportunities for visitors. Ongoing monitoring and management is required to ensure that ecosystems and species continue to remain protected from threats and to ensure public safety. All management activities within the protected area must consider the specific sensitivities of the Species at Risk and their habitat found on the property.

6.2 Management Roles

The Trust Fund Board is the land steward of the Sanctuary but will rely on its partnership with the Pender Islands Conservancy to assist with on the ground management. Covenant holders, Nature Conservancy of Canada and Habitat Acquisition Trust, will monitor the property to ensure compliance with the conservation covenant.

6.3 Permitted and Prohibited Uses

The Sanctuary is open to the public for hiking, use of the beach and nature appreciation. Visitors are requested to keep dogs on a leash, keep them out of the marsh area and to pick up after their dogs.

The following activities by the public are prohibited:

- Use of motorized vehicles
- Bicycling
- Horseback riding
- Camping
- Fires
- Forestry
- Livestock grazing
- Trail development (outside of established trails)
- Tree cutting
- Collection of plants or animals
- Mooring of watercraft including tenders

6.4 Public Access

There is a trail from the parking lot beside the plaque that leads up to the bluff and then down to the sandy beach at the eastern corner of the property. This trail doubles back and connects to an old logging road that leads to Aldridge Road on the western boundary of the property (refer to map in Figure 3).

6.5 Signage

Advertising of the site will not be undertaken and it will not be promoted as an attraction. No major sign will identify the Nature Sanctuary to motorists passing through the area on Schooner Way or Aldridge Road.

Next to the parking lot is a kiosk with three signs explaining the First Nations history of the site, information on forage fish and the ecological importance of the Sanctuary. There is a second wooden kiosk with a welcome to Medicine Beach sign. The two kiosks are connected by a wooden fence along the edge of the parking area which limits access to the marsh. On the fence, there is a welcome sign outlining prohibited activities (fires, camping) and requests that visitors pick up after their dogs and leave beach logs in place. There is also a wooden sign attached to the fence requesting visitors to keep their dogs out of the marsh.

Photo 16. Trail Head Signs at Medicine Beach Nature Sanctuary

Between the fence and the beach, there is a sign outlining the sensitivities of intertidal areas with a warning sign about the risk of paralytic shellfish poisoning. In the same location, there is a container with dog bags and a sign outlining permitted uses of the Sanctuary. At the trail head, there is a large stonework block with a plaque recognizing the funders that helped acquire Medicine Beach Nature Sanctuary.

Photo 17. Trail Head Signs Describing the Risk of Shellfish Poisoning, Permitted Uses and Pet Waste Disposal

Photo 18. Stonework Block with Plaque at Trail Head to Top of Cliff

6.6 Trail Maintenance:

There is a low-impact hiking trail that leads from the parking lot north up the cliff by way of a set of stairs. There are two benches and a guard rail along the top of the cliff. The trail follows along the top of the cliff and then backtracks and travels north to connect with Aldridge Road. There is a gate with a sign at the trail entrance off Aldridge Road.

Photo 19. Stairs Leading from Parking Area to Top of Cliff

Major maintenance and safety issues have been addressed through the construction of stairs and the fences at the top of the cliff. There is a small trail parallel to the stairs which is causing a small amount of erosion and the old logging road shows signs of erosion. A small portion of the trail has been closed and it appears to receive only limited use. The closed trail should be monitored and signs replaced as necessary. No further trails are necessary in the Sanctuary.

Photo 20. Lookout Site with Bench and Fence Along Top of Cliff

6.7 Protection Initiatives for Sensitive Ecosystems and Species at Risk

The fence that was installed to protect the patch of Henderson's Checker-mallow has collapsed and is no longer functional. Henderson's Checker-mallow are highly palatable and grazing was observed on most flowering stems that were not protected (NCC 2005b). The fencing that was installed in 2005 has also protected the Nootka Rose from grazing and the rose has expanded almost to the edge of the fenced area. The dense roses may be

competing with the Checker-mallow. Further species-specific monitoring is recommended to determine if Checker-mallow is declining in the Sanctuary. The Checker-mallow population extends on to the adjacent neighbour's property and the landowner should be contacted prior to any work.

Photo 21. Henderson's Checker-mallow (round leaves in center of photo) at the edge of dense Nootka Rose thicket

Surveys should be done to confirm the presence of the two plant species not noted during the 2017 survey: Macrae's Clover (*Trifolium dicotomum*) and Carolina Meadow Foxtail (*Alopecurus carolinianus*).

Maintaining the marsh and upland forest should be sufficient to protect the Little Brown Myotis (*Myotis lucifugus*), Western Pondhawk (*Erythemis collocata*) and the five at risk birds that were noted in the Sanctuary.

6.8 Ecological Restoration Options

Restoration activities should focus on the old logging road to prevent future erosion of the bed surface and to protect natural hydrology of the adjacent stream and downslope catchment areas (NCC 2005a).

The berm and archaeological midden are subject to wave action and erosion has been noted. The extent of berm erosion should be determined by comparing erosion to measurements made in 2005 and if possible, comparing measurements taken in the 1974 archaeological survey to current conditions. Berm erosion may be exacerbated by the removal of driftwood to build log forts (Photo 23). With the high tides and winter storms of 2017 and 2018 there was an increase in driftwood in the area. To gain a better understanding of the site specific dynamics involved research is needed to determine if the driftwood is protecting the berm from erosion, or increasing erosion when the winter storm tides batter the berm with driftwood.

Work being done by the Capital Regional District on regional climate modelling and sea level prediction mapping with the Coastal Sea Level Rise Risk Assessment Report 2015 should be utilized to predict change over time for this area and to inform decision making into the future.

A more comprehensive coastal engineer erosion study would be needed to determine the impact of berm erosion on saltwater inflow and outflow. The engineer's study would also be required to evaluate tidal flow and to determine the frequency of salt water intrusion at high tide and if the logs at the shoreline are limiting the inflow and outflow of salt water. A clear rationale for the study would have to be discussed as well as the potential actions such as a marine shoreline restoration plan. This would require a baseline of salinity data and then salinity monitoring in the marsh overtime and would be a large scale project that would require many years to complete and would require additional funding sources. There is also the option to allow natural processes unimpeded by human intervention, then the potential for the berm to eventually erode completely with the brackish marsh becoming a salt marsh.

Photo 22. One of Several Log Forts on Medicine Beach

6.9 Scientific Research/Education

In 2005, the ITF hired a contractor to evaluate the health of the Nature Sanctuary and NCC performed an extensive evaluation of the property. The resulting reports are titled: *Measuring Ecosystem Health at the Medicine Beach Nature Sanctuary: The State of the Sanctuary in 2005* (Linnaeus 2005) and *2005 Monitoring Report for Medicine Beach Nature Sanctuary* (Nature Conservancy of Canada 2005a; 2005b).

Scientific research plays a critical role in understanding natural processes and shaping potential management options. All research in the Sanctuary should be approved by ITF and should ensure there is no associated harm to Species at Risk and/o their habitat.

If funding is available, ongoing monitoring of water quality and flow rates is recommended.

6.10 Exotic and Invasive Species Removal

There has been ongoing removal of invasive species from the Sanctuary by the PICA. These efforts have been effective at controlling woody invasive species and should be continued to remove plants that grow from the seed bank. Only small isolated Scotch Broom and Evergreen Daphne persist in the Sanctuary.

If possible, removal efforts should also focus on Yellow Flag Iris which is present in very small numbers in the Sanctuary. The plants will need to be dug out by hand and all of the roots removed. If removal of the plants is not immediately feasible, annual removal of flowers and seeds before seeds spread (around July) will help to contain the spread of the plant. See information available through the Coastal Invasive Species Committee for details on containment of Yellow Flag Iris.

There is a single Cotoneaster plant next to the stonework block with the plaque that should be removed before it spreads.

Photo 23. Invasive Species Reed Canary Grass (left) and Yellow Flag Iris (right) in Marsh

6.11 Wildfire Planning

Wildfire and wildfire suppression can be extremely damaging to sensitive ecosystems. Campfires on the beach can impact forage fish and other intertidal species and can spread to adjacent forests. Beach fires also remove driftwood and may impact tidal inflow and outflow to the marsh. Developing a fire management plan in consultation with the Pender Island

Volunteer Fire Department and the BC Wildfire Service who have done similar plans for sensitive ecosystems such as these, is recommended.

7.0 Action Items

Management Plan action items are measurable and achievable tasks that the ITF and partners can complete to ensure that the protected area is managed in the best possible way. The following management action items are based on the recommendations made in this Management Plan and listed in priority sequence, subject to available funding resources.

7.1 Immediate Actions (1-2 years)

1. Designate a volunteer warden who visits the site regularly to work with PICA or may be a member of PICA, to monitor the property and identify management concerns such as trespassing, tree cutting, camping, beach fires, dogs in marsh and other issues. The warden would have the appropriate contact numbers and criteria for alerting RCMP, Report all Poachers and Polluters (RAPP), Conservation Officer contacts etc.
2. Continue to keep adjacent landowners informed on the importance of the area and be aware if a local stream monitoring group develops on the Penders or other potential partner groups to help implement water quality monitoring (especially flows at culverts on Wallace Road and Canal Way) and to educate about the sensitivity of shoreline habitats and the impacts from pollution.
3. Send a letter and a copy of the Management Plan to the North Pender Local Trust Committee to state the importance of good land use planning for the upstream areas.
4. Investigate placing a Rockfish Conservation Area sign to inform users of the area and to raise awareness.
5. Consider the feasibility and rationale to start a baseline of salinity monitoring and to evaluate erosion of the berm and the impacts of driftwood to determine the impacts of saltwater inflow and outflow to the marsh. Obtain partner input, explore CRD sea level rise predictions, zoning and permit and/or archaeological assessment requirements.
6. Assess how best to monitor Henderson's Checker-mallow to determine long-term trends and evaluate fencing removal or replacement. Cutting of Nootka Rose is prohibited by the conservation covenant and would require a special waiver if recommended.
7. Continue communications with the North Pender Local Trust Committee to determine the status of the rezoning of the foreshore.
8. Communicate with companies that we know have asked for a permit to use Schooner Way, Bedwell Harbour Road and the foreshore of the Sanctuary to transport houses explaining the ecological impacts. A copy of all correspondence should also be sent to all parties who manage the foreshore including the Ministry of Transportation and Infrastructure.
9. Consider a survey for Western Screech-Owl to determine if this species is present on the Sanctuary.

7.2 Short term Actions (3-5 years)

1. Depending on results of the feasibility and rationale study take next steps: no human intervention or investigate funding to employ a coastal engineer to evaluate or conduct berm/midden monitoring to determine long-term erosion rates, all in partnership with the PICA, HAT and NCC.
2. Set up a monitoring program of the Henderson's Checker-mallow if funding allows. If the population is declining, consider development of a restoration plan, including consideration of fence removal, as a short-term action.
3. If necessary, develop a restoration plan for Henderson's Checker-mallow
4. Assess how best to monitor native amphibian populations to determine population trends and provide early detection of Bullfrog invasion.
5. Prepare a wildfire management plan that considers both forest ecology and prevention of damage to surrounding neighbourhoods in consultation with the Pender Island Volunteer Fire Department and the BC Wild fire Service.

7.3 Long term Actions (5+ years)

1. Work with PICA and any landowners of adjacent land who would like to achieve protection mechanisms (such as covenants) to create a buffer zone on neighbouring properties to protect the quality and quantity of water flowing to the Nature Sanctuary.

7.4 Ongoing or Annual Action Items

1. Conduct annual monitoring to monitor covenant compliance and identify management concerns including public use (e.g. trail monitoring) and invasive species.
2. Communicate annually with NCC and HAT to provide updates on the Sanctuary, seek approvals for stewardship activities as necessary and maintain compliance with the conservation covenant.
3. Continue to remove invasive, non-native species in cooperation with PICA. Target Yellow Flag Iris and Cotoneaster for removal and continue to remove re-sprouts.
4. Conduct ongoing maintenance and management of structures, signs and trails.
5. Continue to monitor garbage on the Sanctuary and support continued PICA coordinated beach cleanups.
6. Continue to monitor the need to provide a dog waste disposal service.
7. Support PICA and volunteer wardens to monitor the property and identify management concerns such as trespassing, tree cutting, camping, dogs in marsh, trail and sign damage and other issues.
8. If funding allows conduct monitoring of Henderson's Checker-mallow to determine long-term population trends.
9. Maintain communication with North Pender Local Trust Committee to determine the status of the rezoning of the foreshore.

10. Continue to inform the general public of the natural values of the site and the permitted and prohibited uses through information placed in local publications from time to time by the management group.

8.0 Conclusion

Medicine Beach Nature Sanctuary is an important protected area which is surrounded by privately managed land. It provides habitat for 11 rare species and a range of other native species.

The ITF will act on the management action items identified in this plan to achieve the vision, objectives and purpose of the Medicine Beach Nature Sanctuary. Future management issues may lead to further action items that will be identified in work plans and in future revisions of this plan.

9.0 References

Archaeological Branch, 1974. Archaeological Report: Medicine Beach, Pender Island, BC. Archaeology Branch, Ministry of Small Business, Tourism and Culture. Province of British Columbia, Victoria, BC.

Archaeology Branch. 2017. Email communication and shapefiles from Diana Cooper, Archaeologist/ Archaeological Site Inventory Information and Data Administrator. Archaeology Branch, Ministry of Forests, Lands, Natural Resource Operations and Rural Development. Victoria, BC.

Boffey, Graham. 2018. Personal Communication. Pender Island Conservancy Association. Email correspondence with C. Maslovat.

British Columbia Conservation Data Centre (BC CDC). 2018. Biotics 7 and BC Species and Ecosystems Explorer. http://maps.gov.bc.ca/ess/sv/cdc/ Accessed July 2017.

British Columbia Conservation Data Centre (BC CDC). 2017b. Species Occurrence Report. Shape ID: 14459/ Occurrence ID: 5427. *Sidalcea hendersonii* (Henderson's Checker-mallow).

British Columbia Conservation Data Centre (BC CDC). 2017c. Species Occurrence Report. Shape ID: 91265/ Occurrence ID: 11970. *Trifolium dichotomum* (Macrae's Clover).

Cadrin, Carmen. 1994. Personal Communication. Letter to Lawrence Pitt, Pender Island, BC. September 7, 1994. ITF Files.

Carlson, R.L. 1960. Chronology and Culture Change in the San Juan Islands, Washington. American Antiquity 25(4):562-586.

Carlson, R. & P. M. Hobler. 1993. The Pender Canal Excavations and the Development of Coast Salish Culture. British Columbia Studies. No 99. August.

De Graaf, R.C. 2013. North and South Pender Islands Beach Spawning Forage Fish Habitat Assessments. Unpublished Report prepared for the Islands Trust Fund. Emerald Sea Biological. April 8, 2013.

Elliott, John. 2016. Personal Communication. Elder John Elliot, SENĆOŦEN Teacher, contributed the information for the kiosk panels that are featured at the Medicine Beach Nature Sanctuary.

Environment Canada. 2018. Canadian Climate Normals. http://climate.weather.gc.ca/climate_normals/index_e.html#1981 Accessed January 2018.

Giesbrecht, Ian. 2009. Personal Communication. Nature Conservancy of Canada. Email Correspondence with K. Emmings and J Ralph.

Islands Trust. 2018a. About the Islands Trust. http://www.islandstrust.bc.ca/connect/about-us/ Accessed January 2018.

Islands Trust. 2018b. MapIT. http://mapit.islandstrust.bc.ca Accessed January 2018.

Kenney, E.A., L.J.P. Van Vliet and A.J. Green. 1988. Soils of the Gulf Islands of British Columbia. Volume 2: Soils of North Pender, South Pender, Prevost, Mayne, Saturna and Lesser Islands. Report. No. 43. British Columbia Soil Survey. http://sis.agr.gc.ca/cansis/publications/surveys/bc/bc43-2/bc43-2_report.pdf Accessed January 2018.

Kirkby (ITF). 1996. Site Basic Record: Medicine Beach Marsh. March 25, 1996. Islands Trust Fund Files.

Kirkby, J. 2018. Personal Communication. Conversation with Nuala Murphy at Medicine Beach Open House. February 17, 2018.

Kronen, S. n.d. A. Terrestrial Ecosystem Map and Slope Hazard Assessment. Unpublished Report Prepared for 312B Restoration of Natural Systems. Instructor R. Hebda.

Linnaeus Environmental Consulting. 2005. Measuring Ecosystem Health at the Medicine Beach Nature Sanctuary: The State of the Sanctuary in 2005. Unpublished Report prepared for The Islands Trust Fund.

Lockwood, M. 2006. Global Protected Area Framework. In M. Lockwood, M. Lockwood, G. L. Worboys, & A. Kothari (Eds.), Managing Protected Areas: A Global Guide (p. 84). London: Earthscan.

MacKenzie, W. 2002. Biogeoclimatic Ecosystem Classification of Non-forested Ecosystems in British Columbia. Province of BC, Victoria, BC. Technical Report 068. https://www.for.gov.bc.ca/hfd/pubs/Docs/Tr/Tr068.pdf Accessed January 2018.

MacKenzie, W.H. and J.R. Moran. 2004. Wetlands of British Columbia: a guide to identification. Resources Branch, BC. Ministry of Forests, Victoria BC. Land Management. Handbook No. 52.

MacDonald, A. 2000. Baseline Inventory Report for Medicine Beach Nature Sanctuary. Attached to Conservation Covenant.

Maslovat, C., R. Ferguson and L. Matthias. 2017. Field Report for Ecological Survey Medicine Beach, Pender Island, BC. July 4-5, 2017. Unpublished Report prepared for Islands Trust Fund.

Nature Conservancy of Canada (NCC). 2005a. Monitoring Report for Medicine Beach Nature Sanctuary. Unpublished Report prepared for Nature Conservancy of Canada.

Nature Conservancy of Canada (NCC). 2005b. Addendum to the 2005 Monitoring Report for Medicine Beach Nature Sanctuary. Unpublished Report prepared for Nature Conservancy of Canada.

North Pender Island Official Community Plan (OCP). 2007. Bylaw 171. http://www.islandstrust.bc.ca/islands/local-trust-areas/north-pender/bylaws/ Accessed January 2018.

North Pender Island Official Community Plan (OCP). 2015. Land Use Map. http://www.islandstrust.bc.ca/media/339080/ocp_b_luddec2015.pdf Accessed January 2018.

