Islands Trust Conservancy
Regular Meeting Agenda

Date: Tuesday, May 26, 2020
Time: 10:00 am
Location: Electronic Meeting - Zoom Webinar

			Pages
1.	CALL TO ORDER		
2.	APPROVAL OF AGENDA		
3.	CLOSED MEETING		
4.	RISE AND REPORT		
5.	AUDIT REPORT APPROVAL		3 - 41
6.	MINUTES/COORDINATION		
	6.1	Minutes of Meetings/Resolutions without Meetings	
		6.1.1 Approval of February 13th, 2020 Meeting Minutes	42 - 47
		6.1.2 Resolution without Meeting - April Meeting Cancellation	48 - 48
	6.2	Follow-up Action List	49 - 54
7.	BUSINESS		
	7.1	Items for Approval	
		7.1.1 Vision Statement	55 - 56
		7.1.2 Annual Report Text	57 - 70
		7.1.3 Climate Change Projections	71 - 113
		7.1.4 Wildfire Risk Management in ITC Nature Reserves	114 - 119
		7.1.5 Baile NAPTEP Conservation Proposal	120 - 141
		7.1.6 Inner Island Management Plan	142 - 254
		7.1.7 Lindsay Dickson Management Plan	255 - 416
		7.1.8 Valens Brook Management Plan	417 - 514

7.2 Items for Discussion/Direction

7.2.1 30th Anniversary Plans 515 - 515

7.2.2 Forest Contiguity Mapping 516 - 545

7.2.3 Reconciliation Retreat Update 546 - 546

7.2.4 EC/ITC Joint Meeting Agenda 547 - 548

7.3 Correspondence

7.3.1 Reply from the Honourable Jonathan Wilkinson, Minister of Environment and Climate Change 549 - 550

7.4 Updates for Information

7.4.1 Executive Committee Updates (verbal)

7.4.2 Public Acquisitions Report 551 - 553

7.4.3 Public Covenants Report 554 - 557

7.4.4 Budget Report 558 - 558

7.4.5 Covid-19 Updates (verbal)

8. NEW BUSINESS

9. NEXT MEETING

10. ADJOURNMENT

ISLANDS TRUST CONSERVANCY

REQUEST FOR DECISION

To:	**Islands Trust Conservancy Board**	**For the Meeting of:**	May 26, 2020
From:	**Staff**	**Date Prepared:**	May 19, 2020

SUBJECT: 2019-2020 Audited Financial Statements

RECOMMENDATION: That the Islands Trust Conservancy approve the Audited Financial Statements for the 2019-2020 fiscal year, and refer the statements to Islands Trust Council for information.

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1 **PURPOSE:** To review and approve the Audited Financial Statements for 2019-2020.

2 **BACKGROUND:** The Islands Trust Conservancy undergoes an annual audit each year. The Audited Financial Statements and Audit Findings Report are provided to the board for review and approval. There are no findings that require any action.

3 IMPLICATIONS OF RECOMMENDATION

ORGANIZATIONAL: There are no findings that require action.

FINANCIAL: None.

POLICY: None.

IMPLEMENTATION/COMMUNICATIONS: The approved Audited Financial Statements will be posted to the Islands Trust Conservancy website and included in the 2019-2020 Annual Report. The Audited Financial Statements will be provided to Trust Council at their September meeting as an information item.

OTHER: A note has been added to the financial statements (note 1 (f)) to recognize the importance of natural assets held by the ITC. This note was added at the request of the ITC Board at its November 2019 meeting:

> **ITC-2019-047**
> **It was MOVED and SECONDED,** that Islands Trust Conservancy board direct staff to consider including a Note Disclosure highlighting the importance of natural assets to the mandate of Islands Trust and the services they provide for island communities, starting with the current fiscal year's annual financial reporting.

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

5 **ATTACHMENT(S):**

- Islands Trust Conservancy Audit Findings Report for the Year Ended March 31, 2020
- Audited Financial Statements of the Islands Trust Conservancy Year Ended March 31, 2020

RESPONSE OPTIONS

Recommendation: That the Islands Trust Conservancy approve the Audited Financial Statements for the 2019-2020 fiscal year, and refer the statements to Islands Trust Council for information.

Alternative: None identified.