Ommundsen, P., C. Lausen, and L. Matthias. 2017. First Acoustic Records of the Brazilian Free-Tailed Bat (Tadarida brasiliensis) In British Columbia. Northwestern Naturalist, 98(2):132-136. Society for Northwestern Vertebrate Biology https://doi.org/10.1898/NWN16-24.1

Pender Island Conservancy Association (PICA). 2006. Management Plan for the Medicine Beach Nature Sanctuary, North Pender Island. Revised 2006 by Trust Fund Board Resolution No. TFB 06/836. Unpublished Report Prepared for the Islands Trust Fund Board.

Pender Island Conservancy Association (PICA). 2017. Forage Fish Monitoring Report. May 2017. Unpublished Report extracted rom the Annual Report to the PICA AGM.

Reimer, K. and P. Grange, 1995. Medicine Beach Marsh: Watershed Study. Unpublished Report prepared for Trust Fund Board, Victoria, BC. and Pender Islands Conservancy.

Williard, K. 2017. Personal communication. Identification of moth found in bat detector posted on Bug Guide. https://bugguide.net/node/view/15740 [Accessed December 2017].

10.0 Appendices

Appendix A. Ecological Community Descriptions

An inventory of biological features was conducted in the Sanctuary on July 4th and 5th, 2017 by three consulting biologists. Four site series were identified using A Field Guide for Site Identification and Interpretation for the Vancouver Forest Region (Green and Klinka, 1994) (map in Figure 2). Four wetland site associations were identified using MacKenzie and Moran (2004). Two ecological communities Dune Wildrye/Beach Pea and Trembling Aspen/Pacific Crab Apple/ Slough Sedge) were not classified in either of these resources but are ecological communities that are listed by the BC Conservation Data Centre (2018). Two of the communities are not considered to be part of the Special Ecosystem Inventory. These site series and the corresponding ecological communities are described below.

Ecological Community 1: Coastal Cliff (CDFmm/00-Rc).

Description: Ecological Community 1 is dominated by a steep cliff face with thin soils and marine influence. Exposed rock/bare soil covers approximately 80% of the vegetation type. Slopes are steep, soils are shallow or non-existent except at the top of the cliff face. The dominant tree type is Arbutus and the aspect faces south. Understory vegetation was observed from the top of bank. There is potential for the endangered Sharp-tailed Snake (*Contia tenuis*) to be found at the top of the cliff face.

The Islands Trust MapIt site lists this unit as Herbaceous/Herbaceous and the primary unit classification as *Cladina/* Wallace's Selaginella (Islands Trust 2018b). Although Wallace's Selaginella is present on the site, it is not dominant and community is not typical of *Cladina* /Wallace's Selaginella. The site is better characterized as coastal cliff as per MacKenzie (2002).

FLORA

Main Canopy Species & percent cover	Douglas-fir (*Pseudotsuga menziesii*) and Arbutus (*Arbutus menziesii*) are found at top of bank. There is a Bigleaf Maple (*Acer macrophyllum*) mid-bank but there is no significant canopy coverage.
Total Canopy Cover	0%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Shrubs: 2% Hairy Honeysuckle (*Lonicera hispidula*), 1% Saskatoon (*Amelanchier alnifolia*), 1% Scotch Broom* (*Cytisus scoparius*) Herbaceous Plants: 30% Barren Fescue* (*Vulpia bromoides*), 20% Rip-gut Brome* (*Bromus rigidus*), 5% Blue Wildrye (*Elymus glaucus*), 5% Death Camas (*Toxicoscordion venenosum*), 3% Silver Hairgrass* (*Aira caryophllea*), 3% Early Hairgrass* (*Aira praecox*), 3% Wallace's Selaginella (*Selaginella wallacei*), 2% California Brome (*Bromus carinatus*), 2% Thimble Clover (*Trifolium microdon*), 2% Ribwort Plantain

	(*Plantago lanceolata*), 2% American Wild Carrot(*Daucus pusillus*), 2% Hairy Cat's-ear* (*Hypochaeris radicata*), 1% Small Hop-clover* (*Trifolium dubium*), 1% White Hawkweed (*Hieracium albiflorum*), 1% Large-flowered Hawkweed (*Agoseris grandiflora*), <1% Big-leaved Sandwort (*Moehringia macrophylla*), <1% Nodding Onion (*Allium cernuum*), <1% Mountain Sweet Cicely (*Osmorhiza berteroi*), 1% Tarweed (*Madia* sp.), <1% Sweet Vernalgrass* (*Anthoxanthum odoratum*), <1% Common Vetch* (*Vicia sativa*), <1% Small-headed Clover (*Trifolium microcephalum*), <1% Royal Rein Orchid (*Piperia transversa*), <1% Clover (*Trifolium* sp.), <1% Broad-leaved Stonecrop (*Sedum spathulifolium*), <1% Woolly Sunflower (*Eriophyllum lanatum*). 25% Litter and bare soil.
Observed rare/threatened species & locally uncommon species	Macrae's Clover (*Trifolium dichotomum*) has been mapped along the coastal cliffs but it was not observed in the survey prior to the Management Plan because the timing was too late.
Special Features	Steep cliff next to ocean shoreline with diverse assemblage of herbaceous plants, inaccessible to deer.
Expected Changes	Some erosion to be expected due to the steep bank and impact from storm surges.
Disturbance History	Trees were logged at top of bank which may have increased erosion from cliff face.

FAUNA

Wildlife Habitat / Features	South facing slope with exposed rock ledges is good habitat for snakes & lizards. Diverse herbaceous plants provide nectar sources for birds and butterflies.
Observed Species	**BIRDS** Refer to Appendix C for complete list of birds observed in the Sanctuary. **MAMMALS** Harbour Seal observed in ocean next to ecological community
Rare/threatened species & locally uncommon species	Olive-sided Flycatcher (*Contopus cooperi*) Possible nest cavity of Belted Kingfisher (*Megaceryle alcyon*)

Ecological Community 2: 70% Douglas-fir/Arbutus (CDFmm/02) Young Forest: 30% Douglas-fir/Salal Young Forest (CDFmm/01)

Description

The young forest of mixed Douglas-fir/Arbutus and Douglas-fir/Salal is found above the coastal cliffs north of the road. Green and Klinka (1994) refer to the site series as Douglas-fir/Salal and on this site, it corresponds to the BC CDC ecological community of Douglas-fir/ Dull Oregon-grape (CDFmm/01). The terrain is sloped to the south with open exposure because of the adjacent cliffs. The dominant trees are Douglas-fir and Arbutus and the trees are young (less than 40 years old). There is a diversity of native shrubs including a small amount of the non-native Scotch Broom. There is a mix of native and non-native forbs and grasses. This portion of the Sanctuary has a large number of built structures including fencing, stairs and benches.

Both the dominant and secondary ecological communities are red-listed by the BC Conservation Data Centre (BC CDC 2018).

FLORA

Main Canopy Species & percent cover Age (estimated) Height DBH	Douglas-fir (*Pseudotsuga menziesii*) 20%, Arbutus (*Arbutus menziesii*) 15% Uneven-aged, 20-40 yrs 5-17 m 17-30 cm
Secondary Canopy Species & percent cover Age (tree core of sample tree and estimated) Height DBH	 Grand Fir (*Abies grandis*), 3% 10-15 yrs 3-4 m 6 cm
Total Canopy Cover	35-40%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Shrubs/Ferns: 5% Hairy Honeysuckle (*Lonicera hispidula*), 4% Trailing Blackberry (*Rubus ursinus*), 1% Salal (*Gaultheria shallon*), 1% Baldhip Rose (*Rosa gymnocarpa*), <1% Scotch Broom* (*Cytisus scoparius*), <1% Douglas-fir seedlings (*Pseudostuga menziesii*), Herbaceous Plants: 2% Orchard-grass (*Dactylis glomerata*), 2% Rip-gut Brome* (*Bromus rigidus*), <1% Sweet Vernalgrass* (*Anthoxanthum odoratum*), <1% Nipplewort* (*Lapsana communis*), <1% Pacific Brome (*Bromus vulgaris*), <1% Tarweed (*Madia* sp.), <1% Pacific Sanicle (*Sanicula crassicaulis*), <1% Blue Wildrye (*Elymus glaucus*), <1% Hairy Cat's-ear*

	(*Hypochaeris radicata*), <1% Tiny Vetch* (*Vicia hirsuta*), <1% White Hawkweed (*Hieracium albiflorum*), <1% Big-leaved Sandwort (*Moehringia macrophylla*), <1% Mountain Sweet Cicely (*Osmorhiza berteroi*), <1% Fescue (*Festuca* sp.), <1% Common Vetch* (*Vicia sativa*), <1% Ribwort Plantain (*Plantago lanceolata*), <1% Barren Fescue* (*Vulpia bromoides*), <1% Small Hop-clover (*Trifolium dubium*), <1% Sticky Chickweed (*Cerastium glomeratum*) Mosses include: Oregon Beaked-moss (*Eurhynchium oreganum*) Broom Moss (*Dicranum scoparium*), Step Moss (*Hylocomium spendens*)
Observed rare/threatened species & locally uncommon species	None found
Special Features	Maturing woodland forest with marine influence.
Expected Changes	Forest will mature over time and species composition will slowly change with maturity.
Disturbance History	Built structures include benches, signs and fences along cliff edge.

FAUNA

Wildlife Habitat / Features	Maturing open forest. Arbutus berries an important food source for a range of birds.
Observed Species	Refer to Appendix C for complete list of species observed in the Sanctuary.
Rare/threatened species & locally uncommon species	None Observed

Ecological Community 3: Douglas-fir/ Alaska Oniongrass (CDFmm/03)
Description
This ecological community is a maturing forest of Douglas-fir with small amounts of Western Redcedar. The trees are small (estimated to be less than 40 years old) and the terrain is gently sloping (15°) with a south-facing aspect (200°). There is a diverse understory with many native shrubs and a small amount of the non-native Evergreen Spurge-laurel. There is a rich layer of forbs and grasses which includes Alaska Oniongrass and a range of mosses.

Mapping on the Islands Trust MapIT site does not include this plant community and polygon 3249 is mislabeled as a young forest with a mix of 70% Douglas-fir/Arbutus and 30% Douglas-fir/Salal (Islands Trust 2018b). This ecological community is red-listed by the BC CDC (2018).

FLORA

Main Canopy Species & percent cover Age (estimated) Height DBH	Douglas-fir (*Pseudotsuga menziesii*) 30%, Western Redcedar (*Thuja plicata*) 10% Uneven-aged, 25-40 yrs 10-15 m 30-55 cm
Secondary Canopy Species & percent cover Age (tree core of sample tree and estimated) Height DBH	 Grand Fir (*Abies grandis*), 5% 15-20 yrs 5 m 10cm
Total Canopy Cover	30-50%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Shrubs/Ferns: 10% Dull Oregon-grape (*Berberis nervosa*), 5% Hairy Honeysuckle (*Lonicera hispidula*), <1% Evergreen Spurge-laurel* (*Daphne laureola*), <1% Swordfern (*Polystichum munitum*), <1% Douglas-fir seedlings (*Pseudostuga menziesii*), <1% Arbutus seedlings (*Arbutus menzeisii*) <1% Red Huckleberry (*Vaccinium parvifolium*), <1% Baldhip Rose (*Rosa gymnocarpa*) <1% Saskatoon (*Amelanchier alnifolia*), < 1% Scotch Broom* (*Cytisus scoparius*), 1% Salal (*Gaultheria shallon*), <1% Trailing Blackberry (*Rubus ursinus*), <1% Tall Oregon-grape (*Berberis aquifolium*), <1% Oregon Boxwood (*Paxistima myrsinites*) Herbaceous Plants: 6% Alaska Oniongrass (*Melica subulata*), 6% Brome (*Bromus* sp.), 3% Tarweed (*Madia* sp.), 2% Yerba Buena (*Micromeria douglasii*), 1% Sweet Vernalgrass* (*Anthoxanthum odoratum*), <1% Northern

	Starflower (*Trientalis latifolia*), <1% Rattlesnake Plantain (*Goodyera oblongifolia*), <1% Pacific Sanicle (*Sanicula crassicaulis*), <1% Scouler's Harebell (*Campanula scouleri*), <1% Western Fescue (*Festuca occidentalis*), <1% Cleavers (*Galium* aparine), <1% Wood Strawberry (*Fragaria vesca*), <1% Blue Wildrye (*Elymus glaucus*), <1% Hairy Cat's-ear* (*Hypochaeris radicata*), <1% Tiny Vetch* (*Vicia hirsuta*), <1% Fescue (*Festuca* sp.), <1% Spotted Coralroot (*Corallorhiza maculata*), <1% White Hawkweed (*Hieracium albiflorum*), <1% Big-leaved Sandwort (*Moehringia macrophylla*), <1% Nodding Onion (*Allium cernuum*), <1% Mountain Sweet Cicely (*Osmorhiza berteroi*), <1% Common Vetch* (*Vicia sativa*), <1% Broad-leaved Stonecrop (*Sedum spathulifolium*), Mosses 70% include: Oregon Beaked-moss (*Eurhynchium oreganum*), Electrified Cat's-tail (*Rhytidiadelphus triquestrus*), Broom Moss (*Dicranum scoparium*), Step Moss (*Hylocomium spendens*), Haircap Moss (*Polytrichum juniperinum*)
Observed rare/threatened species & locally uncommon species	White-lipped Rein Orchid (*Piperia candida*)
Special Features	Maturing coniferous forests. Some snags present for wildlife values.
Expected Changes	Forest will mature over time and species composition will slowly change with maturity.
Disturbance History	Trees previously logged and stumps are present.

FAUNA

Wildlife Habitat / Features	Maturing forest with snags and woody debris for wildlife.
Observed Species	**BIRDS** Brown Creeper (*Certhia americana*) Chestnut-backed Chickadee (*Poecile rufescens*) Dark-eyed Junco (*Junco hyemalis oreganus*) Northern Flicker (*Colaptes auratus*) Pacific-slope Flycatcher (*Empidonax difficilis*) Yellow-rumped Audubon's Warbler (*Setophaga coronata audubonii*) Refer to Appendix C for complete list of birds observed in the Sanctuary. **MAMMALS** Black-tailed Deer (*Odocoileus hemionus*) scat River Otter (*Lontra canadensis*) scat
Rare/threatened species &	None Observed

locally uncommon species	

Ecological Community 4: Douglas-fir/ Dull Oregon-grape (CDFmm/01)
Description
Green and Klinka (1994) refer to the site series as Douglas-fir/Salal and on this site, it corresponds to the BC CDC ecological community of Douglas-fir/ Dull Oregon-grape (CDFmm/01). There are a number of ecological communities in Medicine Beach Nature Sanctuary that are dominated by Douglas-fir/Dull Oregon-grape. Within the Sanctuary all are young forest with trees less than 60 years old. Douglas-fir is the dominant canopy species and there is a mix of Western Redcedar, Grand Fir and Red Alder either in the main canopy or in the secondary canopy. In areas with large numbers of Grand Fir in the understory, the vegetation will transition to Grand Fir/ Dull Oregon-grape (CDF mm/04). There is a diverse native shrub layer and the only non-native shrub noted was Evergreen Spurge-laurel. The herbaceous layer and mosses are relatively limited. The slope is predominantly gradual and overall aspect is to the south.

The ecological community described here includes several polygons identified by the Islands Trust MapIt including #3914, #2636 and #2696. Both #3914 and #2636 are listed as having 100% Douglas-fir/Salal (Islands Trust 2018b) (which on this site corresponds to the BC CDCs Douglas-fir/ Dull Oregon-grape). Polygon #2696 is mapped as 30% Douglas fir/ Salal with 60% Douglas-fir/ Grand Fir /Oregon-grape.

Douglas-fir/ Dull Oregon-grape is red-listed by the BC CDC (2018).

FLORA

Main Canopy Species & percent cover Age (estimated) Height DBH	Douglas-fir (*Pseudotsuga menziesii*) 30%, Western Redcedar (*Thuja plicata*) 10%, Uneven-aged, 30-60 yrs 15-20 m 40-70 cm
Secondary Canopy Species & percent cover Age (estimated) Height DBH	Grand Fir (*Abies grandis*), 15%, Western Redcedar 5%, Red Alder (*Alnus rubra*) 3% 10-20 yrs 10-15 m 11-21 cm
Total Canopy Cover	50-60%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses,	Shrubs/Ferns: 70% Salal (*Gaultheria shallon*), 4% Red Huckleberry (*Vaccinium parvifolium*), 2% Swordfern (*Polystichum munitum*), <1% Hairy Honeysuckle (*Lonicera hispidula*), <1% Evergreen Spurge-laurel*

etc.	(*Daphne laureola*), <1% Trailing Blackberry (*Rubus ursinus*), <1% Snowberry (*Symphoricarpos albus*) Herbaceous Plants: <1% Cleavers (*Galium* aparine), <1% Spotted Coralroot (*Corallorhiza maculata*), <1% Mountain Sweet Cicely (*Osmorhiza berteroi*), <1% Pacific Brome (*Bromus vulgaris*), <1% Vanilla-leaf (*Achyls triphylla*), <1% Pathfinder (*Adenocaulon bicolor*), <1% Northern Starflower (*Trientalis latifolia*) Mosses 5% include: Oregon Beaked-moss (*Eurhynchium oreganum*)
Observed rare/threatened species & locally uncommon species	None observed.
Special Features	Maturing coniferous forests. Some snags present for wildlife values.
Expected Changes	Forest will mature over time and species composition in some areas will slowly change with maturity.
Disturbance History	Trees previously logged and stumps are present.

FAUNA

Wildlife Habitat / Features	Maturing forest with small snags and woody debris for wildlife.
Observed Species	**BIRDS** Hutton's Vireo Western Tanager Refer to Appendix C for complete list of birds observed in the Sanctuary. **MAMMALS** Black-tailed Deer (*Odocoileus hemionus*) scat River Otter (*Lontra canadensis*) scat
Rare/threatened species & locally uncommon species	None Observed

Ecological Community 5: Red Alder-Skunk Cabbage (CDFmm/Ws52)

Description

This site was classified using MacKenzie and Moran (2004) and is considered a treed swamp. The main canopy is dominated by Red Alder with a sparse secondary canopy of Grand Fir and Western Redcedar. Dominant understory shrubs include Salmonberry, Swordfern and Salal with small amounts of the non-native Evergreen Spurge-laurel and English Holly. Slough sedge and Skunk Cabbage are present in the herb layer. The area is level to slightly depressed with small degrees of slope in other areas. This ecological community is red-listed by the BC CDC (2018).

FLORA

Main Canopy Species & percent cover Age (estimated) Height DBH	Red Alder (*Alnus rubra*) 40% 20-30 yrs 15-20 m 35 cm
Secondary Canopy Species & percent cover Age (estimated) Height DBH	Grand Fir (*Abies grandis*), 2%, Western Redcedar 2% 5-10 yrs 3-4 m 5-10 cm
Total Canopy Cover	45-50%
Understorey (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Shrubs/Ferns: 5% Swordfern (*Polystichum munitum*), 3% Salal (*Gaultheria shallon*), 3% Salmonberry (*Rubus spectabilis*), 1% Red Huckleberry (*Vaccinium parvifolium*), 1% Evergreen Spurge-laurel* (*Daphne laureola*), 1% English Holly* (*Ilex aquifolium*), 1% Lady Fern (*Athyrium filix-femina*), <1% Trailing Blackberry (*Rubus ursinus*), <1% Oceanspray (*Holodiscus discolor*) Herbaceous Plants: 7% Slough Sedge (*Carex obnupta*), 4% Skunk Cabbage (*Lysichiton americanus*), 1% Pacific Water-parsley (*Oenanthe sarmentosa*), 1% Hedge-nettle (*Stachys chamissonis*), <1% Cleavers (*Galium* aparine), <1% Vanilla-leaf (*Achyls triphylla*), <1% Pathfinder (*Adenocaulon bicolor*), <1% Wall Lettuce (*Mycelis muralis*), <1% Common Rush (*Juncus effusus*), <1% Field Mint (*Mentha arvensis*), <1% Enchanter's-nightshade (*Circaea alpina*), <1% Large-leaved Avens (*Geum macrophyllum*), <1% Creeping Bentgrass* (*Agrostis stolonifera*), <1% Short-stemmed Sedge (*Carex brevicaulis*), <1% Giant Horsetail (*Equisetum*

	telmateia), <1% Smooth Scouring Rush (*Equisetum laevigatum*), <1% Horsetail (*Equisetum* sp.)
Observed rare/threatened species & locally uncommon species	None observed.
Special Features	Deciduous dominated swamp
Expected Changes	Forest will mature over time and species composition will slowly change with maturity.
Disturbance History	Site previously logged.

FAUNA

Wildlife Habitat / Features	Maturing forest with diverse understory.
Observed Species	**BIRDS** Brown Creeper (*Certhia americana*) Downy Woodpecker (*Picoides pubescens*) Orange-crowned Warbler (*Oreothlypis celata*) Pacific-slope Flycatcher (*Empidonax difficilis*) Red-breasted Nuthatch (*Sitta canadensis*) Song Sparrow (*Melospiza melodia*) Refer to Appendix C for complete list of birds observed in the Sanctuary.
Rare/threatened species & locally uncommon species	None Observed

Ecological Community 7: Dune Wildrye-Beach Pea (CDFmm)

Description

This ecological community is found along the low-bank berm which separates the brackish marsh from the ocean. There are no trees and very few shrubs due to the influence of salt spray. There is an extensive shell midden that forms the substrate of the ecological community and the berm may have been created by First Nations to enhance fishing (PICA 2006). The midden is mapped as archaeological site DeRT-15. There are large amounts of driftwood both on the surface and in the substrate and the driftwood accumulation has helped to create the berm. The aspect faces southeast (110°) with little to no slope (0-5°) and the elevation is at sea level. This is a red-listed ecological community (BC CDC 2018).

FLORA

Total Canopy Cover	0%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Shrubs/Ferns: 1% Nootka Rose (*Rosa nutakana*), <1% Trailing Blackberry (*Rubus ursinus*) Herbaceous Plants: 90% Dune Wildrye (*Leymus mollis*), 2% Beach Pea (*Lathyrus japonicus*), 2% Silver Burweed (*Ambrosia chamissonis*), 2% Cleavers (*Galium* aparine), 1% Orchard-grass* (*Dactylis glomerata*), 1% Perennial Ryegrass* (*Lolium perenne*), 1% Hedge Bindweed (*Calystegia sepium*), <1% Nipplewort* (*Lapsana communis*), <1% American Sea Rocket* (*Cakile edentula*), <1% Lamb's-quarters (*Chenopodium album*), <1% Sow Thistle (*Sonchus* sp.), <1% Bull Thistle* (*Cirsium vulgare*), <1% Common Dandelion (*Taraxacum officinale*)
Observed rare/threatened species & locally uncommon species	None observed.
Special Features	Sensitive midden site with archaeological significance. Berm protects the brackish marsh from ocean waves.
Expected Changes	
Disturbance History	Berm may have been created by First Nations. The beach is used by the public and some of the driftwood has been used to build forts. This may cause erosion of the berm in the future.

FAUNA

Wildlife Habitat / Features	Thick vegetation next to shoreline provides important refuge and feeding site for wildlife. Thick vegetation also protects the sensitive brackish marsh.
Observed Species	**BIRDS**

	Orange-crowed Warbler (*Oreothlypis celata*) Song Sparrow (*Melospiza melodia*) Refer to Appendix C for complete list of birds observed in the Sanctuary. **MAMMALS** Black-tailed Deer (*Odocoileus hemionus*) scat
Rare/threatened species & locally uncommon species	Barn Swallow (*Hirundo rustica*)

Ecological Community 8: Nootka Rose Berm (not SEI)

Description

This ecological community is found along the low-bank berm which separates the brackish marsh from the ocean, just above the Dune Wildrye-Beach Pea Community. There are no trees but there are large shrubs including Douglas Hawthorn and Pacific Crabapple which are sparse throughout the plant community. There is a thick shrub layer, composed primarily from saltspray-tolerant Nootka Rose. The aspect faces southeast (110°) with little to no slope (0-5°) and the elevation is at sea level. This ecological community has been mapped as polygon #4819 and is not Sensitive Ecosystem Inventory since it has been classified as shrub/herb Douglas-fir/Salal (Islands Trust 2018b).

FLORA

Total Canopy Cover	0%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Shrubs/Ferns: 80% Nootka Rose (*Rosa nutakana*), 5% Black Hawthorn (*Crataegus douglasii*), 5% Pacific Crab Apple (*Malus fusca*), 1% Bigleaf Maple (*Acer macrophyllum*) Herbaceous Plants: 2% Orchard-grass* (*Dactylis glomerata*), 1% Stinging Nettle (*Urtica dioica*), <1% Dune Wildrye (*Leymus mollis*), <1% Cleavers (*Galium* aparine), <1% Hairy Cat's-ear (*Hypochaeris radicata*), <1% Rip-gut Brome (*Bromus rigidus*), <1% Bull Thistle* (*Cirsium vulgare*), <1% Wild Carrot (*Daucus carota*)
Observed rare/threatened species & locally uncommon species	Henderson's Checker-mallow (*Sidalcea hendersonii*) found along edge of Ecological Community 8: Seashore Saltgrass.
Special Features	Sensitive midden site with archaeological significance. Berm protects the brackish marsh from ocean waves.
Expected Changes	
Disturbance History	Berm may have been created by First Nations. The beach is used by the public and some of the driftwood has been used to build forts. This may cause erosion of the berm in the future.

FAUNA

Wildlife Habitat / Features	Thick vegetation next to shoreline provides important refuge and feeding site for wildlife. Thick vegetation also protects the sensitive brackish marsh.
Observed Species	**BIRDS** Orange-crowed Warbler (*Oreothlypis celata*) Song Sparrow (*Melospiza melodia*) Refer to Appendix C for complete list of birds observed in the Sanctuary. **MAMMALS** Black-tailed Deer (*Odocoileus hemionus*) scat
Rare/threatened species & locally uncommon species	Barn Swallow (*Hirundo rustica*)

Ecological Community 9: Seashore Saltgrass Herbaceous Vegetation (*Distichlis spicata* var. *spicata*) (CDFmm/ Em03)

Description

This wetland is classified as Seashore Saltgrass, an estuarine ecosystem, according to MacKenzie and Moran (2004). The Seashore Saltgrass is the primary classification of the brackish marsh and there are smaller inclusions of the remaining ecological communities. There are no trees and no shrubs due to the presence of brackish water that enters the marsh at high tide. There are dense patches of Seacoast Bulrush and Spiked Rush within the community. There is no slope and the elevation is at sea level. There is a small amount of scattered driftwood on the surface. Seashore Saltgrass Herbaceous Vegetation is a red-listed ecological community (BC CDC 2018).

FLORA

Total Canopy Cover	0%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Herbaceous Plants: 85% Seashore Saltgrass (*Distichlis spicata*), 2% Common Silverweed (*Potentilla anserina*), 2% Spike-rush (*Eleocharis* sp.), 1% Marsh Peavine (*Lathyrus palustris*), 1% Seacoast Bulrush (*Bolboschoenus maritimus*), <1% Henderson's Checker-mallow (*Sidalcea hendersonii*), <1% Cleavers (*Galium* aparine), <1% European Bittersweet* (*Solanum dulcamara*), <1% Creeping Bentgrass* (*Agrostis stolonifera*)
Observed rare/threatened species & locally uncommon species	Henderson's Checker-mallow (*Sidalcea hendersonii*) found on driftwood log and along edge of Ecological Community 7: Nootka Rose
Special Features	Brackish marsh is an uncommon community in the gulf islands.

Expected Changes	None expected.
Disturbance History	The berm may have been built by First Nations which would have created the conditions for a brackish marsh.

FAUNA

Wildlife Habitat / Features	Excellent habitat for birds such as the Virginia Rail and Marsh Wren. The Saltgrass provides habitat for numerous insects which in turn supports Pacific Chorus Frog and a rich diversity of bat species.
Observed Species	**The following list of species is for all animals observed south of the road in the Brackish Marsh Area** **BIRDS** Belted Kingfisher (*Megaceryle alcyon*) Common Yellowthroat (*Geothlypis trichas*) Marsh Wren (*Cistothorus palustris*) Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) Orange-crowed Warbler (*Oreothlypis celata*) Song Sparrow (*Melospiza melodia*) Violet-green Swallow (*Tachycineta thalassina*) Virginia Rail (*Rallus limicola*) Warbling Vireo (*Vireo gilvus*) Wilson's Warbler (*Cardellina pusilla*) Yellow-rumped Audubon's Warbler (*Setophaga coronata auduboni*) Refer to Appendix C for complete list of birds observed in the Sanctuary. **MAMMALS** American Mink (*Neovison vison*) Black-tailed Deer (*Odocoileus hemionus*) scat Pacific Chorus Frog (*Pseudacris regilla*) Raccoon (*Procyon lotor*)
Rare/threatened species & locally uncommon species	Barn Swallow (*Hirundo rustica*)

Ecological Community 10: Common Cattail (*Typha latifolia*) Marsh

Description

According to MacKenzie and Moran (2004), the small pockets dominated by Cattail can be categorized as Cattail Marsh. The Common Cattail is a small inclusion within the dominant vegetation of Seashore Saltgrass within the brackish marsh. The area remains saturated with water for most of the growing season. There are no trees and no shrubs due to the presence of brackish water that enters the marsh at high tide. There is no slope and the elevation is at sea level. Nutrients are high and there is a well-developed layer of decomposed organic matter at the surface. There is a small amount of standing water beside the Common Cattail where the alga Stonewort (*Chara* sp.) and Common Duckweed (*Lemna minor*) occur. The ecological community Common Cattail Marsh is blue-listed (BC CDC 2018).

FLORA

Total Canopy Cover	0%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Herbaceous Plants: 55% Common Cattail (*Typha latifolia*), 40% Seashore Saltgrass (*Distichlis spicata*), 1% Seacoast Bulrush (*Bolboschoenus maritimus*), <1% Clustered Dock* (*Rumex conglomeratus*), <1% Cleavers (*Galium* aparine), <1% Stonewort (*Chara* sp.), <1% Common Duckweed (*Lemna minor*)
Observed rare/threatened species & locally uncommon species	None found
Special Features	Brackish marsh is an uncommon community in the gulf islands.
Expected Changes	None expected.
Disturbance History	The berm may have been built by First Nations which would have created the conditions for a brackish marsh.

FAUNA

Wildlife Habitat / Features	Excellent habitat for birds such as the Virginia Rail and Marsh Wren. The Common Cattail provides habitat for numerous insects which in turn supports swallows, Pacific Chorus Frog and a rich diversity of bat species.
Observed Species	**The following list of species is for all animals observed south of the road in the Brackish Marsh Area** **BIRDS** Belted Kingfisher (*Megaceryle alcyon*) Common Yellowthroat (*Geothlypis trichas*) Marsh Wren (*Cistothorus palustris*)

	Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) Orange-crowed Warbler (*Oreothlypis celata*) Song Sparrow (*Melospiza melodia*) Violet-green Swallow (*Tachycineta thalassina*) Virginia Rail (*Rallus limicola*) Warbling Vireo (*Vireo gilvus*) Wilson's Warbler (*Cardellina pusilla*) Yellow-rumped Audubon's Warbler (*Setophaga coronata auduboni*) Refer to Appendix C for complete list of birds observed in the Sanctuary. **MAMMALS** American Mink (*Neovison vison*) Black-tailed Deer (*Odocoileus hemionus*) scat Pacific Chorus Frog (*Pseudacris regilla*) Raccoon (*Procyon lotor*)
Rare/threatened species & locally uncommon species	Barn Swallow (*Hirundo rustica*)

Ecological Community 11: Hard-stemmed Bulrush (*Schoenoplectus acutus*) Deep Marsh

Description

MacKenzie and Moran (2004) classify this ecological community as a Great Bulrush Marsh. The Hard-stemmed Bulrush is a small inclusion within the dominant vegetation of Seashore Saltgrass within the brackish marsh and next to the Common Cattail Marsh. There are no trees and no shrubs due to the presence of brackish water that enters the marsh at high tide and plant diversity is low. There is a small amount of open water next to the Hard-stemmed Bulrush. There is no slope and the elevation is at sea level. There is a small amount of standing water next to the bulrushes. The Hard-stem Bulrush ecological community is provincially blue-listed (BC CDC 2018).

FLORA

Total Canopy Cover	0%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Herbaceous Plants: 95% Hard-stemmed Bulrush (*Schoenoplectus acutus*), 1% Seashore Saltgrass (*Distichlis spicata*), 1% Clustered Dock* (*Rumex conglomeratus*), <1% Spike-rush (*Eleocharis* sp.), <1% Common Silverweed (*Potentilla anserina*), <1% Slough Sedge (*Carex obnupta*), <1% Cleavers (*Galium* aparine), <1% Common Duckweed (*Lemna minor*)
Observed rare/threatened species & locally uncommon	None found

species	
Special Features	Brackish marsh is an uncommon community in the gulf islands.
Expected Changes	None expected.
Disturbance History	The berm may have been built by First Nations which would have created the conditions for a brackish marsh.

FAUNA

Wildlife Habitat / Features	Excellent habitat for birds such as the Virginia Rail and Marsh Wren. The Bulrush provides habitat for numerous insects which in turn supports Pacific Chorus Frog and a rich diversity of bat species.
Observed Species	**The following list of species is for all animals observed south of the road in the Brackish Marsh Area** **BIRDS** Belted Kingfisher (*Megaceryle alcyon*) Common Yellowthroat (*Geothlypis trichas*) Marsh Wren (*Cistothorus palustris*) Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) Orange-crowed Warbler (*Oreothlypis celata*) Song Sparrow (*Melospiza melodia*) Violet-green Swallow (*Tachycineta thalassina*) Virginia Rail (*Rallus limicola*) Warbling Vireo (*Vireo gilvus*) Wilson's Warbler (*Cardellina pusilla*) Yellow-rumped Audubon's Warbler (*Setophaga coronata auduboni*) Refer to Appendix C for complete list of birds observed in the Sanctuary. **MAMMALS** American Mink (*Neovison vison*) Black-tailed Deer (*Odocoileus hemionus*) scat Pacific Chorus Frog (*Pseudacris regilla*) Raccoon (*Procyon lotor*)
Rare/threatened species & locally uncommon species	Barn Swallow (*Hirundo rustica*)

Ecological Community 12: Trembling Aspen/Pacific Crab Apple/ Slough Sedge (*Populus tremuloides/ Malus fusca/Carex obnupta*) (CDFmm/ 00)

Description

This ecological community is not described by MacKenzie and Moran (2004) although it is listed by the BC Conservation Data Centre (2018). Slough Sedge is a small inclusion within the dominant vegetation of Seashore Saltgrass within the brackish marsh. There are no trees and no shrubs due to the presence of brackish water that enters the marsh at high tide. There are shrubs and small trees along the edge of the community which include Pacific Crab Apple (*Malus fusca*), Western Redcedar (*Thuja plicata*) and Pacific Willow (*Salix lucida*). No Trembling Aspen (*Populus tremuloides*) was noted. There are small patches of invasive Yellow Flag Iris (*Iris pseudacorus*) and Reed Canarygrass (*Phalaris arundinacea*). There is no slope and the elevation is at sea level. Trembling Aspen/ Pacific Crab Apple/Slough Sedge is ranked as red-listed by the BC CDC (2018).

FLORA

Total Canopy Cover	0%
Understory (species & percent cover) Shrubs, including trees <10 m Herbs, ferns, grasses, mosses, etc.	Herbaceous Plants: 90% Slough Sedge (*Carex obnupta*), 2% Skunk Cabbage (*Lysichiton americanus*), 1% Clustered Dock* (*Rumex conglomeratus*), <1% Pacific Water-parsley (*Oenanthe sarmentosa*), <1% Spike-rush (*Eleocharis* sp.), <1% Common Silverweed (*Potentilla anserina*), <1% Small-flowered Bulrush (*Scirpus microcarpus*), <1% Marsh Peavine (*Lathyrus palustris*), <1% Pacific Willow (*Salix lucida*), <1% Seashore Saltgrass (*Distichlis spicata*), <1% American Brooklime (*Veronica beccabunga*)
Observed rare/threatened species & locally uncommon species	None found
Special Features	Brackish marsh is an uncommon community in the gulf islands.
Expected Changes	None expected.
Disturbance History	The berm may have been built by First Nations which would have created the conditions for a brackish marsh.