Prepared By: Kate Emmings, A/Manager, Islands Trust Conservancy

Islands Trust Conservancy

Audit Findings Report
for the year ended March 31, 2020

KPMG LLP

For the meeting on May 26, 2020

kpmg.ca/audit

KPMG

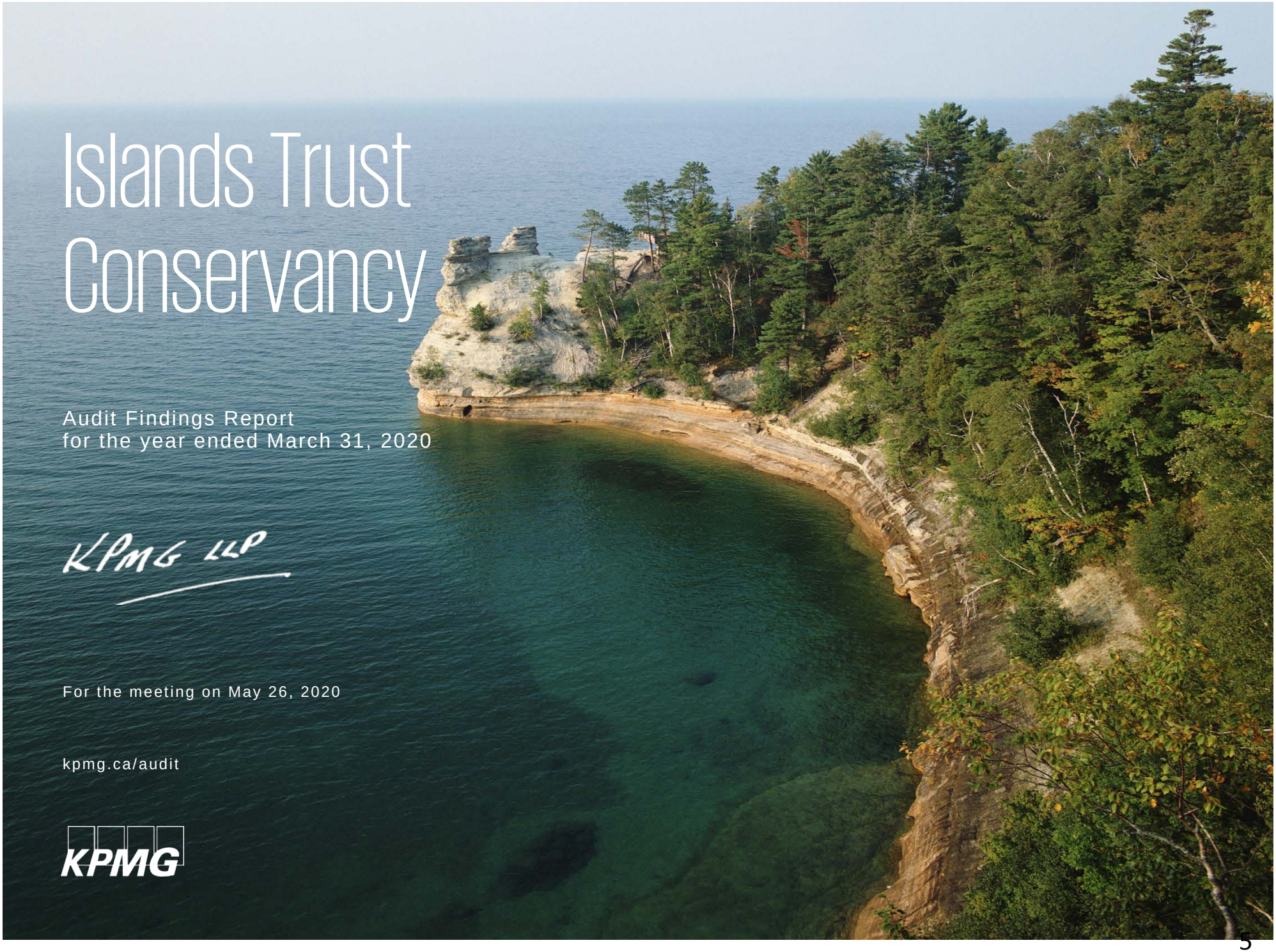


Table of contents

EXECUTIVE SUMMARY	**1**
AUDIT RISKS AND RESULTS	**2**
FINANCIAL STATEMENT PRESENTATION AND DISCLOSURE	**5**
UNCORRECTED DIFFERENCES AND CORRECTED ADJUSTMENTS	**6**
APPENDICES	**7**

Executive summary

Purpose of this report[1]

The purpose of this Audit Findings Report is to assist you, as a member of the Board, in your review of the results of our audit of the financial statements as at and for the year ended March 31, 2020. This Audit Findings Report builds on the Audit Plan.

Changes from the Audit Plan

There have been no significant changes regarding our audit from the Audit Planning Report previously provided to you.

Audit risks and results

We discussed with you at the start of the audit a number of significant financial reporting risks. These risks have been addressed in our audit.

We also discussed with you some other areas of audit focus. We have no significant matters to report to the audit committee in respect of them.

Significant accounting policies and practices

There have been no initial selections of, or changes to, significant accounting policies and practices to bring to your attention.

Adjustments and differences

We did not identify differences that remain uncorrected. We did not identify any adjustments that were communicated to management and subsequently corrected in the financial statements.

Control and other observations

We did not identify any control deficiencies that we determined to be significant deficiencies in internal control over financial reporting.

Finalizing the Audit

As of the date of this report, we have completed the audit of the financial statements, with the exception of certain remaining procedures, which include amongst others:

- completing our discussions with the Board;
- obtaining evidence of the Board's approval of the financial statements; and
- obtaining the signed management representation letter.

We will update the Board, and not solely the Chair, on significant matters, if any, arising from the completion of the audit, including the completion of the above procedures. Our auditors' report will be dated upon the completion of any remaining procedures.

Independence

We are independent with respect to the Conservancy within the meaning of the relevant rules and related interpretations prescribed by the relevant professional bodies in Canada and any applicable legislation bodies in Canada and any applicable legislation or regulation.

Current developments

We have provided information with regards our audit response to COVID-19 and resources which may be of assistance to the Board and management in responding to this pandemic. See page 4.

[1] This Audit Findings Report should not be used for any other purpose or by anyone other than the Board. KPMG shall have no responsibility or liability for loss or damages or claims, if any, to or by any third party as this Audit Findings Report has not been prepared for, and is not intended for, and should not be used by, any third party or for any other purpose.

Audit risks and results

We highlight our significant findings in respect of significant financial reporting risks as identified in our discussion with you in the Audit Plan, as well as any additional significant risks identified.

1	**Significant Risk**	Fraud risk from management override of controls.

Why is it significant?

This is a presumed fraud risk.

We have not identified any specific additional risks of management override relating to this audit.

Our response and significant findings

We performed the required procedures under professional standards:

– Test all material journal entries made in the preparation of the year-end financial statements and other adjustments.

– A retrospective review of estimates, including the assumptions used by management.

– Evaluating the business rationale of significant unusual transactions.

We are satisfied that our audit work has appropriately dealt with the fraud risk from management override of controls.

Audit risks and results (continued)

Significant findings from the audit regarding other areas of focus are as follows:

2 Donation of land

Our response and significant findings

During fiscal 2020, the Trust Conservancy purchased the Salish View property for $230,000 from donations jointly raised with Lasqueti Island Nature Conservancy (LINC) in fiscal 2019 and 2020. The fair value of the property was appraised to be $300,000 and the difference between the fair value and purchase price was appropriately recognized as a donation.

- We obtained and inspected the purchase agreement for the Salish View property with a completion date of July 26, 2019.
- We inspected the appraisal of the land, which was valued at $300,000 and verified the value of the donation presented in the financial statements and the land addition.
- We reviewed the accounting treatment and presentation of the transaction in the financial statements.
- No discrepancies were noted in the procedures performed.

Audit risks and results (continued)

3 Audit response to COVID-19 Pandemic

Our response and significant findings

In March 2020, the COVID-19 outbreak was declared a pandemic by the World Health Organization and has had a significant financial market and social dislocating impact. The situation is dynamic and the ultimate duration and magnitude of the impact on the economy and businesses is not known at this time.

For the March 31, 2020 financial statements, we considered the impact of the pandemic on the assets and liabilities of the Trust Conservancy.

Based on the dynamic nature of the situation, we also evaluated the financial statements for the ongoing impact as a subsequent event.