FAUNA

Wildlife Habitat / Features	Excellent habitat for birds such as the Virginia Rail and Marsh Wren. The Slough Sedge provides habitat for numerous insects which in turn supports Pacific Chorus Frog and a rich diversity of bat species.
Observed Species	**The following list of species is for all animals observed south of the road in the Brackish Marsh**

	Area **BIRDS** Belted Kingfisher (*Megaceryle alcyon*) Common Yellowthroat (*Geothlypis trichas*) Marsh Wren (*Cistothorus palustris*) Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) Orange-crowed Warbler (*Oreothlypis celata*) Song Sparrow (*Melospiza melodia*) Violet-green Swallow (*Tachycineta thalassina*) Virginia Rail (*Rallus limicola*) Warbling Vireo (*Vireo gilvus*) Wilson's Warbler (*Cardellina pusilla*) Yellow-rumped Audubon's Warbler (*Setophaga coronata auduboni*) Refer to Appendix C for complete list of birds observed in the Sanctuary. **MAMMALS** American Mink (*Neovison vison*) Black-tailed Deer (*Odocoileus hemionus*) scat Pacific Chorus Frog (*Pseudacris regilla*) Raccoon (*Procyon lotor*)
Rare/threatened species & locally uncommon species	Barn Swallow (*Hirundo rustica*)

Appendix B. Plant Species Observed in Medicine Beach Nature Sanctuary

Plant list taken from Linnaeus Environmental Consulting (2005) with Latin names added by Maslovat in 2018. Question marks are included when the species referred to by the common name may refer to more than one species (the most likely species is included).
*Indicates non-native species
+indicates species added by C. Maslovat

Common Name	**Latin Name**	**Rank**
Alaska Oniongrass	*Melica subulata*	
American Glasswort	*Salicornia pacifica*	
American Searocket	*Cakile edentula*	
Arbutus	*Arbutus menzeisii*	
Baldhip Rose	*Rosa gymnocarpa*	
Barren Brome	*Bromus sterilis*	
Beach Pea	*Lathyrus japonicus*	
Bigleaf Maple	*Acer macrophyllum*	
Big-leaved Sandwort	*Moehringia macrophylla*	
Black Hawthorn	*Crateagus douglasii*	
Black Raspberry	*Rubus leucodermis*	
Blue Wildrye	*Elymus glaucus*	
Blue-eyed Grass	*Sisyrinchium ?littorale?*	
Blue-eyed Mary	*Collinsia parviflora*	
Bracken Fern	*Pteridium aquilinum*	
Broad-leaved Starflower	*Trientalis latifolia*	
Broad-leaved Stonecrop	*Sedum spathulifolium*	
California Oatgrass	*Danthonia californica*	
Canada thistle*	*Cirsium arvense*	
Cattail	*Typha latifolia*	
Chickweed Monkeyflower	*Erythranthe alsinoides*	
Cleavers*	*Galium aparine*	
Coastal Strawberry	*Fragaria chiloensis*	
Columbia Brome	*Bromus vulgaris*	
Common Draba*	*Draba verna*	
Common Forget-me-not*	*Myosotis discolor*	
Common Groundsel*	*Senecio vulgaris*	
Common Rush	*Juncus effusus*	
Common Salsify*	*Tragopogon porrifolius*	
Common Silverweed	*Potentilla anserina*	
Common Spike-rush	*Eleocharis palustris*	
Common stork's-bill*	*Erodium circutarium*	
Creeping bentgrass*	*Agrostis stolonifera*	
Curled Dock*	*Rumex crispus*	
Death Camas	*Toxicoscordion venenosum var. venenosum*	

Douglas-fir	*Pseudostuga menziesii*	
Dovefoot Geranium*	*Geranium molle*	
Dull Oregon-grape	*Berberis nervosa*	
Dunegrass	*Leymus mollis*	
Dwarf Owl-clover	*Triphysaria pusilla*	
Early Blue Violet	*Viola adunca*	
Early Hairgrass*	*Aira praecox*	
Enchanter's Nightshade	*Circaea alpina*	
European Bittersweet*	*Solanum dulcamara*	
Fairyslipper	*Calypso bulbosa*	
Falsebox	*Paxistima myrsinites*	
Field Chickweed	*Cerastium arvense*	
Garry Oak	*Quercus garryana*	
Grand Fir	*Abies grandis*	
Hairy Cat's Ear*	*Hypochaeris radicata*	
Hairy Honeysuckle	*Lonicera hispidula*	
Hard-stemmed Bulrush	*Schoenoplectus acutus*	
Hedge Mustard*	*Sisymbrium officinale*	
Hedgehog Dogtail*	*Cynosurus echinatus*	
Henderson's checker-mallow	*Sidalcea hendersonii*	Blue List (S3)
Herb-robert*	*Geranium robertianum*	
Hooker's onion	*Allium acuminatum*	
Horsetail	*Equisetum* sp.	
Lady's Mantle*	*Alchemilla mollis*	
Large-leaved Sandwort	*Moehringia macrophylla*	
Licorice Fern	*Polypodium glycyrrhiza*	
Long-stoloned Sedge	*Carex inops*	
Marsh Peavine	*Lathyrus palustris*	
Miner's Lettuce	*Claytonia perfoliata*	
Nodding Onion	*Allium cernuum*	
Nootka Rose	*Rosa nutkana*	
Northern Starflower	*Trientalis latifolia*	
Oceanspray	*Holodiscus discolor*	
Orache*	*Atiplex* patula	
Orchard Grass*	*Dactylis glomerata*	
Pacific Crab Apple	*Malus fusca*	
Pacific Hemlock-parsley	*Conioselinum gmelinii*	
Pacific Sanicle	*Sanicula crassicaulis*	
Pacific Water-parsley	*Oenanthe sarmentosa*	
Pacific Willow	*Salix lucida*	
Pathfinder	*Adenocaulon bicolor*	
Puget Sound Gumweed	*Grindelia stricta*	

Rattlesnake Plantain	*Goodyera oblongifolia*	
Red Alder	*Alnus rubra*	
Red Elderberry	*Sambucus racemosa*	
Red Goosefoot	*Chenopodium rubrum*	
Red Huckleberry	*Vaccinium parvifolium*	
Ribwort Plantain*	*Plantago lanceolata*	
Rocky Mountain Juniper	*Juniperus maritima*	
Rose Campion*	*Lychnis coronaria*	
Salal	*Gaultheria shallon*	
Salmonberry	*Rubus spectabilis*	
Saskatoon	*Amelanchier alnifolia*	
Scotch Broom*	*Cytisus scoparius*	
Sea Blush	*Plectritis congesta*	
Seacoast Bulrush	*Bolboschoenus maritimus*	
Seashore Saltgrass	*Distichlis spicata*	
Seaside Plantain	*Plantago maritima*	
Shepherd's Purse*	*Capsella bursa-pastoris*	
Siberian Miner's Lettuce	*Claytonia sibirica*	
Silver Burweed	*Ambrosia chamissonis*	
Silver Hairgrass*	*Aira caryophyllea*	
Skunk Cabbage	*Lysichiton americanus*	
Slough Sedge	*Carex obnupta*	
Small Hop-clover*	*Trifolium dubium*	
Small-flowered Alumroot	*Heuchera micrantha*	
Small-flowered Bulrush	*Scirpus microcarpus*	
Small-flowered Fringecup	*Lithophragma parviflorum*	
Snowberry	*Symphoricarpos albus*	
Sow-thistle*	*Sonchus* sp.	
Spike Bentgrass	*Agrostis exarata*	
Spurge-laurel	*Daphne laureola*	
Stinging Nettle*	*Urtica dioica*	
Suksdorf's Mugwort	*Artemesia suksdorfii*	
Sweet Vernalgrass*	*Anthoxanthum odoratum*	
Sword Fern	*Polystichum munitum*	
Tall Oregon-grape	*Berberis aquifolium*	
Tansy Ragwort*	*Senecio jacobaea*	
Thimbleberry	*Rubus parviflorus*	
Trailing Blackberry	*Rubus ursinus*	
Twinflower	*Linnaea borealis*	
Vanilla Leaf	*Achlys triphylla*	
Wall Lettuce*	*Mycelis muralis*	
Wallace's Selaginella	*Selaginella wallacei*	

Western Buttercup	*Ranunculus occidentalis*	
Western Coralroot	*Corallorhiza mertensiana*	
Western Fescue	*Festuca occidentalis*	
Western Redcedar	*Thuja plicata*	
Western Yew	*Taxus brevifolia*	
White-flowered Hawkweed	*Hieracium albiflorum*	
Wild Carrot*	*Daucus carota*	
White-lipped Rein Orchid+	*Piperia candida*	Red List (S2)
Woodland Tarweed	*Anisocarpus madioides*	
Yarrow	*Achillea millefolium*	
Yerba Buena	*Clinopodium douglasii*	
Mosses		
Awned Haircap Moss	*Polytrichum piliferum*	
Badge Moss	*Plagiomnium insigne*	
Broom Moss	*Dicranum scoparium*	
Electrified Cat's-tail Moss	*Rhytidiadelphus triquetrus*	
Hoary Rock Moss	*Racomitrium lanuginosum*	
Juniper Haircap Moss	*Polytrichum juniperinum*	
Lanky Moss	*Rhytidiadelphus loreus*	
Large Leafy Moss	*Rhizomnium glabrescens*	
Oregon Beaked Moss	*Eurhynchium oreganum*	
Roadside Rock Moss	*Racometrium* canescens	
Slender Beaked Moss	*Eurhynchium praelongum*	
Step Moss	*Hylocomium splendens*	

Appendix C. Avian Species Observed in Medicine Beach Nature Sanctuary

Ren Ferguson surveyed Medicine Beach to compile a preliminary bird species list and identify any Species at Risk present. Surveys were done during the day, evening and dawn during July 4th and 5th. The timing of the survey was too late in the season to create a full species list and would have missed over-wintering species including waterfowl.

An evening survey was done on July 4th to confirm the presence of the crepuscular species, Common Nighthawk. Call playback was done to determine if Western Screech-owl was present. No response was heard however, Western Screech-owl is not consistent in responding to playback and it was late in the season for surveying for this species.

A total of 50 avian species were observed including 6 that are provincially- and/or federally-listed.

Common Name	**Scientific Name**	**Federal Status (COSEWIC)**	**Provincial Status**
Great Blue Heron*	*Ardea herodias fannini*	Special Concern	Blue
Turkey Vulture	*Cathartes aura*		
Osprey*	*Pandion haliaetus*		
Bald Eagle	*Haliaeetus leucocephalus*		
Cooper's Hawk*	*Accipiter cooperii*		
Virginia Rail**	*Rallus limicola*		
Common Nighthawk*	*Chordeiles minor*	Threatened	Yellow
Rufous Hummingbird*	*Selasphorus rufus*		
Belted Kingfisher*	*Megaceryle alcyon*	Candidate	Yellow
Red-breasted Sapsucker*	*Sphyrapicus ruber*		
Downy Woodpecker*	*Picoides pubescens*		
Hairy Woodpecker*	*Picoides villosus*		
Northern Flicker*	*Colaptes auratus*		
Pileated Woodpecker*	*Dryocopus pileatus*		
Olive-sided Flycatcher*	*Contopus cooperi*	Threatened	Blue
Pacific-slope Flycatcher**	*Empidonax difficilis*		
Hutton's Vireo*	*Vireo huttoni*		
Warbling Vireo*	*Vireo gilvus*		
Northwestern Crow*	*Corvus caurinus*		
Common Raven*	*Corvus corax*		
Purple Martin*	*Progne subis*		Blue
Violet-green Swallow*	*Tachycineta thalassina*		
Northern Rough-winged Swallow*	*Stelgidopteryx serripennis*		
Barn Swallow*	*Hirundo rustica*	Threatened	Blue
Chestnut-backed Chickadee**	*Poecile rufescens*		

Red-breasted Nuthatch*	*Sitta canadensis*		
Brown Creeper**	*Certhia americana*		
House Wren*	*Troglodytes aedon*		
Pacific Wren*	*Troglodytes pacificus*		
Marsh Wren**	*Cistothorus palustris*		
Swainson's Thrush*	*Catharus ustulatus*		
American Robin**	*Turdus migratorius*		
Cedar Waxwing*	*Bombycilla cedrorum*		
Orange-crowned Warbler**	*Oreothlypis celata*		
MacGillivray's Warbler*	*Geothlypis tolmiei*		
Common Yellowthroat**	*Geothlypis trichas*		
Yellow-rumped Audubon's Warbler**	*Setophaga coronata auduboni*		
Townsend's Warbler*	*Setophaga townsendi*		
Wilson's Warbler*	*Cardellina pusilla*		
Spotted Towhee*	*Pipiolo maculatus*		
Song Sparrow*	*Melospiza melodia*		
White-crowned Sparrow*	*Zonotrichia leucophrys*		
Dark-eyed Junco**	*Junco hyemalis oreganus*		
Western Tanager*	*Piranga ludoviciana*		
Black-headed Grosbeak*	*Pheucticus melanocephaus*		
Brown-headed Cowbird**	*Molothrus ater*		
Purple Finch*	*Carpodacus purpureus*		
House Finch*	*Carpodacus mexicanus*		
Red Crossbill*	*Loxia curvirostra*		
American Goldfinch*	*Spinus tristis*		

**Confirmed Breeding– Observed nest building, distraction display, used nest, recently fledged young, adults leaving or entering confirmed nest site, adult carrying faecal sac, adult carrying food for young, nest with eggs, nest with young.
*Possible Breeding – Species observed during its breeding season in suitable nesting habitat, singing male present, or breeding calls heard during breeding season in suitable nesting habitat.

List Order: Species names and order follows the American Ornithologist Union Checklist of Birds of North America, Seventh Edition, 1998 and supplements to August 2011.

Public questionnaires also noted the following species: Red-winged Blackbird, Swan, Black Oystercatcher, Loon, Hooded Merganser, Bufflehead, Pelagic Cormorant and Harlequin Duck.

Appendix D. Bat Acoustic Survey in Medicine Beach Nature Sanctuary, July 2017

Overview:

Half of BC's bat species are considered Species at Risk (vulnerable or threatened). As top predators of nocturnal insects (including mosquitoes), bats are a critical part of our ecosystems and are sensitive to land use changes. Globally, they play a vital role in the health of our ecosystems and economies by providing services such as pest control, pollination, seed dispersal and cycling nutrients (through guano) from wetlands to forests. With the very real threat of White Nose Syndrome arriving in BC in the foreseeable future, collecting baseline data about our local bat populations will increase the awareness of the important ecological and economic role these species play.

Summary:
Seven nights were sampled using an Anabat Express bat detector (serial number 314197, microphone number 314386) with a sensitivity setting of 115 and set for "night only" recording. The detector was mounted 1.7 m above the ground attached to a snag located at 10 U 480267 E 5400942 N.

838 recordings (digital files) were triggered by bats, each file containing one or more passing bats. The interpretation of the recordings was done by Peter Ommundsen. The presence of eight species was inferred from examination of the acoustic spectrograms:

Common Name	**Scientific Name**	Status
Big Brown Bat	*Eptesicus fuscus*	
Hoary Bat	*Lasiurus cinereus*	
Silver-haired Bat	*Lasionycteris noctivagans*	
California Myotis	*Myotis californicus*	
Long-eared Myotis	*Myotis evotis*	
Little Brown Myotis	*Myotis lucifugus*	Endangered
Yuma Myotis	*Myotis yumanensis*	
Brazilian Free-tailed Bat*	*Tadarida brasiliensis*	

*The first confirmed record of the Brazilian Free-tailed Bat in Canada was documented by Peter Ommundsen, Laura Matthias and Cori Lausen in 2016 on Salt Spring Island (Ommundsen *et al.* 2017). for Northwestern Vertebrate Biology https://doi.org/10.1898/NWN16-24.1}

Number of bat files by date.

Night	Number of bat files	Temperature degrees C evening/morning	Time of first/last bat pass
2017 07 04/05	136	19.5 / 11.5	2143 / 0440
2017 07 05/06	142	20.5 / 13.0	2156 / 0440
2017 07 06/07	133	20.5 / 12.75	2155 / 0437
2017 07 07/08	128	18.5 / 12.5	2145 / 0434
2017 07 08/09	106	20.75 / 14.0	2147 / 0436
2017 07 09/10	118	20.5 / 14.5	2149 / 0423
2017 07 10/11	75	17.5 / 11.0	2146 / 0334

Appendix E. Invertebrate Species Observed in Medicine Beach Nature Sanctuary

A gastropod survey was completed by Laura Matthias on July 4, 2017. A time-constrained opportunistic search occurred throughout a significant portion of the property in various ecosystem types. The thin soil deposition may contribute to the relatively low diversity at this site, and the timing of surveys was less conducive to detecting gastropods in the dry season. Gastropods play an important role in the ecosystem as dispersers of mycorrhizal fungi spores that form symbiotic relationships with roots of trees. Freshwater snails were noted in the marsh ponds.

A Cutworm Moth was found hiding in the bat acoustic detector and was photographed by Peter Ommundsen and subsequently identified by K Willard on Bug Guide (2017). The Syrphid Fly was photographed by Ren Ferguson and subsequently identified by Dr. Jeffery Skevington and Andrew Young of the Canadian National Collection of Insects, Arachnids and Nematodes.

Common Name	**Scientific Name**	**Status**
Pacific Bananaslug	*Ariolimax columbianus*	
Reticulate Taildropper	*Prophysaeon andersonni*	
Beaded Lancetooth	*Ancotrema sportella*	
Western Pondhawk	*Erythemis collocata*	Blue-list BC
Common Spreadwing	*Lestes disjunctus*	
Four-spotted Skimmer	*Libellula quadrimaculata*	
Eight-spotted Skimmer	*Libellula forensis*	
Common Whitetail	*Plathemis lydia*	
Red-veined Meadowhawk	*Sympetrum madidum*	
Lorquin's Admiral	*Limenitis lorquini*	
Western Tiger Swallowtail	*Papilio rutulus*	
Cabbage White	*Pieris rapae rapae*	
Long Water Scorpion	*Ranatra* sp.	
Cutworm Moth	*Graphiphora augur*	
Syrphid Fly	*Polydontomyia curvipes*	
Western Tent Caterpillar*	*Malacosoma californicum pluviale*	

* Western Tent Caterpillar was noted in NCC Monitoring Report (NCC 2005a).

Appendix F. Locations of Photographic Documentation

PHOTO NUMBER	DIRECTION OF PHOTO	UTM EAST	UTM NORTH	DATE	COMMENTS
1	90°	480213	5401164	July 4, 2017	Gate and signs at entrance off Aldridge Road
2	180°	480477	5400966	July 4, 2017	Bench at top of bluff overlooking Bedwell Harbour
3	70 °	480425	5400969	July 4, 2017	Ecological Community 1. Coastal Cliffs
4	120°	480346	5400970	July 4, 2017	Ecological Community 2. Douglas-fir/Arbutus
5	60°	480431	5401031	July 4, 2017	Ecological Community 3. Douglas-fir/Alaska Oniongrass
6	150°	480350	5401126	July 4, 2017	Ecological Community 4. Douglas-fir/Dull Oregon-grape
7	45°	480333	5401159	July 4, 2017	Ecological Community 5. Red Alder- Skunk Cabbage
8	210°	480316	5400923	July 5, 2017	Ecological Community 7. Dune Wildrye- Beach Pea
9	10°	480300	5400906	July 5, 2017	Ecological Community 8. Nootka Rose Berm
10	290°	480240	5400842	July 5, 2017	Ecological Community 9. Seashore Saltgrass herbaceous vegetation
11	200°	480248	5400906	July 5, 2017	Ecological Community 10. Common Cattail Marsh
12	230°	480218	5400903	July 5, 2017	Ecological Community 11. Hard-stemmed Bulrush Deep Marsh
13	60°	480226	5400929	July 5, 2017	Ecological Community 12. Slough Sedge Trembling Aspen/ Pacific Crab Apple/ Slough Sedge Ecological Community
14	Western Pondhawk	480342	5400959	July 5, 2017	On beach
15	Henderson's Checker-mallow	10 U 480247	5400843	July 5, 2017	Plant flowering on driftwood log in marsh
16	White-lipped Rein Orchid	480464	5400987	July 5, 2017	Next to trail
17	225°	480322	5400947	July 5, 2017	Trail head signs
18	180°	480328	5400945	July 5, 2017	Trail head signs (shellfish poisoning, permitted uses and

					pet waste disposal
19	45°	480342	5400964	July 5, 2017	Stonework block with plaque at trail head
20	60°	480346	5400970	July 4, 2017	Stairs
21	270°	480398	5400989	July 4, 2017	Lookout with bench and fence at top of bluff
22	180°	480257	5400835	July 5, 2017	Henderson's Checker-mallow at edge of Nootka Rose thicket
23	315°	480275	5400823	July 4, 2017	Log fort
24	Reed Canary Grass	480293	5400941	July 5, 2017	In marsh
24	Yellow Flag Iris	480240	5400954	July 5, 2017	In Marsh

Appendix G. Stakeholder Contact Brochure

Medicine Beach Watershed Areas

Watershed Area A

Second growth and old growth forests provide a groundwater recharge area upstream of Wallace Road. This fragile landscape needs special care and landowner stewardship.

Watershed Area A contains a spring-fed stream, one of only two year-round streams on North Pender!

Watershed Area B

The majority of developed residential lots in the watershed exist here. Reducing the sediment and pollutants from your property will help protect the rare species in Medicine Beach marsh.

By caring for the natural features of your property, you can reduce your impact on fragile ecosystems.

Watershed Area C

Key features of Area C include Prior Centennial Park (Gulf Islands National Park) and the Pender Elementary/Secondary School.

School children participate in nature programs in the Medicine Beach Nature Sanctuary and continue to care for their part of the watershed.

Henderson's checker-mallow (*Sidalcea hendersonii*) found in Medicine Beach marsh is listed provincialy as a species of special concern.

What is threatening the marsh?

- **Sediment** from run off and stormwater.
- **Toxic run off** from pesticides, oil, etc. from impervious surfaces like roads and driveways.
- **Decreased water flow** due to large quantities of water diverted in the watershed.
- **Invasive species** such as Scotch broom, spurge-laurel, thistle, and orchard-grass.

The integrity of the Medicine Beach marsh is dependent on the quality and quantity of water flowing into it from upland.

The Medicine Beach watershed was mapped as part of the *1995 Medicine Beach Marsh Watershed Study* authored by Reimer and Grange. The map in this brochure will help you see the connection between your property and the entire watershed area, including the Medicine Beach marsh.

What is a Watershed?

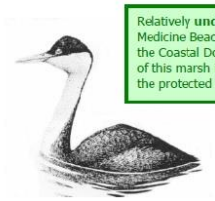
A watershed is the entire area of land that drains into a partcular watercourse or body of water (stream, marsh, wetland, etc.). Around every watershed is a moisture-dependent area known as a *riparian zone*. Watercourses and their riparian zones are like veins in the body of the landscape.

A **healthy** watershed will:

- **Slow** water flow
- **Minimize** soil erosion
- **Purify** and cool water
- **Transmit** water vapour into the atmosphere

What is the Medicine Beach Watershed?

The Medicine Beach watershed is approximately 120 hectares (264 acres) and has three separate areas, as indicated on the map. The 8.44 hectare (20.12 acres) Medicine Beach Nature Sanctuary includes a two-hectare marsh, a forested upland area and a coastal bluff.



Relatively **undisturbed** marshes like the Medicine Beach marsh are uncommon in the Coastal Douglas-fir Zone. **Protection** of this marsh is a valuable contribution to the protected areas in the Gulf Islands.

How Can You Help?

- **Leave a buffer of vegetation along streams and around wetlands** to filter run off and prevent erosion.
- **Re-establish riparian vegetation buffers** with red-oser dogwood, native willows, red alder, and western red cedar.
- **Store and dispose of toxic products safely** to prevent toxic run off from leaving your property.
- **Avoid using synthetic pesticides, herbicides, and fertilizers on your property.**
- **Control invasive species and use native plants in your garden.**
- **Resist the urge to "tidy up" waterways.** Boulders and fallen branches create habitat for fish and wildlife.
- **Design and plan construction activities with nature in mind to prevent damage to waterways.** Maintain vegetation and build during the dry season to avoid runoff of sediment into water courses.
- **Contact your local conservancy** for more information on the Medicine Beach Nature Sanctuary and how you can help protect this special legacy.

For more information contact:

Pender Islands Conservancy Association
pica@gulfislands.com

Islands Trust Fund
itfmail@islandstrust.bc.ca
www.islandstrustfund.bc.ca
250.405.5186

This brochure is printed on recycled paper.

Medicine Beach Nature Sanctuary North Pender Island

Help us care for this natural legacy

The Pender Islands Conservancy Association and Islands Trust Fund are working together to care for the Medicine Beach Nature Sanctuary so that future generations can enjoy this special natural area. The Medicine Beach marsh is a rare habitat in the dry climate of the Gulf Islands and is home to endangered plant communities and countless bird species.

Join us in our effort to continue to protect this unique sanctuary and marsh. Learn how the Medicine Beach watershed supports the Medicine Beach marsh and how your actions can help us care for this fragile area.

Islands Trust Fund

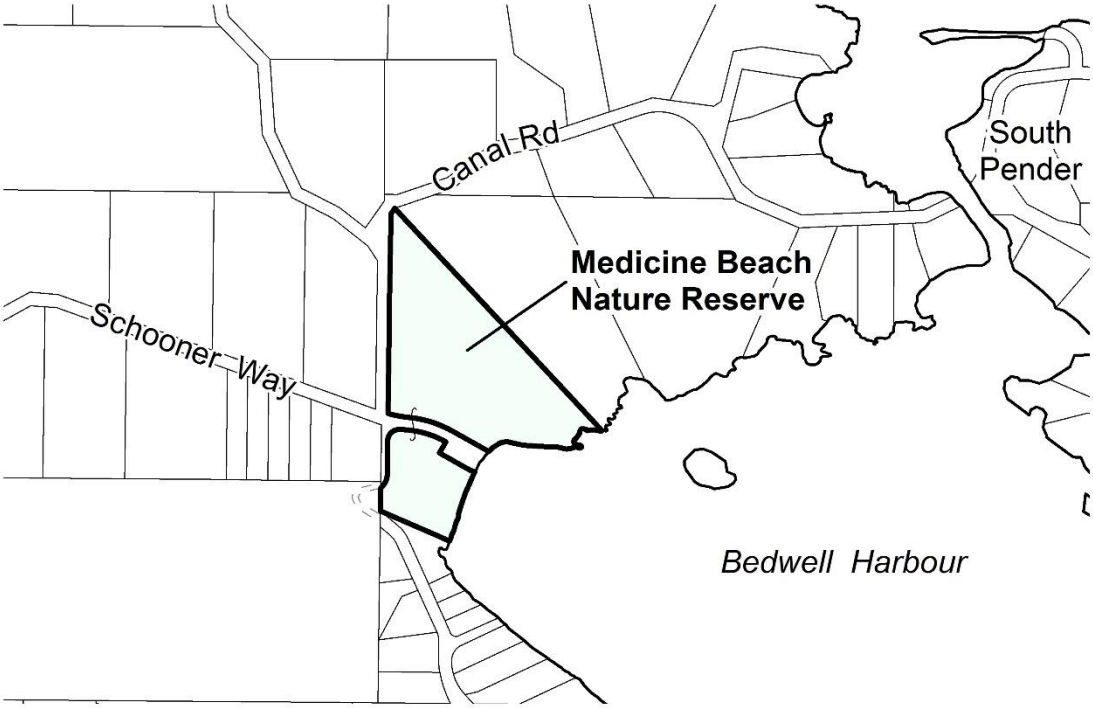
PENDER ISLANDS CONSERVANCY

Appendix H. Letter to Neighbours

January 3, 2018

Dear Neighbour,

The Islands Trust Fund is updating the management plan for the Medicine Beach Nature Sanctuary on North Pender Island and we are interested in hearing from you.



Medicine Beach Nature Sanctuary (PID 004-014-171, LOT 1, SECTION 7, PENDER ISLAND, COWICHAN DISTRICT, PLAN 16534) is a 8 hectare (20 acre) protected area located at the head of Bedwell Harbour at the end of Schooner Way. The Islands Trust Fund works with the Pender Islands Conservancy Association (PICA) to manage the property in order to protect its unique ecological values. This property includes a 2 hectare brackish marsh which is rare in the Gulf Islands, as well as 237 metres of shoreline including bluffs. The upland area is comprised of Douglas-fir, western red cedar and grand fir forest.

The management for the nature sanctuary focuses on protecting the natural values of the property. Development of any kind, including disturbance to native vegetation, soils, and water flow, is prohibited. There are restrictions on the use of the property outlined in a conservation covenant that is held by Habitat Acquisition Trust and the Nature Conservancy of Canada, put in place to protect all of the native plants and animals on the reserve. The most recent management plan was written in 2006 and it can be found on our website: http://www.islandstrustfund.bc.ca/media/10379/itfmgmtplanmbeach.pdf

In order to update the plan, your input is requested. We would like to hear from the neighbours of the Medicine Beach Nature Sanctuary with your ideas and concerns regarding the long-term management of this special place. Please complete a questionnaire on our website: http://www.islandstrustfund.bc.ca/surveymb.aspx or complete the enclosed questionnaire and scan and send it to me by email or mail, or drop off at the open house. There will be an open house on February 17, 2018 at 11:00 am at Fireside Room, Anglican Church (4703 Canal Road) with a walk to follow at the Nature Sanctuary.

Many thanks for taking the time to consider the management of this nature sanctuary. For more information, please contact me at the number or email below.

Yours sincerely,

Nuala Murphy
Property Management Specialist, Islands Trust Fund
Phone: 250-405-5193
Email: nmurphy@islandstrust.bc.ca

Appendix I. Letter to First Nations

January 3, 2018

Cowichan Tribes
Halalt First Nation
Lake Cowichan First Nation
Lyackson First Nation
Malahat Nation
Pauquachin First Nation
Penelakut Tribe
Semiahmoo First Nation
Songhees First Nation
Stz'uminus (Chemainus) First Nation
Tsartlip First Nation
Tsawout First Nation
Tsawwassen First Nation
Tseycum First Nation

Dear Chief and Council,

The Islands Trust Fund is updating the management plan for the Medicine Beach Nature Sanctuary on North Pender Island. We would like to better understand the historical and current connection First Nations have with this area of North Pender Island. We would be very interested in learning from you how the Islands Trust Fund's management planning and actions for this protected areas on North Pender Island can acknowledge and respect the cultural significance and traditional use of this area.

Medicine Beach Nature Sanctuary (PID 004-014-171, LOT 1, SECTION 7, PENDER ISLAND, COWICHAN DISTRICT, PLAN 16534) is a 8 hectare (20 acre) protected area located at the head of Bedwell Harbour at the end of Schooner Way (please see map enclosed). The Islands Trust Fund works with the Pender Islands Conservancy Association to manage the property in order to protect its unique ecological values. This sanctuary includes a 2 hectare brackish marsh which is rare in the Gulf Islands, as well as 237 metres of shoreline including bluffs and a registered archaeological site. The upland area is comprised of Douglas-fir, western red cedar and grand fir forest.

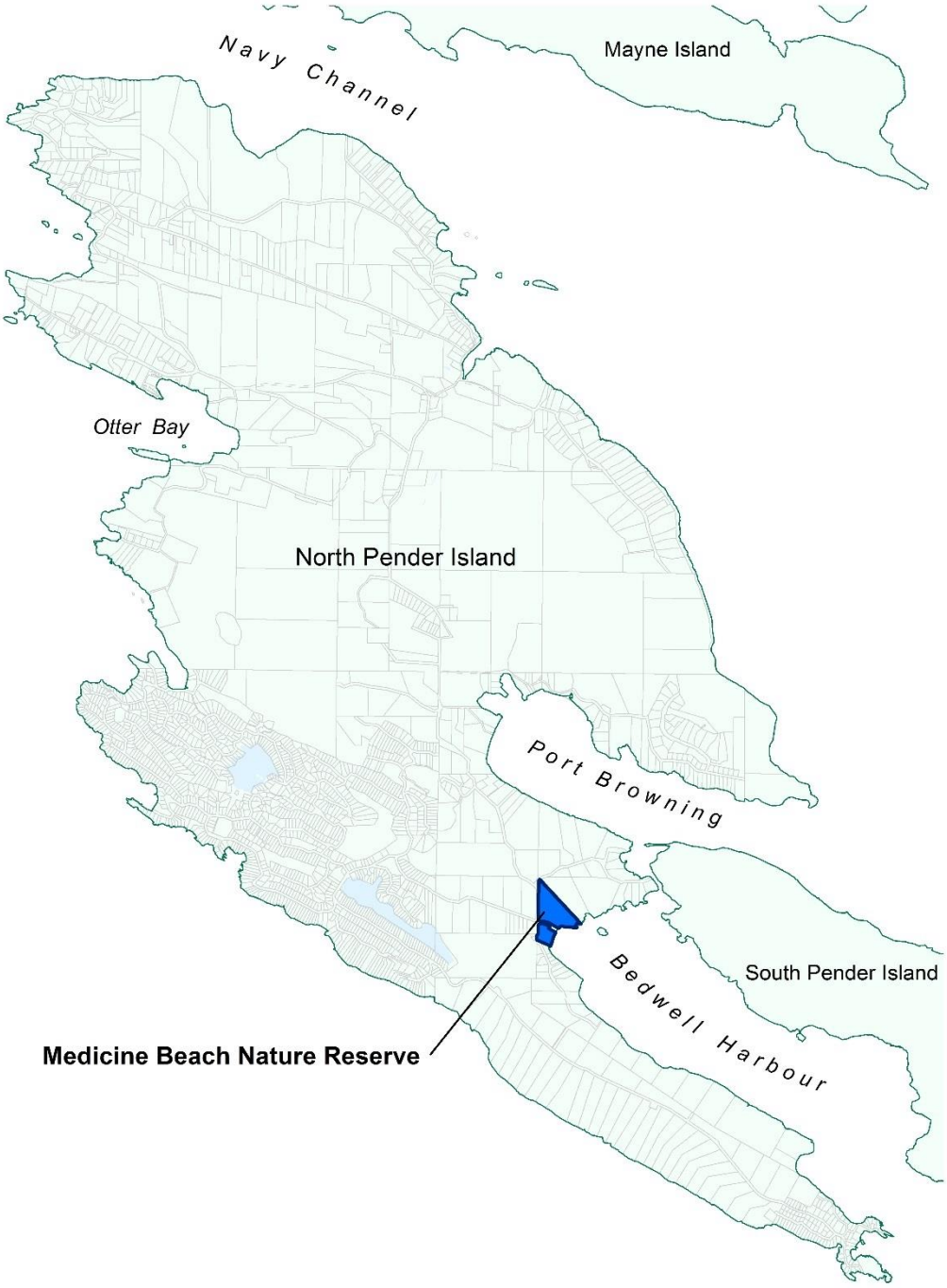
The management for the nature reserve focuses on protecting the natural values of the property. Development of any kind, including disturbance to native vegetation, soils, and water flow, is prohibited. Please consider filling out a questionnaire available on our website to assist us in gathering information: http://www.islandstrustfund.bc.ca/surveymb.aspx

There will be an Open House on February 17, 2018 at 11am at Fireside Room, Anglican Church (4703 Canal Road), with a walk to follow at the nature sanctuary. If you would like to have more information or to meet to discuss, please contact me at the email or number below.

Thank you for your consideration.

Yours sincerely,

Nuala Murphy
Property Management Specialist, Islands Trust Fund
Phone: 250-405-5193
Email: nmurphy@islandstrust.bc.ca


Navy Channel
Mayne Island
Otter Bay
North Pender Island
Port Browning
South Pender Island
Bedwell Harbour
Medicine Beach Nature Reserve

MEDICINE BEACH NATURE SANCTUARY QUESTIONNAIRE

Medicine Beach Nature Sanctuary is an 8.4 hectare protected area at the head of Bedwell Harbour. It includes beach front and a two hectare brackish marsh, with the remainder in coastal bluff and forested uplands.

The Islands Trust Fund received the land as a donation in 1995 and the first management plan for the Medicine Beach Nature Sanctuary was written in 1997 and was revised in 2006. The Islands Trust Fund's primary goal is to protect and nurture the sensitive ecosystems on this land. To do that, we revise our management plans approximately every 10 years to guide the management of the property. We are asking you to help us develop this plan. Please share your thoughts on the protection and long-term management of the Medicine Beach Nature Sanctuary.