Audit response:

- Accounting standards indicate where long term assets no longer contribute service potential to the Entity, an impairment is required. The pandemic has not impacted the use of assets of the Trust Conservancy, therefore, no impairment was considered necessary.
- Investment markets have been volatile since the declaration of the pandemic. Since investments are recorded at market value, the impact of this volatility has been reflected in the short term and long term investment balances presented at March 31, 2020. Where there is a permanent impairment in investment valuation, a write-down is required. There was no permanent impairment assessed by management, as investments are held for long term purposes.
- KPMG discussed the impact of the pandemic with management. At this time management considers it not practicable to calculate the impact on the Trust Conservancy of future cash flows, any significant changes to assets or liabilities and the magnitude of impact on future operations.
- Management has included a disclosure in the financial statements.
- We concur the impact of the pandemic has been appropriately represented in the financial statements.

Financial statement presentation and disclosure

The presentation and disclosure of the financial statements are, in all material respects, in accordance with the Trust Conservancy's relevant financial reporting framework. Misstatements, including omissions, if any, related to disclosure or presentation items are in the management representation letter.

We also highlight the following:

Form, arrangement, and content of the financial statements	Adequate
Application of accounting pronouncements issued but not yet effective	We include a summary of future accounting standards in Appendix 4.

Uncorrected differences and Corrected Adjustments

Differences and adjustments include disclosure differences and adjustments.

Professional standards require that we request of management and the Board that all identified differences be corrected. We have already made this request of management.

Uncorrected differences

We did not identify differences that remain uncorrected.

Corrected adjustments

We did not identify any adjustments that were communicated to management and subsequently corrected in the financial statements.

Appendices

Content

Appendix 1: Required communications

Appendix 2: Audit Quality and Risk Management

Appendix 3: Management Representation Letter

Appendix 4: Current Developments



Appendix 1: Other Required Communications

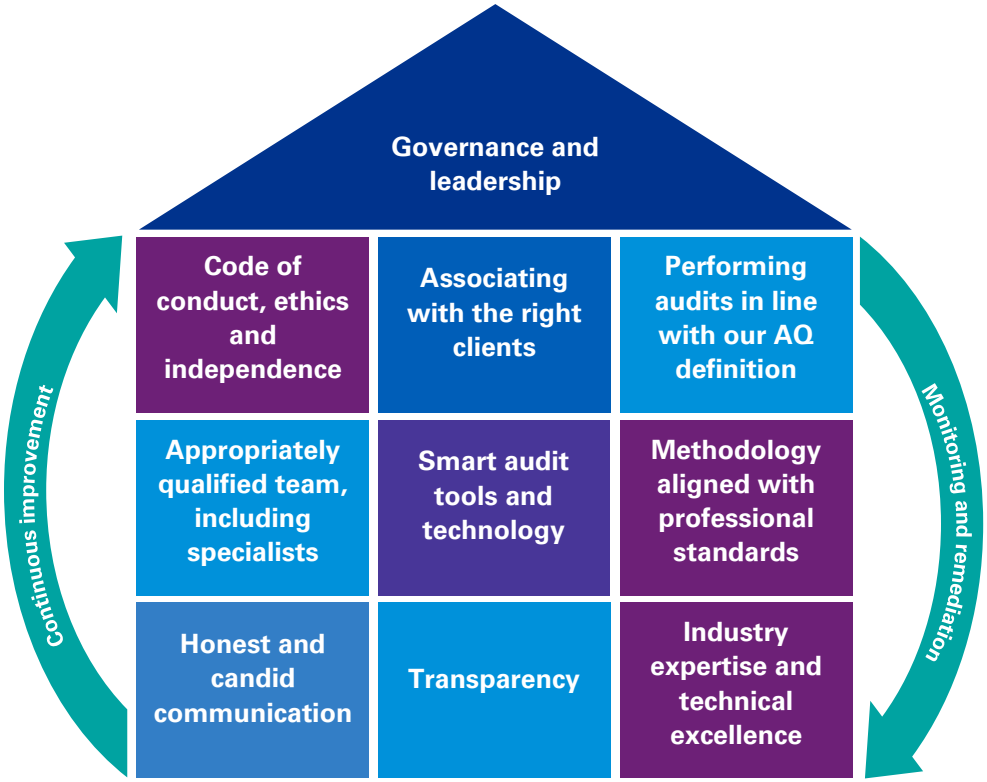
In accordance with professional standards, there are a number of communications that are required during the course of and upon completion of our audit. These include:

Auditor's report	Management representation letter
The conclusion of our audit is set out in our draft auditors' report attached to the draft financial statements.	We will obtain from management at the completion of the annual audit. In accordance with professional standards, a copy of the representation letter is provided to the Board in Appendix 3.

Appendix 2: Audit Quality and Risk Management

KPMG maintains a system of quality control designed to reflect our drive and determination to deliver independent, unbiased advice and opinions, and also meet the requirements of Canadian professional standards.

Quality control is fundamental to our business and is the responsibility of every partner and employee. The following diagram summarizes the key elements of our quality control system.



Audit Quality Framework

What do we mean by audit quality?

Audit Quality (AQ) is at the core of everything we do at KPMG.

We believe that it is not just about reaching the right opinion, but how we reach that opinion.

We define 'audit quality' as being the outcome when audits are:

- Executed consistently, in line with the requirements and intent of applicable professional standards within a strong system of quality controls and
- All of our related activities are undertaken in an environment of the utmost level of **objectivity, independence, ethics,** and **integrity**.

Our AQ Framework summarises how we deliver AQ. Visit our Audit Quality Resources page for more information including access to our Audit Quality and Transparency report.

Appendix 3: Management Representation Letter

Prior to the release of the auditors' report, we will obtain from management a signed management representation letter – a copy of the letter is included below.

Date of Board approval of Financial Statements

Ladies and Gentlemen:

We are writing at your request to confirm our understanding that your audit was for the purpose of expressing an opinion on the financial statements (hereinafter referred to as "financial statements") of Islands Trust Conservancy ("the Entity") as at and for the period ended March 31, 2020.

General:

We confirm that the representations we make in this letter are in accordance with the definitions as set out in **Attachment I** to this letter.