1. Where do you live?

- ◯ North North Pender
- ◯ Mid North Pender
- ◯ South North Pender
- ◯ South Pender
- ◯ Off-island

2. Have you ever visited Medicine Beach Nature Sanctuary? If so, how often?

- ◯ No, never
- ◯ Once
- ◯ A few times
- ◯ Once a year or less
- ◯ Once a month or more

3. If you have visited Medicine Beach Nature Sanctuary, what did you do there?

- ◯ Hiking/walking
- ◯ Dog walking
- ◯ Wildlife viewing
- ◯ Accessing the beach
- ◯ Other (please list)

4. Please list any wildlife and unique plant species you have seen at or near Medicine Beach Nature Sanctuary?

5. What do you believe to be the most important values of nature reserves (choose three)

- ◯ Protection of habitat for at-risk species

- ◯ Ecosystem services (e.g. clean water and air, erosion control, groundwater recharge, etc.)
- ◯ Recreational opportunities
- ◯ Education and research opportunities
- ◯ Tourism
- ◯ Aesthetic appeal
- ◯ Conservation for the sake of the intrinsic value of nature
- ◯ Other (please specify):

6. What activities do you believe are incompatible with the protection of natural features, and should not be allowed within the Medicine Beach Nature Sanctuary?

7. What do you feel could be the greatest threat to the health of this nature reserve, and should be the highest management priority for the Islands Trust Fund?

8. Please provide any other relevant information that will help us make the best management decisions for Medicine Beach Nature Sanctuary.

9. Please share with us any history you know about this property (or south North Pender Island) or any knowledge you have about unique cultural or other special features on the property.

10. If you would like to receive periodic updates from the Islands Trust Fund on this and other conservation projects on the islands, please provide your name and email address:

Thank you for your time spent helping us plan the future of the Medicine Beach Nature Sanctuary.

REQUEST FOR DECISION

To: Trust Fund Board

For the Meeting of: May 29, 2018

From: Crystal Oberg, Communications and Fundraising Specialist

Date Prepared: May 17, 2018

SUBJECT: Islands Trust Fund Submission for 2017-2018 Annual Report

---

RECOMMENDATION:

That the Trust Fund Board approves the attached text for inclusion in the 2017-2018 Annual Report for approval by Trust Council and submission to the Minister of Municipal Affairs and Housing**.**

---

1 PURPOSE: To approve the Trust Fund Board section of the 2017-2018 Annual Report.

2 BACKGROUND: Staff prepared a draft of the Trust Fund Board section of the 2017-2018 Annual Report, reporting achievements against the goals of the Regional Conservation Plan. Chair Tony Law is reviewing a draft letter from the Chair.

3 IMPLICATIONS OF RECOMMENDATION

ORGANIZATIONAL: Preparation of the Islands Trust Annual Report is undertaken by Trust Area Services Communications staff, reporting to the Executive Committee and consistent with Trust Council's Annual Report Policy 6.10.i.

Under Trust Council's Policy, all LTCs, Council committees and TFB are expected to review and approve their sections at regular meetings. To comply with the schedule indicated in the policy, the Executive Committee has adopted the following schedule for submission of the Trust Fund Board report: May 30, 2018.

FINANCIAL: None

POLICY: This approach complies with Section 19 of the *Islands Trust Act* and Trust Council's Annual Report Policy 6.10.i.

IMPLEMENTATION/COMMUNICATIONS: Once each committee has approved its section, staff will create a draft Annual Report for review by the Executive Committee and consideration of Trust Council in June. Upon approval by Trust Council, staff will send the Annual Report to the Minister of Municipal Affairs and Housing and circulate it as indicated in Trust Council's policy.

FIRST NATIONS: None

OTHER: None

4 RELEVANT POLICY(S): Section 19 of the Islands Trust Act and Trust Council's Annual Report Policy 6.10.i

5 ATTACHMENT(S): ITF_2018-05-29_2017-2018-Annual-RPT_DRF.docx

---

RESPONSE OPTIONS

Recommendation: As above

Alternative: That the TFB approves the attached text for inclusion in the 2017-2018 Annual Report for approval (as amended) by Trust Council and submission to the Minister of Municipal Affairs and Housing.

Prepared By: Crystal Oberg, Communications and Fundraising Specialist
Reviewed By/Date: Jennifer Eliason, Islands Trust Fund Manager, May 22, 2018

Message from the Trust Fund Board Chair

Working together to protect Canada's Islands in the Salish Sea

On January 30, 2018, the Trust Fund Board approved a new ten-year (2018-2027) Regional Conservation Plan to guide the work of the Islands Trust Fund to protect fragile ecosystems in the islands in the Salish Sea. While many special places have been protected in the past 28 years of the Islands Trust Fund's history, there is still more work to do. Sensitive ecosystems account for 40 per cent of the Trust Area land base, but only 21 per cent of those ecosystems are protected. These islands provide habitat for hundreds of species of concern. That is why the Islands Trust Fund relies on the Regional Conservation Plan – a science-based and community informed plan, to focus our efforts and resources on what's most urgently in need of protection.

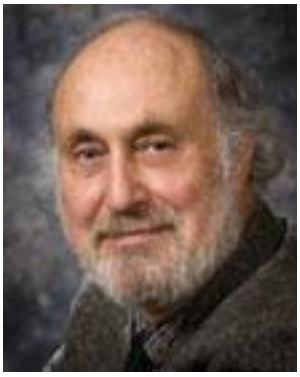
As we approached the end of the 2011-2017 Regional Conservation Plan, we reached out to experts, partners, the public and First Nations with interests in the land and waters in the Islands Trust Area to ask for input on the direction of a new plan. In the process of drafting the new ten-year Regional Conservation Plan, we examined our past successes and reviewed lessons learned to identify new high-level goals to guide our work. We learned how much our partners value our collaborative, science-based approach.

Just as species and the ecosystems of the Islands in the Salish Sea are interdependent, so is the process of land conservation in the Islands Trust Area. Local conservancies and island groups are often the driving force behind fundraising campaigns, a lesson that was emphasized in the previous Regional Conservation Plan. We are proud and humbled by the passion and dedication islanders and our partners have for the beautiful Islands in the Salish Sea and their desire to see the special properties on these lands endure into the future. This support truly enables us to do what we do.

The 2011-2017 Regional Conservation Plan set an objective to protect 500 hectares of priority conservation areas. Through strong partnerships, 491 hectares of priority lands were protected, by or with the assistance of the Islands Trust Fund. A highlight is the recent creation of two new nature reserves on Thetis Island, including Fairyslipper Forest – Thetis Island's first and only publicly accessible nature reserve. In addition, two recently finalized strategies regarding land securement and property management will help us prioritize and focus our resources on protecting and managing the most at risk and highest value ecosystems.

Over the duration of the last Regional Conservation Plan we completed eelgrass mapping for the entire Islands Trust Area as well as forage fish suitable habitat mapping for most of the region. This information was shared with multiple agencies including First Nations, industry, government and non-profits for use in oil spill planning, evaluation of application affecting shorelines, marine protected area planning, and more – all contributing to better protection for marine and shoreline habitat in the region.

With the continued support of our partners, islanders and external agencies working in concert for ecosystem protection, we look forward to the next ten years of science-based decision making to continue to deliver excellent service to ensure the protection of nature for future generations.



Tony Law
Chair, Trust Fund Board

Trust Fund Board

Role

The Islands Trust Fund was established in 1990 by the *Islands Trust Act* to preserve natural landscapes and ecosystems in the Islands Trust Area, which covers most of Canada's Islands in the Salish Sea. As the regional land trust for the Islands Trust Area, the Islands Trust Fund works with landowners and communities to protect places of natural or cultural significance in perpetuity. The Islands Trust Fund receives donations of land, conservation covenants and cash, monitors and manages land to conserve and restore biodiversity and works with islanders on private land stewardship. As a *qualified donee* the Trust Fund Board provides receipts for income tax purposes for all eligible donations received.

Members

Tony Law, Hornby Island (1996-2005, 2011–2014, 2014-2018, Chair, 2012–present)
Susan Morrison, Lasqueti Island (2011–2014, 2014-2018)
Kate-Louise Stamford, Gambier Island (2014-2018)
Ron Bertrand, Abbotsford and North Pender Island (Appointed Member, 2014-2015, 2015-2018)
Richard Hoops Harrison, Vancouver and Saturna Island (Appointed Member, 2016-2019)
Robin A. Williams, Salt Spring Island (Appointed Member, 2017-2019)

Protected Places in the Islands Trust Area

As of March 2018, the Trust Fund Board reached an important milestone, protecting over 1,270 hectares of natural and cultural values on 103 properties. By the same date, public and non-profit conservation organizations (including the Islands Trust Fund) had protected 14,177.78 hectares (17.93 per cent) of the Islands Trust Area.

Protected Places in Each Local Trust Area and Island Municipality as of March 31, 2018

Local Trust Areas and Bowen Island Municipality	% of Land Protected
Ballenas - Winchelsea	13%
Bowen	15%
Denman	24%
Gabriola	9%
Galiano	22%
Gambier	16%

Hornby	23%
Lasqueti	12%
Mayne	6%
North Pender	19%
Salt Spring	20%
Saturna	45%
South Pender	32%
Thetis	4%

Types of Protected Places in the Island Trust Area

Type of Protected Area	Protected Places (Hectares)	% of Trust Area	% of Protected Places
Conservation Covenant	690.24	0.87%	4.87%
Ecological Reserve	1400.9	1.77%	9.88%
Nature Reserve	1362.86	1.72%	9.61%
Park Community/Municipal	889.24	1.12%	6.27%
Park Federal	2901.23	3.67%	20.46%
Park Provincial & Protected Area	4806.02	6.08%	34.1%
Park Regional	1138.26	1.44%	8.03%
Watershed Protection	297.75	0.38%	2.1%
Heritage Forest	125.33	0.16%	0.9%
Old Growth Management Area	565.95	0.72%	4.0%
TOTAL	14,177.78	17.93%	17.93%

Regional Conservation Plan

The Islands Trust Fund's Regional Conservation Plan (RCP) identifies the region's species and habitats most in need of protection and the actions needed to protect these biodiversity priorities. The Regional Conservation Plan sets short-term conservation targets for the Islands Trust Fund and its partners that will help achieve the broader vision and long-term goals of the Plan. In 2014 the Trust Fund Board extended the Regional Conservation Plan until 2017. Nearing the end of the current plan, the Islands Trust Fund spent 2017 seeking feedback from experts, partners, the public and First Nations with interests in the lands and waters in the Trust Area to re-define long-term goals for the next Regional Conservation Plan (2018-2027) for the Islands Trust Area.

On January 30, 2018 the Trust Fund Board approved its new ten-year, 2018-2027 Regional Conservation Plan to guide the work of the Islands Trust Fund to protect ecosystems in the Islands in the Salish Sea. Over the course of the 2018-2027 Regional Conservation Plan, the Trust Fund Board will reassess the priorities and goals to continue to move towards effective protection of the natural landscape of the islands.

The following is a summary of the Islands Trust Fund's progress in reaching the seven long-term goals of the current Regional Conservation Plan in 2017-2018:

Goal 1: Protect Core Conservation Areas

The Islands Trust Fund strives to secure core conservation areas (through land donation, direct purchase and covenants) that conserve biodiversity priorities within the Islands Trust Area. Since adoption of the 2011-2017 Regional Conservation Plan, conservation agencies have cumulatively protected 1,335 hectares of habitat in the Islands Trust Area, 1,066 hectares of which were mapped as having high conservation value by the Islands Trust Fund. The Islands Trust Fund contributed 189 hectares of that figure, 157 hectares of which were mapped as having high conservation value.

2017-2018 Conservation Covenant Donations

Covenants are the best conservation tool currently available to permanently protect natural features on private property while allowing landholders to retain ownership of their land. The Islands Trust Fund also offers Islands Trust Area landholders the Natural Area Protection Tax Exemption Program (NAPTEP), a covenant program that provides landholders with an annual 65% property tax reduction on portions of their land protected by a conservation covenant. NAPTEP is available throughout the Islands Trust Area.

- **Settlement Lands Covenant (64 hectares), Denman Island**
  The Settlement Lands Covenant protects 64 hectares (157 acres) of regenerating forest, including remnant old-growth Douglas-firs, marshy wetlands and breeding habitat for the federally endangered Taylor's Checkerspot butterfly. The location of these lands provides important habitat connectivity between already conserved lands, including the Denman Island Provincial Park, the Islands Trust Fund's Inner Island Nature Reserve and the Denman Conservancy Association's Winter Wren Wood. The Denman Conservancy Association acquired the Settlement Lands in 2006 as part of the settlement in a legal case. In 2015, the Conservancy asked the Islands Trust Fund to hold a conservation covenant on

the Settlement Lands, adding a second layer of permanent protection for the property. The Trust Fund Board registered the covenant in September 2017.

2017-2018 Land Acquisitions

The Islands Trust Fund acquires land to be protected and managed as nature reserves.

- **Fairyslipper Forest Nature Reserve (16.6 hectares), Thetis Island**
  Fairyslipper Forest is the first publicly accessible protected area on Thetis Island and is named after the fairyslipper orchid that dots the forest floor with its pink blossoms every spring. The 16-hectare (40 acre) reserve on lower Burchell Hill is home to several species at risk, including the red-legged frog. Fairyslipper Forest also has significant watershed values and contains sensitive Douglas-fir and arbutus woodland which is considered to be endangered or threatened in British Columbia. By protecting the property as a nature reserve, Fairyslipper Forest will mature into an old growth forest. Community members and visitors will enjoy the property's hiking trail, local students will benefit from using the land as an outdoor classroom and habitat will be maintained for species at risk.

Geographically Restricted Funds

Some people who donate to the Islands Trust Fund prefer to designate their donation to a specific island. To accommodate this request, the Trust Fund Board has the ability to hold geographically-specific accounts, and has created acquisition funds for Lasqueti Island, Gambier Island and Thetis Island.

Mapping and Data Analysis

Mapping and data analysis help the Trust Fund Board implement and accentuate Regional Conservation Plan goals and objectives. Over the past year, the Trust Fund Board updated Terrestrial Ecosystem Mapping and refined terrestrial ecosystem data to include Sand Ecosystems to improve identification of sensitive shorelines. The Conservation Priority Area data model was also updated with new data.

Goal 2: Protect Biodiversity in Working Landscapes

In 2017-2018, the Trust Fund Board Chair attended an Agricultural Land Commission (ALC) review committee meeting. The Trust Fund Board Chair provided information on the Islands Trust Fund, and informed attendees that the Trust Fund Board would like to work in partnership with the ALC on protecting conservation priorities, noting that the ALC and Trust Fund Board both have a provincial mandate. The Trust Fund Board Chair followed up by submitting a letter to the ALC.

Goal 3: Conserve Marine Ecosystems

The Islands Trust Fund works with partner organizations to conserve marine ecosystems and nearshore habitats. The Islands Trust Fund also maintains and updates mapping of eelgrass and forage fish habitat, as marine protected area data from partner agencies including, as well as marine parks, Rockfish Conservation Areas and Glass Sponge Reef Fishing Closure Areas. Marine data and mapping is shared with our partners on request.

Goal 4: Encourage Local Governments to Prioritize Biodiversity

The Islands Trust Fund strives to work with the Islands Trust Council, local trust committees and island municipalities to implement regional conservation goals and objectives within Official Community Plans and Land Use Bylaws. In 2017-2018, the Islands Trust Fund provided ongoing support for Islands Trust Local Planning Services' use of sensitive ecosystem mapping, shoreline mapping (eelgrass and forage fish) and Species at Risk mapping. It also facilitated a joint project between the Coastal Douglas-fir and Associated Ecosystems Conservation Partnership and the Gambier Island Local Trust Committee to undertake mapping to inform the Gambier Islands Official Community Plan review. The Islands Trust Fund also played a key role in obtaining new data for use by Local Planning Services and local trust committees, including working with Environment and Climate Change Canada to obtain new Species at Risk Critical Habitat data and working with the Islands Trust to procure land disturbance data for the period between 2004 and 2014.

Goal 5: Empower Islanders to Conserve the Islands

Stewardship Education

The Islands Trust Fund encourages islanders to get involved in conserving and stewarding private land by supporting conservation education and sharing information on best practices. In 2017-2018, the Islands Trust Fund promoted private land conservation through its website, the Heron newsletter (printed and online), e-news updates to subscribers, Facebook posts and Twitter. Islands Trust Fund brochures are also available in local libraries, real estate offices and various other offices and businesses throughout the islands.

Island Outreach

Islands Trust Fund staff and Trust Fund Board members hosted an information booth and interpretive eelgrass display at the busy Hornby Island Fall Fair. Staff and Board members reached over 250 people, educating children, locals and visitors about the role of eelgrass beds as nature's nurseries and the opportunity for NAPTEP covenants to protect sensitive island ecosystems.

Goal 6: Building Strong Conservation Partners

The Islands Trust Fund strives to support and enhance the work of conservation partners working in the Islands Trust Area.

- **Fairyslipper Forest Campaign**
  Initiated in 2014, the Islands Trust Fund partnered with the Thetis Island Nature Conservancy and Cowichan Community Land Trust on a three-year fundraising campaign to purchase and protect Fairyslipper Forest, on Lower Burchell Hill, Thetis Island. The campaign completed in January 2018. Trust Fund staff and Trust Fund Board members hosted a board to board celebration event in February 2018 to thank all of the partners involved on the successful acquisition.

- **Opportunity Fund**
  The Opportunity Fund raises public support for key opportunities to protect biodiversity in the Islands Trust Area. The fund provides support for 'hard to fundraise' costs associated with land protection or to leverage increased donations for specific land acquisition projects. Grants from the Opportunity Fund support acquisitions led by either the Islands Trust Fund or our partners. The disbursement of

funds is guided by the Regional Conservation Plan, and each opportunity is considered by the Trust Fund Board.

In 2017-2018, the Opportunity Fund received $5,131.47 in donations, grants and calendar sales. The Trust Fund Board distributed the following Opportunity Fund grants:

- $5,000 to Mayne Island Conservancy Society for an ecological assessment and legal fees associated with the acquisition of St. John Point.

- **National Land Summit**
  Islands Trust Fund staff and board members participated in the National Land Summit hosted by the Land Trust Alliance of B.C. and Land Trusts Canada in Victoria in 2017. Islands Trust Fund staff presented on Conservation Planning.

- **Coastal Douglas-fir and Associated Ecosystems Conservation Partnership**
  The Islands Trust Fund Ecosystem Protection Specialist sits on the Steering Committee for the Coastal Douglas-fir and Associated Ecosystems Conservation Partnership (CDFCP). In 2017-2018, the Islands Trust Fund worked with the CDFCP to conclude its joint pilot project with the Gambier Island Local Trust Committee (GILTC) to evaluate whether CDFCP mapping can be integrated into the GILTC Official Community Plan. The GILTC is considering the use of the mapping. The CDFCP is also working on a resource for land use planners and decision makers that outlines land use planning tools that can protect Coastal Douglas-fir and associated ecosystems. This project will inform future work of the Local Planning Committee on land use planning resources for Coastal Douglas-fir conservation in the Islands Trust Area.