We also confirm that, to the best of our knowledge and belief, having made such inquiries as we considered necessary for the purpose of appropriately informing ourselves:

Responsibilities:

1) We have fulfilled our responsibilities, as set out in the terms of the engagement letter dated January 10, 2017, including for:
   a) the preparation and fair presentation of the financial statements and believe that these financial statements have been prepared and present fairly in accordance with the relevant financial reporting framework.
   b) providing you with all information of which we are aware that is relevant to the preparation of the financial statements, such as all financial records and documentation and other matters, including:
      - the names of all related parties and information regarding all relationships and transactions with related parties; and
      - the complete minutes of meetings, or summaries of actions of recent meetings for which minutes have not yet been prepared, of the board of trustees and committees of the board of trustees that may affect the financial statements. All significant actions are included in such summaries.
   c) providing you with unrestricted access to such relevant information.
   d) providing you with complete responses to all enquiries made by you during the engagement.
   e) providing you with additional information that you may request from us for the purpose of the engagement.
   f) providing you with unrestricted access to persons within the Entity from whom you determined it necessary to obtain audit evidence.
   g) such internal control as we determined is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error. We also acknowledge and understand that we are responsible for the design, implementation and maintenance of internal control to prevent and detect fraud.
   h) ensuring that all transactions have been recorded in the accounting records and are reflected in the financial statements.

Internal control over financial reporting:

2) We have communicated to you all deficiencies in the design and implementation or maintenance of internal control over financial reporting of which we are aware.

Fraud & non-compliance with laws and regulations:

3) We have disclosed to you:
   a) the results of our assessment of the risk that the financial statements may be materially misstated as a result of fraud.
   b) all information in relation to fraud or suspected fraud that we are aware of that involves:

      - management;
      - employees who have significant roles in internal control over financial reporting; or
      - others

      where such fraud or suspected fraud could have a material effect on the financial statements.

   c) all information in relation to allegations of fraud, or suspected fraud, affecting the financial statements, communicated by employees, former employees, analysts, regulators, or others.
   d) all known instances of non-compliance or suspected non-compliance with laws and regulations, including all aspects of contractual agreements, whose effects should be considered when preparing financial statements.
   e) all known actual or possible litigation and claims whose effects should be considered when preparing the financial statements.

Subsequent events:

4) All events subsequent to the date of the financial statements and for which the relevant financial reporting framework requires adjustment or disclosure in the financial statements have been adjusted or disclosed.

Related parties:

5) We have disclosed to you the identity of the Entity's related parties.
6) We have disclosed to you all the related party relationships and transactions/balances of which we are aware.
7) All related party relationships and transactions/balances have been appropriately accounted for and disclosed in accordance with the relevant financial reporting framework.

Estimates:

8) Measurement methods and significant assumptions used by us in making accounting estimates, including those measured at fair value, are reasonable.

Going concern:

9) We have provided you with all information relevant to the use of the going concern assumption in the financial statements.
10) We confirm that we are not aware of material uncertainties related to events or conditions that may cast significant doubt upon the Entity's ability to continue as a going concern.

Non-SEC registrants or non-reporting issuers:

11) We confirm that the Entity is not a Canadian reporting issuer (as defined under any applicable Canadian securities act) and is not a United States Securities and Exchange Commission ("SEC") Issuer (as defined by the Sarbanes-Oxley Act of 2002).
12) We also confirm that the financial statements of the Entity will not be included in the consolidated financial statements of a Canadian reporting issuer audited by KPMG or an SEC Issuer audited by any member of the KPMG organization.

Other information:

13) We confirm that the final version of Annual Report will be provided to you when available, and prior to issuance by the Entity, to enable you to complete your audit procedures in accordance with professional standards.

Commitments & contingencies:

14) There are no:
    a) other liabilities that are required to be recognized and no other contingent assets or contingent liabilities that are required to be disclosed in the financial statements in accordance with the relevant financial reporting framework, including liabilities or contingent liabilities arising from illegal acts or possible illegal acts, or possible violations of human rights legislation
    b) other environmental matters that may have an impact on the financial statements.

Yours very truly,

ISLANDS TRUST CONSERVANCY

_____
Mr. Russ Hotsenpiller, Chief Administrative Officer

_____
Ms. Julia Mobbs, Director of Administrative Services

Attachment I – Definitions

Materiality

Certain representations in this letter are described as being limited to matters that are material. Misstatements, including omissions, are considered to be material if they, individually or in the aggregate, could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements. Judgments about materiality are made in light of surrounding circumstances, and are affected by the size or nature of a misstatement, or a combination of both.

Fraud & error

Fraudulent financial reporting involves intentional misstatements including omissions of amounts or disclosures in financial statements to deceive financial statement users.

Misappropriation of assets involves the theft of an entity's assets. It is often accompanied by false or misleading records or documents in order to conceal the fact that the assets are missing or have been pledged without proper authorization.

An error is an unintentional misstatement in financial statements, including the omission of an amount or a disclosure.

Appendix 4: Current developments and audit trends

Resources related to COVID-19 Pandemic

Resources	
Resources for Management, Board and Committee members	COVID-19 Alerts (Live Link) Please visit our COVID-19 website for resources regarding the topics below. This site is being updated daily based on information being released by Federal, Provincial and Municipal news releases. — Tax relief for not for profit societies and charitable organizations (deferral of employer health tax, wage subsidy, EI sickness benefit) — Business continuity guide — Immediate actions to take — Medium to long-term actions — Tax considerations and a summary of Federal and Provincial programs — Legal considerations — Financial reporting and audit considerations — Global perspectives

Appendix 4: Current developments (continued)

Public Sector Accounting Standards

Standard	Summary and implications
Asset Retirement Obligations	– A new standard has been approved that is effective for fiscal years beginning on or after April 1, 2021. – The new standard addresses the recognition, measurement, presentation and disclosure of legal obligations associated with retirement of tangible capital assets in productive use. Retirement costs will be recognized as an integral cost of owning and operating tangible capital assets. PSAB currently contains no specific guidance in this area. – The ARO standard will require the public sector entity to record a liability related to future costs of any legal obligations to be incurred upon retirement of any controlled tangible capital assets ("TCA"). The amount of the initial liability will be added to the historical cost of the asset and amortized over its useful life. – As a result of the new standard, the public sector entity will have to: • consider how the additional liability will impact net debt, as a new liability will be recognized with no corresponding increase in a financial asset; • carefully review legal agreements, senior government directives and legislation in relation to all controlled TCA to determine if any legal obligations exist with respect to asset retirements; • begin considering the potential effects on the organization as soon as possible to coordinate with resources outside the finance department to identify AROs and obtain information to estimate the value of potential AROs to avoid unexpected issues.
Revenue	– A new standard has been approved that is effective for fiscal years beginning on or after April 1, 2022. – The new standard establishes a single framework to categorize revenues to enhance the consistency of revenue recognition and its measurement. – The standard notes that in the case of revenues arising from an exchange, a public sector entity must ensure the recognition of revenue aligns with the satisfaction of related performance obligations. – The standard notes that unilateral revenues arise when no performance obligations are present, and recognition occurs when there is authority to record the revenue and an event has happened that gives the public sector entity the right to the revenue.