- **Conservation Tax Incentive Project**
  Islands Trust Fund staff have been working with both the Land Trust Alliance of B.C. and the Species and Ecosystems at Risk Local Government Working Group to explore the feasibility of expanding a NAPTEP-like conservation tax incentive program to the rest of the Province of B.C.

- **Regional Conservation Plan Development Workshops**
  In May 2017, Islands Trust Fund staff hosted two workshops for partners with interest in the Islands Trust Area to provide an opportunity to provide feedback and input into the development of the new ten-year 2018-2027 Regional Conservation Plan. The workshops were attended with representation from: four Regional Districts; nineteen local, regional, provincial and national land trusts; six First Nations with interests in the lands and waters of the Islands Trust Area; American Friends of Canadian Land Trusts; and the Coastal Douglas-fir and Associated Ecosystems Conservation Partnership.

- **Trust Fund Board Retreat**
  In October 2018, the Trust Fund Board participated in a full-day retreat to determine Trust Fund Board priorities and opportunities. The day included round table discussions and a facilitated session with a fundraising specialist.

Goal 7: Take Care of What We Have

Acquiring a property or signing a conservation covenant is just the first step in ecosystem protection. The Islands Trust Fund monitors and manages its core conservation areas to maintain and enhance existing biodiversity features and support ecosystem functionality.

Property Monitoring and Management

The Islands Trust Fund monitors and manages its nature reserves according to management plans that identify long-term conservation, as well as restoration goals. In 2017-2018 the Islands Trust Fund undertook many property management projects in partnership with island conservancy partners, including:

- Monitored all properties protected by the Islands Trust Fund to ensure compliance
- Revised a Management Plan for Singing Woods Nature Reserve (Bowen)
- Initiated revision of management plans for Morrison Marsh Nature Reserve (Denman) and Medicine Beach Nature Sanctuary (North Pender Island) by surveying for species at risk, updating ecological inventories and undertaking public engagement through a survey and two open house
- Removed exotic and invasive species from nature reserves on Denman, Galiano, and Salt Spring Islands
- Designed and constructed a cedar boardwalk around the large western red cedar tree and maintained trails at Elder Cedar Nature Reserve (Gabriola)
- Continued Sharp-tailed Snake and Cormorant nest monitoring program at Trincomali Nature Sanctuary (Galiano)
- Monitored planting projects at Lindsay Dickson Nature Reserve (Denman), Mt Trematon Nature Reserve (Lasqueti), Trincomali Nature Sanctuary (Galiano) and Long Bay Wetland and Brigade Bay Nature Reserves (Gambier)
- Planted and fenced riparian areas at the edge of the wetland on John Osland Nature Reserve (Lasqueti)

TRUST FUND BOARD - EXECUTIVE COMMITTEE LIAISON MEETING AGENDA

July 17, 2018
1:00 pm to 2:30 pm (Lunch 12:30 – 1:00 pm)

Location: Islands Trust Victoria Office Boardroom

Distribution:

Executive Committee Members	Trust Fund Board Members	Staff
Peter Luckham	Tony Law (Chair)	Russ Hotsenpiller
Laura Busheikin	Susan Morrison	Clare Frater
George Grams	Kate-Louise Stamford	Jennifer Eliason
Susan Morrison	Ron Bertrand	Corlynn Strachan (recorder)
	Hoops Harrison	
	Robin Williams	

Agenda Copies: Lori Foster, David Marlor, Julia Mobbs

Posted: IT Bulletin Boards in the Gabriola, Victoria, and Salt Spring Islands Trust Offices and the Islands Trust Fund Website

---

Section	Agenda Item	Info Attached	Time (Mins)
1.0	**CALL TO ORDER**		
2.0	**APPROVAL OF AGENDA**	*	
2.1	**Introductions and context for annual meeting**	n/a	5
3.0	**MINUTES/COORDINATION**		
3.1	**Receive July 2017 Meeting Minutes**		
4.0	**BUSINESS**		
4.1	**Items for Discussion**		
	4.1.1 First Nations Relationship Building		
	4.1.2 Regional Conservation Plan and Local Trust Committees		
	4.1.3 Request to Meet with Minister?		
	4.1.4 Name Change Implementation?		
		Total Time:	**1 hour 30mins**

BRIEFING

To: Trust Fund Board **For the Meeting of:** May 29, 2018

From: Crystal Oberg **Date Prepared:** May 17, 2018

SUBJECT: **Islands Trust Fund Name Change Communications Plan**

PURPOSE: For Information

BACKGROUND: *The Miscellaneous Statutes Amendment Act (No. 2), 2018*, was introduced in the legislature on April 23, 2018, by Attorney General David Eby. The amendments will affect several provincial statutes, including the *Islands Trust Act*, where the "amendments will change the name of the Islands Trust's Trust Fund Board to the Islands Trust Conservancy, to more accurately represent the extent and nature of the board's mandate." https://news.gov.bc.ca/releases/2018AG0019-0007. The bill received 3rd reading April 26 – this table shows all the various bills this session: https://www.leg.bc.ca/parliamentary-business/legislation-debates-proceedings/41st-parliament/3rd-session/bills/progress-of-bills.

Islands Trust Fund staff anticipate that the change to the *Act* will move forward to Royal Ascension by the end of May 2018. Once the changes to the *Act* are approved and finalized, all references to the Trust Fund Board will be changed to the Islands Trust Conservancy. There are no legislative requirements or defined timelines to implement the name change; it is at the discretion of Islands Trust Fund staff and the Trust Fund Board.

Therefore, to optimize and balance messaging opportunities and risks with budgets and staff resources, a two–phased approach is proposed. The first phase is a soft-launch in June (extending into August) with key stakeholders and a second, more public facing launch in September.

ATTACHMENT(S): ITF_2018-05-29_ITFNameChangeCommsPlan

FOLLOW-UP:

1. Staff will begin implementation of the name change as described in the Islands Trust Fund Name Change Communications Plan.
2. The Trust Fund Board may wish to make suggestions or amendments to the Plan.

Prepared By: **Crystal Oberg, Communications and Fundraising Specialist**

Reviewed By/Date: **Jennifer Eliason, Islands Trust Fund Manager/ May 18, 2018**

Islands Trust Fund Name Change Communications Plan

Table of Contents

Background

The Miscellaneous Statutes Amendment Act (No. 2), 2018, was introduced in the legislature on April 23, 2018, by Attorney General David Eby. The amendments will affect several provincial statutes, including the *Islands Trust Act*, where the "amendments will change the name of the Islands Trust's Trust Fund Board to the Islands Trust Conservancy, to more accurately represent the extent and nature of the board's mandate." https://news.gov.bc.ca/releases/2018AG0019-0007.

The bill received 3rd reading April 26 – this table shows all the various bills this session: https://www.leg.bc.ca/parliamentary-business/legislation-debates-proceedings/41st-parliament/3rd-session/bills/progress-of-bills.

Islands Trust Fund staff anticipate that the change to the *Act* will move forward to Royal Ascension by the end of May 2018. the changes to the *Act* are approved and finalized, the Islands Trust Fund and Trust Fund Board will be changed to the Islands Trust Conservancy. There are no legislative requirements or defined timelines to implement the name change; it is at the discretion of Islands Trust Fund staff and the Trust Fund Board.

Therefore, to optimize and balance messaging opportunities and risks with budgets and staff resources, a two–phased approach is proposed. The first phase is a soft-launch in early June (extending into August) with key stakeholders and a more public facing launch in September.

Goals

- Use this opportunity to enhance the organization's reputation in the Islands Trust Area and increase recognition of the organization with broader audiences, (Victoria, Vancouver and B.C residents)
- Re-engage and retain current supporters and partners (donors, conservancy partners, other levels of government, internal stakeholders) and foster relationships with expanded base of supporters (including First Nations)
- Enhance reputation and relations with the media
- Strengthen relationships with all levels of government including internal and external elected officials, municipalities, provincial and federal ministries and First Nations
- Build relationships with businesses and foundations to support fundraising and land conservation objectives
- Enhance internal engagement to streamline program and project delivery for staff and board members

Stakeholders and Timelines

1. Islands Trust Fund Audiences - High Priority and High Engagement – early and meaningful engagement, (June to August)	
Key Stakeholders	
Internal	
TFB	• Early involvement and promotion of the name change; leaders
IT Trustees and LTC's	• Direct correspondence, notify all Trustees • Provide communications plan overview in agenda package for June Trust Council meeting • After hours celebration at June Trust Council meeting • Joint news release and media event with Islands Trust (September)
Executive Committee	• Direct correspondence • Joint Executive Committee and TFB thank-you letter to the Minister (pre public launch in September)
Islands Trust Staff	• Intranet post • Provide IT Communications Specialist with new logos • Joint news release and media event with Islands Trust (September)
External	
Islands Conservancy Partners	• Send e-news to all Island Conservancy partners • Provide new Islands Trust Conservancy logos
Co-Covenant Holders (NCC/Island Conservancies/Other Land Trusts)	• Letter to all co-covenant holders with notification of the name change and new logos
Government Partners	• Notify government partners (e.g. Eco Gifts, Parks Canada, CRD Parks) • Send letter to all government partners explaining name change and explanation of continuation of existing agreements. Include new logos where appropriate
Clients	
Covenant holders	• Send letter to all covenant holders explaining name change and explanation of continuation of existing agreements.
Current cash donors	• Send special E-News to VIP Donors
Current Funding and Granting Organizations	• Send letter or email to current funding and granting organizations explaining name change, include new logos where appropriate
2. Islands Trust Fund Audiences – Lower Priority and High Engagement – public launch, (September, with on-going roll-out of re-branded communication materials until December 2018 or as funds and time are available)	

Public – general audience Potential donors; those wo live in/visit/love the islands Owners of land with known conservation values Off-island landowners (Canadian and American) Other local, provincial and national Land Trust partners (if not a co-covenant holder) Local media Provincial and national media Tourists Foundations (e.g. Victoria Foundation) Estate advisors, finance and tax planners, estate lawyers Real Estate agents (on-islands in database) Professional peers Agency partners (American Friends of Canadian Land Trusts, Coastal Douglas-fir Working Group, etc.) Government officials (local, regional, provincial, federal) Past funding and granting organizations Island community groups and associations	Pre-Launch: • Name change teaser in May 2018 Heron Newsletter • Joint Executive Committee and TFB thank-you letter to the Minister, with invitation to speak at a media event and add a quote to the news release • Develop Islands Trust Conservancy branded promotional materials for the launch Public launch: • Launch of re-branded website (new logos, updated content and url) • Joint news release and media event with the Islands Trust • Media invitation to local and provincial media • Send rebranded E-news to Islands Trust Fund contact list • Letter to foundations • Letter or emails to Government officials • Social media posts with on-line contests and promotional give-aways • Special promotions (e.g. partner with local Victoria businesses) • Newly branded Islands Trust Conservancy brochures and publications (will roll out as needed) • Distribute newly branded property signs for conservation covenants, as required

Key Messages

- The Islands Trust Fund and Trust Fund Board have a new name - the Islands Trust Conservancy!
- This name change aligns with and better represents the work that we do
- The name change will not negatively impact our partners or affect any current covenant holders or co-holders or legacy gifts designated to the Trust Fund Board in people's wills
- Once the name change is enacted, all new covenants and properties will be registered under the Islands Trust Conservancy name
- The new Islands Trust Conservancy invites you to celebrate this incredible milestone, share the news with your friends, family and colleagues!

Messaging opportunities:

- A good news story! This is a great move forward by the Province to help the Islands Trust Conservancy achieve our mission for conservation in the Islands in the Salish Sea.
- New matching campaign (Possible)
- Holiday campaigns and National Giving campaigns

Messaging risks:

- Confusion and possible negative reaction from island and local conservancy partners, if the name is perceived to cause confusion over what agency the 'Conservancy' refers to.
- Timing of the name change, staff will need to inform key stakeholders and partners once the name change is public to avoid possible confusion and fear over perceived implications for covenants and legal agreements.
- Not receiving coverage or recognition of the name change.

Communication Tools

Vehicle	Purpose	Frequency	Accountable
E-news	Inform and solicit donations	As needed; no more than 1 per month	Communications
Newsletter	Educate and inform, create sense of community	Send electronically to e-news subscribers, publish on website, mail to key donors	Communications
Social Media	Inform and solicit donations	Determined by specific campaigns – guided by social media plans	Communications
Website	To provide a repository of information public can access at their convenience	Monthly review, updates as necessary. Campaign end (3 months) –increase to monthly, and weekly updates	Communications
News Release	To build broader support and awareness of the campaign	As needed – large campaign developments and key timelines	Communications
Special Reports	Provide TFB with campaign updates	Quarterly Trust Fund Board meetings	Manager, Communications
Campaign Promotional Material	Promote awareness of the campaign	Update brochures and develop ad content as required	Communications

Special Events	To provide a personal point of contact and build awareness of ITF in island communities	As required	Manager, Communications, TFB Members

BRIEFING

To: Trust Fund Board **For the Meeting of:** May 29, 2018

From: Jennifer Eliason **Date Prepared:** May 15, 2018

SUBJECT: **Potential Request for Meeting with Minister of Municipal Affairs and Housing**

PURPOSE: Trustee Williams would like the TFB to consider requesting that the Executive Committee request a meeting with the Minister of Municipal Affairs and Housing to further build relationships and profile, and acknowledge TFB's appreciation of her assistance with the name change.

BACKGROUND: The Executive Committee met with Minister Robinson on January 23, 2018, and discussed several things, including the ongoing request for a name change for the ITF/TFB. The Islands Trust Fund submitted its Five Year Plan to the Minister in December, and staff understand it will soon be presented to the Minister for review and approval. With the name change now achieved and review of the Five Year Plan underway, it may be a good time to present to the Minister on the Five Year Plan, the Regional Conservation Plan and moving ahead now that the name change is (almost) complete.

FOLLOW-UP: The TFB could request that the Executive Committee request a meeting with the Minister of Municipal Affairs and Housing to present her with more information on the Islands Trust Conservancy. Alternatively, the TFB could make this request for a meeting itself, either via the TFB Chair or the appointed TFB members, or request a meeting at UBCM. Staff suggest this topic should be discussed at the TFB/EC Liaison meeting in July.

Prepared By: **Jennifer Eliason, Manager, Islands Trust Fund**

Reviewed By/Date: **Clare Frater, Director Trust Area Services/May 22, 2018**

ISLANDS TRUST FUND

Public Acquisitions Update
May 29, 2018

Property Name and Island	Date (yyyy/mm/dd)	Notes
PUBLICLY CONSIDERED PRIVATE LAND ACQUISITIONS		
Crystal Mountain (Galiano) 18.3 ha.	2017/11/21	TFB has previously considered a conservation covenant proposal and land transfer proposal for this property.
	2017/11/21	TFB-2017-031 It was MOVED and SECONDED, that the Trust Fund Board accept the updated Conservation Proposal from the Crystal Mountain Society, agreeing to accept transfer of approximately 18.3 hectares of Lot 9, District Lot 90, Galiano Island, Cowichan District, Plan 31200, (PID 000-851-035) and part of Lot A, District Lots 88 and 89, Galiano Island, Cowichan District, Plan VIP68079, (PID 024-351-041), subject to: 1. The release of the rent charge and related easements on the title of Lot A and any other charges determined, through legal review, to be problematic for the Trust Fund Board; 2. Establishing legal access for the Trust Fund Board to the most eastern part of Lot A; 3. Receipt of $30,000 upon transfer of the land, with at least $15,000 to be held in a pooled Nature Reserve Management Fund, and $10,000 to $15,000 to be put towards the development of a management plan and management activities for the nature reserve; 4. Staff reaching mutual agreement with the water license holders to limit the impact of accessing and maintaining the permitted water works; 5. Agreement with the Society that the portion of the proposed Emergency Access over the nature reserve would be used only in the case of emergency; 6. Written agreement with the Society about the use and maintenance of the pagoda; 7. Installation of boundary and corner pin markers at the time of survey at the expense of the applicant (locations to be determined in consultation with ITF staff); and 8. Final approval of the Trust Fund Board of the final survey plan, transfer agreement and all other associated agreements.
	2018/03/01	Contacted by CMS re: next steps, and confirmed importance of having preliminary survey completed, and ensuring proposed layout is registrable.
Valens Brook Nature Reserve addition (Hermanutz-Innes proposal) (Denman)	2014/09/18	It was MOVED and SECONDED, that the Trust Fund Board accept the conservation proposal submitted by Henning Nielsen on behalf of Luise Hermanutz and David Innes, to transfer approximately 2.545 hectares of Lot 17, Plan 6404, Section 6 Denman Island, Nanaimo District, PID 005-851-122 to the TFB to be protected as a nature reserve.

2.55 ha.	2017/05/22	Landowners informed ITF rezoning is complete and they wish to proceed with land donation.
	2017/06/07	Draft transfer agreement provided to landowners for review
	2017/07/18	It was MOVED and SECONDED that the Trust Fund Board direct a board member to sign a transfer agreement between the Trust Fund Board and the owners of Lot 17, Section 6, Denman Island, Nanaimo District, Plan 6404 PID 005-851-122 and authorize staff to move forward with the transfer of approximately 2.54 hectares of this property, using section 99 of the Land Titles Act.
	2017/09/05	Landowner working with surveyor, notary and credit union to prepare land for transfer.
	2017/09/27	Landowner submitted application to Ecological Gifts program (EGP).
	2018/02/26	Updates from appraiser submitted to EGP appraisal review panel(ARP) in response to queries.
	2018/03/14	EGP ARP was not satisfied with the response to the memo and requires additional information. Staff are working with EGP staff and the landholders to determine next steps.
	2018/05/01	ITF contracted new appraisal with new firm; working with appraiser and EGP to resolve issues.
Sandy Beach (Area E) (Keats) 3.3 ha.	2014/09/18	It was MOVED and SECONDED, that the Trust Fund Board approve the conservation proposal submitted by the Convention of Baptist Churches of British Columbia to transfer Area E (Sandy Beach), approximately 3.3 hectares of DL 696, Group 1 NWD, Keats Island (PID: 014-385-694) to the Trust Fund Board for protection as a nature reserve.
	2015/03/02	Consultant has indicated that the landowners would like a covenant registered on the land at the time of transfer. ITF has approached Gambier Island Conservancy (GIC) and Sunshine Coast Conservation Association (SCCA). GIC has declined, but SCCA is potentially interested. Landowner currently seeking confirmation from Islands Trust and SCRD that transfer will count as park allocation for future subdivision approval; MOTI has confirmed.
	2015/05/07	SCCA agrees to hold covenant; suggests TLC as a co-holder as they have worked together before.
	2015/08/18	Draft conservation covenant provided to ITF staff for review.
	2015/08/26	Edits to covenant provided to applicant and covenant holders for review.
	2015/12/15	Comments on covenant draft received from TLC.
	2015/01/12	Covenant revised with TLC edits and returned to TLC and SCCA for comment. TLC is happy with the draft. SCCA has sent the covenant for legal review, still awaiting SCCA comments.
	2016/02/10	SCCA comments received.
	2016/03/04	ITF responded to SCCA edits. SCCA reviewing with lawyer.
	2016/04/11	Requested that landowner contract development of baseline report for covenant. Transfer not likely to occur until spring 2017.