Appendix 4: Current developments (continued)

Standard	Summary and implications
Employee Future Benefit Obligations	– PSAB has initiated a review of sections PS3250 *Retirement Benefits* and PS3255 *Post-Employment Benefits, Compensated Absences and Termination Benefits*. Given the complexity of issues involved and potential implications of any changes that may arise from this review, the project will be undertaken in phases. Phase I will address specific issues related to measurement of employment benefits. Phase II will address accounting for plans with risk sharing features, multi-employer defined benefit plans and sick leave benefits. – Three Invitations to Comment were issued and have closed. The first Invitation to Comment sought guidance on whether the deferral provisions in existing public sector standards remain appropriate and justified and the appropriateness of accounting for various components of changes in the value of the accrued benefit obligation and plan assets. The second Invitation to Comment sought guidance on the present value measurement of accrued benefit obligations. A third Invitation to Comment sought guidance on non-traditional pension plans. PSAB is currently deliberating on the comments received from the three Invitations to Comment. – The ultimate objective of this project is to issue a new employment benefits section to replace existing guidance.
Public Private Partnerships ("P3")	– PSAB has proposed new requirements for the recognition, measurement and classification of infrastructure procured through a public private partnership. An exposure draft has been approved by PSAB and will be issued in November 2019, with comments due by February 29, 2020. – The exposure draft proposes that recognition of infrastructure by the public sector entity would occur when it controls the purpose and use of the infrastructure, when it controls access and the price, if any, charged for use, and it controls any significant interest accumulated in the infrastructure when the P3 ends. – The exposure draft proposes that the public sector entity recognize a liability when it needs to pay cash or non-cash consideration to the private sector partner for the infrastructure. – The infrastructure would be valued at cost, with a liability of the same amount if one exists. Cost would be measured by discounting the expected cash flows by a discount rate that reflects the time value of money and risks specific to the project.
Purchased Intangibles	– In October 2019, PSAB approved a proposal to allow public sector entities to recognize intangibles purchased through an exchange transaction. The proposal does not include guidance on how to account for intangibles. Instead, the definition of an asset, the general recognition criteria and the GAAP hierarchy is expected to provide guidance on how to account for intangibles. The accounting for intangibles may be addressed through future PSAB projects.

Appendix 4: Current developments (continued)

Standard	Summary and implications
Concepts Underlying Financial Performance	– PSAB is in the process of reviewing the conceptual framework that provides the core concepts and objectives underlying Canadian public sector accounting standards. – A Statement of Concepts ("SOC") and Statement of Principles ("SOP") were issued for comment in May 2018 and has closed. PSAB is in the process of developing two exposure drafts for comment. – The SOC proposes a revised, ten chapter conceptual framework intended to replace PS 1000 *Financial Statement Concepts* and PS 1100 *Financial Statement Objectives*. The revised conceptual framework would be defined and elaborate on the characteristics of public sector entities and their financial reporting objectives. Additional information would be provided about financial statement objectives, qualitative characteristics and elements. General recognition and measurement criteria, and presentation concepts would be introduced. – The SOP includes principles intended to replace PS 1201 *Financial Statement Presentation*. The SOP proposes: • Removal of the net debt indicator, except for on the statement of net debt where it would be calculated exclusive of financial assets and liabilities that are externally restricted and/or not available to settle the liabilities or financial assets. • Changes to common terminology used in the financial statements, including re-naming accumulated surplus (deficit) to net assets (liabilities). • Restructuring the statement of financial position to present non-financial assets before liabilities. • Removal of the statement of remeasurement gains (losses) with the information instead included on a new statement called the statement of changes in net assets (liabilities). This new statement would present the changes in each component of net assets (liabilities). • A new provision whereby an entity can use an amended budget in certain circumstances. • Inclusion of disclosures related to risks and uncertainties that could affect the entity's financial position.
International Strategy	– PSAB received an update on the International Strategy project and the work performed since its December 2019 meeting. PSAB reviewed all proposed options and the information requested at its December 2019 meeting. Prior to its decision, PSAB carefully considered the decision-making criteria included in the second consultation paper, and stakeholder feedback to both the first and second consultation papers. – In accordance with its due process, PSAB voted to approve "Option 2 – Adapt IPSAS principles when developing future standards," as described in the second consultation paper. PSAB noted that the decision will apply to all projects beginning on or after April 1, 2021.
Government Not-for-Profit Strategy	– PSAB is in the process of reviewing its strategy for government not-for-profit ("GNFP") organizations. PSAB intends to understand GNFPs' fiscal and regulatory environment, and stakeholders' financial reporting needs and concerns. – A consultation paper was released in May 2019 and has closed. PSAB will use the comments received to determine its next steps.



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Financial Statements of

THE ISLANDS TRUST CONSERVANCY

And Independent Auditors' Report thereon

Year ended March 31, 2020

INDEPENDENT AUDITORS' REPORT

To the Trustees of The Islands Trust Conservancy Board, the Trustees of Islands Trust and the Minister of Municipal Affairs and Housing

Opinion

We have audited the financial statements of the Islands Trust Conservancy (the Entity) which comprise:

- the statement of financial position as at March 31, 2020
- the statement of operations for the year then ended
- the statement of changes in fund balances for the year then ended
- the statement of cash flows for the year then ended
- and notes to the financial statements, including a summary of significant accounting policies

(hereinafter referred to as the "financial statements").

In our opinion, except for the possible effects of the matter described in the 'Basis for Qualified Opinion' section of our auditors' report, the financial statements present fairly, in all material respects, the financial position of the Entity as at March 31, 2020, and its results of operations, its changes in fund balances and cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Qualified Opinion

In common with many not-for-profit organizations, the Entity derives revenue from donations, the completeness of which is not susceptible to satisfactory audit verification. Accordingly, verification of these revenues was limited to the amounts recorded in the records of the Entity.