	2016/06/05	SCCA comments received for covenant.
	2016/10/05	Draft 3 covenant sent to covenant holders for review. TLC and SCCA have agreed to the draft. Awaiting update from applicant on baseline and timeline for transfer from applicant.
	2016/02/10	Draft Bylaws for DL 696 received.
	2017/03/02	Covenant sent for legal review.
	2017/04/13	Revised covenant draft sent to TLC and SCCA. Comments received from both agencies.
	2017/08/31	Edits made to covenant and reviewed by legal. Draft 5 sent to TLC and SCCA for review. TLC has no further comment; awaiting SCCA comment. Both TLC and SCCA have requested a site visit.
	2017/09/07	Draft baseline report received from the applicant.
	2017/10/24	Feedback on baseline report submitted to applicant and revisions requested.
	2018/03/13	Email from Island Planner indicates that the rezoning application will move to a community information meeting and public hearing for bylaw 143 on April 18, 2018. The Island Planner has requested that the applicant contact ITF staff regarding requirements for land transfer and covenant prior to April 18.
	2018/04/24	Notice received from GM Planner that GM LTC gave third reading to Proposed Bylaw No. 143 and that applicant is now finalizing plans to subdivide/transfer the Sandy Beach Nature Reserve. Staff have reminded the applicant that we require edits to the Baseline report (covenant) prior to proceding.
	2018/05/28	Site visit with ITF staff, trustees, TLC & SCCA
Current Total TFB Acquisitions:		**28**

ISLANDS TRUST FUND

PUBLIC COVENANTS UPDATE
May 29, 2018

Property Name and Island	Date (yyyy/mm/dd)	Notes
NAPTEP COVENANTS		
24 NAPTEP Covenants on title, 1 current application.		
Swift Family Link Island NAPTEP Covenant Link Island ECOGIFT (Gabriola LTA) (19.3 ha)	2016/04/05	TFB-2016-011 It was MOVED and SECONDED that the Trust Fund Board approve Elizabeth Working Swift's proposal to covenant approximately 20 ha of the land described as "Section 25, Nanaimo District (Part of DeCourcy Group of Islands), Parcel Identifier 009-772-138" through the Natural Area Protection Tax Exemption Program (NAPTEP).
	2016/04/07	Request sent to the Nanaimo & Area Land Trust inquiring about their willingness to co-hold covenant.
	2016/04/15	TFB decision letter sent to landowner.
	2016/05/26	Briefing received by Gabriola LTC.
	2016/05/27	Site visit with landowner and co-covenant holder. Co-covenant holder will send for board approval August 3.
	2016/06/16	Trust Council approves NAPTEP application.
	2016/07/13	Draft Covenant and Phase 2 letter sent to applicant for review.
	2016/12/12	Revised covenant draft sent to the applicant for review.
	2017/01/06	Survey completed, residential area will be 2.15 ha. The family is contemplating potential contractors for the baseline report and intend to apply to the Ecological Gifts Program.
	2017/01/25	NALT agrees to co-hold NAPTEP covenant with the TFB.
	2017/04/24	Draft covenant sent for legal review.
	2017/05/01	Field work for baseline report completed and report underway.
	2017/05/16	Legal review received.
	2017/06/21	Draft baseline report received and reviewed by ITF staff. Currently under review by landowner and NALT.
	2017/07/13	Revised covenant sent to landowner and NALT for review.
	2018/01/12	Landowner working with Ecological Gifts program coordinator to complete appraisal of covenant by end of March 2018.
	2018/02/28	NALT board agrees to covenant language in Link Island NAPTEP covenant draft
	2018/03/06	Covenant sent for final legal review.
	2018/04/19	Landowner has requested an extension to the NAPTEP Application (which expires in June). Staff will process this request and request Trust Council approval. Applicant hopes to register covenant in September/October 2018.

ISLANDS TRUST FUND

PUBLIC COVENANTS UPDATE
May 29, 2018

Property Name and Island	Date (yyyy/mm/dd)	Notes
REGULAR COVENANTS UPDATE		
(51 regular covenants on title, 1 regular public covenants in progress, 3 in-camera covenants in progress.)		
Brooks Point Covenant South Pender Island (1.17 ha, 6.02 ha if combined with surrounding covenants)	2014/03/23	It was MOVED and SECONDED, that the Trust Fund Board agrees to hold a covenant on the 2010 addition to Brooks Point Regional Park, South Pender Island, subject to agreement on the terms of the covenant and a satisfactory baseline report, and directs staff to continue working with CRD Parks and partners to determine the best way to covenant the three protected areas at Gowlland and Brooks Points.
	2014/04/08	Staff provide CRD staff with a template covenant for review.
	2014/04/15	Staff met with partners to discuss combining covenants for the Brooks Point and Gowlland Point properties.
	2014/05/22	Covenant Draft 1 sent to PICA, Friends of Brooks Point, HAT and CRD.
	2014/08/01	CRD response to Covenant Draft 1 received.
	2014/08/19	ITF/HAT/PICA express concerns to CRD with respect to Management Plan approval and other selected clauses.
	2014/08/20	Baseline Report completed.
	2014/08/22	CRD respond to ITF/HAT/PICA concerns.
	2014/09/17	ITF/HAT/PICA response sent to CRD. CRD staff have indicated they will respond after Nov 17, 2014.
	2014/10/08	Kate Emmings appointed to the Brooks Point Management Plan advisory group by the CRD.
	2014/10/16	ITF staff attended CRD Parks Open House for public review of the Brooks Point Management Plan update. Draft plan to be approved by CRD Parks Board Nov. 19 and by the CRD Board in December.
	2014/12/03	CRD submit revised covenant draft to ITF and HAT.
	2014/12/10	CRD Board approves revised Management Plan.
	2014/12/12	Covenant sent to legal counsel for review.
	2014/12/18	Covenant and comments sent to CRD.
	2015/07/29	Met with the CRD to discuss the covenant. There are several unresolved clauses.
	2015/08/28	Met with PICA and HAT to discuss unresolved clauses. Agreed that we were at an impasse and required more direction from PICA.
	2015/09/02	CRD returned a covenant draft for review, staff are concerned with several clauses, including the strength of restrictions and the enforcement mechanisms.
	2015/09/09	Staff provided a briefing to PICA requesting info about the type of covenant contemplated. Staff updated the CRD that a response to the covenant draft would be post-poned until further information is available from PICA.

ISLANDS TRUST FUND

PUBLIC COVENANTS UPDATE
May 29, 2018

Property Name and Island	Date (yyyy/mm/dd)	Notes
	2015/09/24	Staff met with HAT, Friends of Brooks Point (Paul Petrie) and the CRD to discuss covenant concerns. CRD staff agreed to revise covenant and circulate
	2015/10/28	Staff met with HAT and CRD staff to review revised covenant draft and CRD will do further revision and circulate by mid-November. 17/12/2015 Update: CRD staff still working on revisions.
	2015/12/18	CRD Staff provided revised covenant.
	2016/01/25	ITF/HAT responded to CRD revisions. Awaiting further communications.
	2016/07/15	CRD Staff provide a revised version of the covenant for further review.
	2016/08/16	HAT/ITF/CRD staff meet to discuss CRD edits. HAT/ITF agree to add definition regarding the permitted activities and will forward legal edits. CRD to re-approach NCC and TLC regarding process for discharge of prior covenants.
	2016/11/28	ITF/HAT forwarded the draft list of restricted and permitted uses for CRD review.
	2016/01/11	CRD response received, ITF/HAT to forward revised covenant draft for CRD review.
	2017/09/07	Brooks Point covenant revised and reviewed by legal and HAT.
	2017/09/21	Revised Brooks Point covenant sent to CRD Parks for review, CRD staff have indicated that they are reviewing the covenant, but have not responded
ITF NATURE RESERVES WITH COVENANTS OUTSTANDING		
(22 Nature Reserves have covenants, 6 Nature Reserves are without covenants, 2 TFB Nature Reserve covenants in progress (1 is under negotiation).		
Proposed Sandy Beach Nature Reserve Keats Island (3.3 ha.)	2017/01/10	ITF staff are currently negotiating a conservation covenant concurrently with the Sandy Beach Conservation Proposal (see Public Acquisitions Updates).
Fairyslipper Forest Nature Reserve Thetis Island (16.6 ha)	2018/03/20	ThINC Board approves resolution to hold a covenant on Fairyslipper Forest.
	2018/03/21	CCLT Board approves resolution to hold a covenant on Fairyslipper Forest.
	2018/04/03	TFB approves negotiation of conservation covenant in favour of ThINC and CCLT.
	2018/04/06	First draft of ITF template covenant sent ot partners
Total	**75 covenants registered**	

Regional Conservation Plan (2018-2027) Progress Report for TFB - April 1 to May 29, 2018

Goal 1. Identify, investigate and communicate about important natural areas to generate action on conservation priorities

1.1 Identify data that will support better decision making for land securement and land management and collaborate with partners to source and acquire it

Partner identified for forage fish mapping, investigating need for contract

Protected areas data updated to March 31, 2018

Protected areas data updated to include new BC Parks May 15, 2018

1.3 Investigate opportunities for protection of important conservation areas with appropriate partners

Met with applicant of Dragonfly Commons for site visit

Meeting with Keats Conservation Group, TLC and Sunshine Coast Conservation Association (May 28, 2018)

Ongoing contact with several landholders considering conservation options

1.4 Share information with partners and others through Islands Trust online data and mapping repositories where practical and through data sharing agreements if needed

Provided shoreline mapping to Salish Sea Nearshore Restoration Project and WWF Canada

New protected areas provided and mapping updated with data from BC NGO protected areas database

Working with DFO to provide marine data for Coastal Resource Information Management System

Revised protected area information posted to ITF website, internal mapping and MapIT

1.5 Seek opportunities to provide information to land holders to support voluntary conservation initiatives

Issued E-News with information about updated RCP

Issued Heron newsletter with information about updated RCP and Salish View campaign

Upcoming

- Staff to update Species at Risk Critical Habitat data upon finalization of Western Painted Turtle Recovery Plan
- Staff to determine contractor for forage fish mapping for Gabriola Island
- Staff coordinating public presentation in partnership with Gabriola Lands and Trails Trust for Summer/Fall 2018

Goal 2. Strengthen relationships with First Nations to identify and collaborate on shared conservation goals

2.1 Amend or redraft policies, procedures, plans, document templates and reports to include acknowledgement and consideration of First Nations

Revised Baseline Report and Management Plan Templates to better reference First Nation history, cultural significance and ecological knowledge.

2.5 Continue to share information and engage with new conservation projects in partnership with First Nations as resources permit

Letter sent to newly elected Penelakut Tribe council requesting collaboration on naming and management planning for Moore Hill (Thetis)

Letters sent to First Nations with information about the new RCP and available ITF resources. ITF offered to meet with First Nations at their request.

2.6 Research options for protection of cultural sites and culturally important species

Language developed for covenants that further protect existing and potential archaeological sites.

Upcoming

- Subject to response to letters about RCP, ITF staff will arrange meetings with First Nations.
- Coordinate meeting with Halalt First Nation and Lyackson First Nation as follow up to RCP workshops.
- Draft of a Securement Procedure that contemplates archaeological sites and other First Nation interests.

Goal 3. Continue to secure and manage Trust Fund Board lands and conservation covenants to maximize ecological integrity

3.1 Manage Trust Fund Board conservation areas responsibly and strategically for ecological integrity, species and ecosystems at risk, known threats,

Developed Request for Proposal to identify a contractor for the 3 nature reserves on Gambier

Completed restoration event with tree planting and caging on Brigade Bay Bluffs and Long Bay Nature Reserves (Gambier).

Completed Morrison Marsh (Denman) management plan; waiting for edits from conservation partners to finalize

Completed Medicine Beach (North Pender) management plan

Finalized contract for 2018-2019 Monitoring

3.3 Using conservation area modelling and the Trust Fund Board's Securement Strategy as guides, conserve land with high levels of biodiversity

Supporting campaign for Salish View (ongoing)

Negotiating subdivision and transfer of Salish View (ongoing)

Negotiating 2 conservation covenants on priority conservation lands (ongoing)

NAPTEP mailout to high priority landowners included personal notes to landowners who have previously indicated an interest in ITF programs (see 3.5).

RCP planning process evaluation provided at April TFB meeting

3.4 Explore increasingly complex strategies for land securement, including those that would protect biodiversity priorities on working landscapes (i.e.

Working with covenant applicant and ALC planner on proposal to covenant land in the ALR

3.5 Promote Islands Trust Fund land conservation programs to land use planners, decision makers and land holders

NAPTEP information mailed out to Gambier, Lasqueti and Thetis LTAs and BIM

Presented at LPS Pro-D day on RCP, identifying conseravtion values in staff reports for LTCs, and using conseravtion data and mapping

3.6 Participate in significant ecosystem conservation opportunities related to land use planning in collaboration with local trust committees and

Contracted appraisal of Valens Brook land donation

Completed site visit with project partners to proposed Sandy Beach Nature Reserve (Keats Island)

Evaluated conservation proposal for Dragonfly Commons (SSI)

3.7 Continue to support land conservation projects of partner agencies through the Opportunity Fund

Notified Saturna Island Wetland Project of TFB's April 2019 grant award

Upcoming

- Researching an information storage tool (database) to manage property information
- Finalize Link Island NAPTEP Covenant
- Work with Sandy Beach, Keats Island applicant to finalize covenant and transfer property
- Post Management Plan and Baseline Report Templates to the website

Goal 4. Continue to build internal and shared organizational strength and resilience to ensure long-term nature

4.1 Develop and expand fundraising strategies to support Islands Trust Fund programs

Mailed out appeal letters for Salsih View campaign to ~180 previous donors

4.2 Share funding and learning opportunities with partners working on nature conservation in the Islands Trust Area

Assisted with LINC's funding proposal to Sitka Foundation for Salish View

Provided letter of support for biologists seeking federal funding for further Species at Risk work on Lasqueti Island

Provided letter for support Salt Spring Island Conservancy's application to federal Habitat Stewardship Program

4.3 Continue to develop the Islands Trust Fund brand and promote organizational recognition through telling of the Islands Trust Fund story

ITF cover story published in AQUA magazine

Upgrading signage on all 3 Denman Island nature reserves with new logo and property signs

4.5 Engage audiences and partners beyond the Islands Trust Area to increase support for species and ecosystem conservation within the region

Social media posts and information sharing on ITF Facebook and Twitter accounts (ongoing)

4.7 Explore ways in which the provincial interest in preserving and protecting the Islands Trust Area can be manifested in support for the work of the Islands Trust Fund in achieving this object

Working with the Coastal Douglas-fir and Associated Ecosystems Conservation Partnership (CDFCP) to develop resources for land use planners working in the CDF

Upcoming

- Work with LPC staff to create planning resources for Islands Trust planners and LTCs to assist them to protect island ecosystems in the CDFCP region
- Follow up on Gabriola Island LTC request for an island workshop related to Regional Conservation Plan

Trust Fund Board Budget Tracking 2018-2019

GL	Description	Budget	Revenue	Total Available	Spent	Remaining	% Remaining	Additional Commited Funds
54500-210	Communications	$ 13,000		$ 13,000	$ 526	$ 12,474	96%	*$ 2,075*
56000-210	Contingency	$ 2,500		$ 2,500		$ 2,500	100%	
61100-210	Board Honoraria	$ 8,000		$ 8,000		$ 8,000	100%	
61200-210	Board Meeting Expense	$ 10,000		$ 10,000		$ 10,000	100%	
61210-210	Board Training & Conferences	$ 2,000		$ 2,000		$ 2,000	100%	
61300-210	Property Management	$ 65,000		$ 65,000	$ 18,226	$ 46,774	72%	*$ 24,216*
73001-210-8027	Property Management Plans	$ 30,000		$ 30,000	$ -	$ 30,000	100%	$ -
61500-210	Cons Planning / Land Securement	$ 18,000		$ 18,000	$ -	$ 18,000	100%	$ -
63000-210	Legal	$ 15,000		$ 15,000	$ 356	$ 14,644	98%	$ -
61600-210	Ecosystem Mapping	$ 15,000		$ 15,000	$ -	$ 15,000	100%	$ -
80300-210	Mobile Devices	$ 1,800		$ 1,800		$ 1,800	100%	
81300-210	Training & Conferences	$ 7,000		$ 7,000		$ 7,000	100%	
81305-210	Travel for Training	$ 2,500		$ 2,500		$ 2,500	100%	
82300-210	Travel	$ 4,000		$ 4,000		$ 4,000	100%	
		$ 193,800	$ -	$ 193,800	$ 19,108	$ 174,692	90%	*$26,291*

Restricted Funds	Opening Balance					
Alton Maintenance Account	$ 66,677	$ 1,706	$ 68,383	$ -	$ 68,383	*$ 425*
Ruby Alton Endowment Fund	$ 136,404				$ 136,404	
Opportunity Fund	$ 29,214	$ 253	$ 29,467	$ 33	$ 29,434	$ -
Covenant Mgmt and Defence Fund	$ 103,952	$ 2	$ 103,954	$0	$ 103,954	
Lasqueti Island Acq Fund	$ 34,114	$ 2	$ 34,116	$0	$ 34,116	
Gambier Island Acq Fund	$ 116,638		$ 116,638		$ 116,638	
Morrison Waxler Legacy Fund	$ 20,070	$ 1	$ 20,071	$0	$ 20,071	
Thetis Island Acq Fund	$ 1,285	$ -	$ 1,285	$0	$ 1,285	
McFadden Creek	$ 23,439	$1	$ 23,440	$0	$ 23,440	