Therefore, we were not able to determine whether any adjustments might be necessary to:

- the current assets reported in the statements of financial position as at March 31, 2020 and March 31, 2019
- the donations revenues and excess of revenues over expenses reported in the statements of operations for the years ended March 31, 2020 and March 31, 2019
- the fund balances, at the beginning and end of the year, reported in the statements of changes in fund balances for the years ended March 31, 2020 and March 31, 2019
- the excess of revenues over expenses reported in the statements of cash flows for the years ended March 31, 2020 and March 31, 2019.

Our opinion on the financial statements for the year ended March 31, 2019 was qualified accordingly because of the possible effects of this limitation in scope.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the **"*Auditors' Responsibilities for the Audit of the Financial Statements*"** section of our auditors' report.

We are independent of the Entity in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Entity's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Entity's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Entity to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Chartered Professional Accountants

Victoria, Canada
_____, 2020

THE ISLANDS TRUST CONSERVANCY

Statement of Financial Position

March 31, 2020, with comparative information for 2019

	Opportunity Fund	Restricted Fund	Capital Fund	Endowment Fund	2020 Total	2019 Total
						(Schedule 1)
Assets:						
Current assets:						
Cash	$ 25,205	$ 171,702	$ -	$ -	$ 196,907	$ 256,626
Short-term investments (note 2)	-	161,433	-	88,000	249,433	258,710
Due from Islands Trust	26	165	-	-	191	-
	25,231	333,300	-	88,000	446,531	515,336
Investments (note 3)	-	113,155	-	-	113,155	68,227
Land (notes 4 and 6)	-	-	7,624,169	6,566,532	14,190,701	13,885,770
	$ 25,231	$ 446,455	$ 7,624,169	$ 6,654,532	$ 14,750,387	$ 14,469,333
Liabilities:						
Current liabilities:						
Accounts payable	$ 3,500	$ 215	$ -	$ -	$ 3,715	$ -
Due to Islands Trust	-	-	-	-	-	2,627
	3,500	215	-	-	3,715	2,627
Fund Balances:						
Unrestricted	21,731	-	-	-	21,731	28,844
Investment in land (note 4)	-	-	7,624,169	-	7,624,169	7,624,169
Internally restricted (note 5)	-	23,268	-	-	23,268	23,525
Externally restricted (note 5)	-	422,972	-	-	422,972	440,567
Restricted for endowment purposes (note 6)	-	-	-	6,654,532	6,654,532	6,349,601
	21,731	446,240	7,624,169	6,654,532	14,746,672	14,466,706
	$ 25,231	$ 446,455	$ 7,624,169	$ 6,654,532	$ 14,750,387	$ 14,469,333

The accompanying notes are an integral part of these financial statements.

Approved by the Trust Conservancy Board:

_____ Board member

_____ Board member

THE ISLANDS TRUST CONSERVANCY

Statement of Operations

Year ended March 31, 2020, with comparative information for 2019

	Opportunity Fund	Restricted Fund	Capital Fund	Endowment Fund	2020 Total	2019 Total
						(Schedule 2)
Revenue:						
Donations:						
Cash	$ 3,486	$ 205,919	$ -	$ -	$ 209,405	$ 31,008
Land	-	-	-	70,000	70,000	85,000
Grants	-	5,219	-	-	5,219	5,076
Rental income	-	10,306	-	-	10,306	10,200
Investment income (loss)	152	(6,271)	-	-	(6,119)	8,576
Sale of fundraising items	-	-	-	-	-	125
	3,638	215,173	-	70,000	288,811	139,985
Expenses:						
Repairs and maintenance - Alton property	-	2,594	-	-	2,594	2,598
Cost of sales of fundraising items	-	-	-	-	-	668
Bank charges	31	-	-	-	31	565
Donations to conservancy groups	6,220	-	-	-	6,220	3,990
	6,251	2,594	-	-	8,845	7,821
Excess (deficiency) of revenue over expenses	$ (2,613)	$ 212,579	$ -	$ 70,000	$ 279,966	$ 132,164

The accompanying notes are an integral part of these financial statements.

THE ISLANDS TRUST CONSERVANCY

Statement of Changes in Fund Balances

Year ended March 31, 2020, with comparative information for 2019

	Opportunity Fund	Restricted Fund	Capital Fund	Endowment Fund	Total
Fund balances, March 31, 2018	$ 29,881	$ 415,891	$ 7,624,169	$ 6,264,601	$ 14,334,542
Excess (deficiency) of revenue over expenses	(1,037)	48,201	-	85,000	132,164
Fund balances, March 31, 2019	28,844	464,092	7,624,169	6,349,601	14,466,706
Excess (deficiency) of revenue over expenses	(2,613)	212,579	-	70,000	279,966
Interfund transfer (note 7)	(4,500)	(230,431)	-	234,931	-
Fund balances, March 31, 2020	$ 21,731	$ 446,240	$ 7,624,169	$ 6,654,532	$ 14,746,672

The accompanying notes are an integral part of these financial statements.

THE ISLANDS TRUST CONSERVANCY

Statement of Cash Flows

Year ended March 31, 2020, with comparative information for 2019

	2020	2019
Cash provided by (used in):		
Operating activities:		
Excess of revenue over expenses	$ 279,966	$ 132,164
Item not involving cash:		
Donation of land	(70,000)	(85,000)
Changes in non-cash operating working capital:		
Inventory of fundraising items	-	667
Accounts payable	3,715	-
Due to (from) Islands Trust	(2,818)	2,627
	210,863	50,458
Capital activities:		
Cash paid to acquire land	(234,931)	-
Investing activities:		
(Decrease) in short-term investments	(44,928)	(1,705)
Increase (decrease) in long-term investments	9,277	(5,938)
	(35,651)	(7,643)
Increase (decrease) in cash	(59,719)	42,815
Cash, beginning of year	256,626	213,811
Cash, end of year	$ 196,907	$ 256,626

The accompanying notes are an integral part of these financial statements.

The Islands Trust Conservancy (the "Trust Conservancy") is incorporated under The Islands Trust Act of British Columbia and is empowered to accept donations, grants and bequests on behalf of The Islands Trust and to hold land and other property in compliance with a Trust Conservancy plan approved by the Ministry of Municipal Affairs and Housing.

The Islands Trust (the "Trust") is also incorporated under The Islands Trust Act of British Columbia (as amended). The objectives of the Trust are 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 the Province generally.

The Trust Conservancy is administered by the Trust and for financial reporting purposes, the Trust and the Trust Conservancy are reported on separately. The Trust Conservancy's annual expenses are funded by and reported as part of the Trust in accordance with The Islands Trust Act. These financial statements present the financial position and changes in fund balances of the Trust Conservancy.

1. Significant accounting policies:

The financial statements have been prepared in accordance with Canadian Public Sector Accounting Standards including the 4200 standards for government not-for-profit organizations:

(a) Fund accounting:

The Trust Conservancy follows the restricted fund method of accounting for contributions.

The Opportunity Fund reports unrestricted resources.

The Restricted Fund reports the assets, liabilities, revenue and expenses related to internally and externally restricted assets.

The Capital Fund reports the assets, liabilities, revenue and expenses related to the Trust Conservancy's capital assets.

The Endowment Fund reports resources that are contributed for endowment purposes.

(b) Financial instruments:

Financial instruments are recorded at fair value on initial recognition. Derivative instruments and equity instruments that are quoted in an active market are reported at fair value. All other financial instruments are subsequently recorded at cost or amortized cost unless management has elected to carry the instruments at fair value. Management has elected to record all investments at fair value as they are managed and evaluated on a fair value basis.

Unrealized changes in fair value are recognized in the statement of remeasurement gains and losses until they are realized, when they are transferred to the statement of operations.

1. Significant accounting policies (continued):

(b) Financial instruments (continued):

Transaction costs incurred on the acquisition of financial instruments measured subsequently at fair value are expensed as incurred. All other financial instruments are adjusted by transaction costs incurred on acquisition and financing costs, which are amortized using the straight-line method.

All financial assets are assessed for impairment on an annual basis. When a decline is determined to be other than temporary, the amount of the loss is reported in the statement of operations and any unrealized gain is adjusted through the statement of remeasurement gains and losses. When the asset is sold, the unrealized gains and losses previously recognized in the statement of remeasurement gains and losses are reversed and recognized in the statement of operations. During the years presented, there are no unrealized gains and losses, and as a result, no statement of remeasurement gains and losses has been included in these financial statements. All investments held by the Trust Conservancy are classified as Level 2 investments for fair value measurement and there were no changes in classification in the years presented.

(c) Land:

Purchased land is recorded at cost. Contributed land is recorded at estimated fair value at the date of contribution.

(d) Revenue recognition:

Restricted contributions are recorded as revenue of the appropriate restricted fund when received or receivable, if the amount can be reasonably estimated and collection is reasonably assured.

Unrestricted contributions are recorded as revenue of the Opportunity Fund in the year received or receivable if the amount can be reasonably estimated and collection is reasonably assured.

Contributions for endowment are recorded as revenue in the Endowment Fund balance.

Interest income earned on Endowment Fund resources is restricted for the purpose of maintaining certain specified property and is recorded in the Restricted Fund. Interest income of internally restricted funds is recorded as revenue of the Restricted Fund. Other interest income is recorded as revenue of the Opportunity Fund when earned.

All other forms of income are recorded as revenue of the Opportunity Fund when received or receivable.

1. Significant accounting policies (continued):

(e) Liability for contaminated sites:

A liability for contaminated sites is recognized when a site is not in productive use and the following criteria are met:

(*i*) an environmental standard exists;

(*ii*) contamination exceeds the environmental standard;

(*iii*) the Trust Conservancy is directly responsible or accepts responsibility;

(*iv*) it is expected that future economic benefits will be given up; and

(*v*) a reasonable estimate of the amount can be made.

The liability is recognized as management's estimate of the cost of post-remediation including operation, maintenance and monitoring that are an integral part of the remediation strategy for a contaminated site.

(f) Natural assets:

The Trust Conservancy is fortunate to have, and to be mandated to protect, many natural assets in the Island Trust Area that reduce the need for engineered infrastructure that might otherwise be required by other government agencies to provide various services to the islands. This includes island aquifers (water storage and filtration); streams, ditches and wetlands (rain water management); forests (carbon sequestration); and foreshore areas (natural seawalls). Canadian public sector accounting standards do not provide for the valuation and recording of such assets in the financial statements. As such, these natural assets are not reported in these financial statements. Nevertheless, the Conservancy acknowledges the importance of these assets and the need to manage them in conjunction with engineered infrastructure that is managed by other government agencies.

(g) Use of estimates:

The preparation of financial statements in conformity with Canadian generally accepted accounting principles requires management to make estimates and assumptions which affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenditures during the period. Significant estimates include assumptions used in estimating the fair value of contributed land at the date of contribution. Actual results could differ from those estimates.

2. Short-term investments:

Short-term investments consist of an endowment fund with the Victoria Foundation and Municipal Finance Authority of British Columbia (“MFA”) Short Term Bond and Money Market Funds. Investments in MFA Funds are recorded at market value.

3. Investments:

Investments consist of a guaranteed investment certificate that matures on July 29, 2020. It has an interest rate of 2.23%.

4. Land:

	Acquisition date	2020	2019
Inner Island Nature Reserve, Denman Island	1992	$ 70,000	$ 70,000
Coats Millstone Reserve, Gabriola Island	1994	100,000	100,000
Medicine Beach Nature Sanctuary, North Pender Island	1996	477,000	477,000
Cunningham Reserve, Salt Spring Island	1994	265,000	265,000
Deep Ridge Reserve, Salt Spring Island	1992	255,000	255,000
Lower Mt. Erskine Nature Reserve, Salt Spring Island	1996	284,000	284,000
Kwel Nature Sanctuary, Lasqueti Island	1997	195,497	195,497
Singing Woods Nature Reserve, Bowen Island	1999	157,000	157,000
Trincomali Nature Sanctuary, Galiano Island	2001	242,406	242,406
Horton Bayviary Nature Reserve, Mayne Island	2002	210,000	210,000
Morrison Marsh Nature Reserve, Denman Island	2006	438,000	438,000
Brigade Bay Bluffs Nature Reserve, Gambier Island	2006	150,000	150,000
Long Bay Wetland Nature Reserve, Gambier Island	2006	305,000	305,000
Elder Cedar Nature Reserve, Gabriola Island	2007	658,000	658,000
Mount Artaban Nature Reserve, Gambier Island	2009	1,177,000	1,177,000
Fairy Fen Nature Reserve, Bowen Island	2011	1,817,000	1,817,000
Laughlin Lake Nature Reserve, Galiano Island	2013	56,000	56,000
Vanilla Leaf Land Nature Reserve, Galiano Island	2014	217,000	217,000
Fairy Slipper Forest Nature Reserve, Thetis Island	2017	550,266	550,266
		$ 7,624,169	$ 7,624,169

5. Restricted Fund balances:

	2020	2019
Internally restricted:		
McFadden Creek management fund	$ 23,268	$ 23,525
Externally restricted:		
Alton Nature Reserve - maintenance fund	130,590	129,934
Morrison Fund	20,269	20,140
Covenant Defense Fund	113,508	111,453
Lasqueti Acquisition Fund	33,069	57,360
Gambier Acquisition Fund	124,243	120,392
Thetis Island Acquisition Fund	1,293	1,288
	422,972	440,567
	$ 446,240	$ 464,092

6. Restricted for endowment purposes:

	Acquisition date	2020	2019
Short-term investments			
Alton Nature Reserve - maintenance	2002	$ 88,000	$ 88,000
Land:			
Lindsay Dickson Nature Reserve, Denman Island	2001	2,200,000	2,200,000
Alton Nature Reserve, Salt Spring Island	2002	454,000	454,000
McFadden Creek Nature Sanctuary, Salt Spring Island	2015	422,601	422,601
Properties acquired under the Federal Government Ecological Gifts program:			
Mt. Trematon Nature Reserve, Lasqueti Island	2006	320,000	320,000
David Otter Nature Reserve, Bowen Island	2007	620,000	620,000
John Osland Nature Reserve, Lasqueti Island	2012	890,000	890,000
Valens Brook Nature Reserve, Denman Island	2013	280,000	280,000
Burren's Acres Nature Reserve, Gabriola Island	2014	210,000	210,000
Moore Hill Nature Reserve, Thetis Island	2017	780,000	780,000
Valens Brook Nature Reserve, Denman Island	2019	85,000	85,000
Salish View Nature Reserve, Lasqueti Island	2020	304,931	-
		6,566,532	6,261,601
		$ 6,654,532	$ 6,349,601

Investment gains (losses) on endowment funds for the year of ($13,127) (2019 - $1,914) have been recorded in the Restricted Fund.

Two properties owned by the Trust Conservancy, the Lindsay Dickson property on Denman Island, and the Alton property on Salt Spring Island, were donated on the condition that the properties be used and managed in certain ways. The Lindsay Dickson property was donated "for so long as the land is used as a nature reserve for the use, benefit and enjoyment of the residents of B.C.". The Alton property is to be held, managed and preserved for its ecological environment and scenic features and not as a recreational park. The residence, gardens and driveway are to be preserved and managed for non-profit purposes.

In the event that these properties are not managed accordingly, the properties could revert to the Province of British Columbia in the case of the Lindsay Dickson Nature Reserve and to the Executors of the donor's estate in the case of the Alton Nature Reserve.

In 2015, the McFadden Creek Nature Sanctuary on Salt Spring Island was donated to the Trust Conservancy on the condition that the property was to be protected, preserved and maintained in its natural state. Should a disposition of this property ever be triggered, there is a Right of First Refusal on the property in favor of the Wild Bird Trust of BC.

Certain properties as listed in the preceding table were acquired under the Federal Government Ecological Gift program. Recipients of ecological gifts are responsible for maintaining the biodiversity and environmental heritage values of the property in perpetuity.

7. Interfund transfer:

During the year, there was an interfund transfer of $4,500 from the Opportunity Fund to the Endowment Fund and a transfer of $230,431 from the Restricted Fund to the Endowment Fund, representing in total the cash paid to acquire the Salish View Nature Reserve on Lasqueti Island.

8. Related party:

The Trust is related to the Trust Conservancy through the composition of the Trust Conservancy's Board. The Trust Conservancy's Board is comprised of three members from the Trust's Council and up to three members appointed by the Minister of Municipal Affairs and Housing.

The Trust Conservancy's annual expenses are funded by and reported as part of the Trust in accordance with The Islands Trust Act. The expenses are summarized as follows:

	2020	2019
Operations and property management	$ 527,344	$ 485,276
Board	19,043	18,409
Administration	216,627	165,399
	$ 763,014	$ 669,084

For the year ended March 31, 2020, amounts owing from Islands Trust were $191 (2019 - $2,627 payable).

9. Financial risks and concentration of risk:

The Trust Conservancy's financial instruments consist of cash, short-term investments, accounts receivable, investments, property tax payable and amounts due from Islands Trust. It is management's opinion that the Trust Conservancy is not exposed to significant interest, currency or credit risk arising from these financial instruments. The maximum exposure to credit risk at March 31, 2020 is the carrying value of cash, accounts receivable, short-term investments and investments. The Trust Conservancy deals with creditworthy counterparties to mitigate credit risk. The Trust Conservancy manages its liquidity risk by monitoring its operating requirements. Interest rate risk is not significant due to the short term nature of investments held. There have been no significant changes to risk exposure in the years presented.

10. Subsequent event:

Subsequent to March 31, 2020, the COVID-19 outbreak that was declared a pandemic by the World Health Organization remains ongoing. The situation is dynamic and the ultimate duration and magnitude of the impact on the economy and our business are not known at this time. These impacts could include impairment in the value of our long-lived assets or potential future decreases in revenue or the profitability of our ongoing operations.

THE ISLANDS TRUST CONSERVANCY

Statement of Financial Position

Schedule 1

March 31, 2019

	Opportunity Fund	Restricted Fund	Capital Fund	Endowment Fund	2019 Total
Assets:					
Current assets:					
Cash	$ 31,548	$ 225,078	$ -	$ -	$ 256,626
Short-term investments (note 2)	-	170,710	-	88,000	258,710
Inventory of fundraising items	-	-	-	-	-
	31,548	395,788	-	88,000	515,336
Investments (note 3)	-	68,227	-	-	68,227
Land (notes 4 and 6)	-	-	7,624,169	6,261,601	13,885,770
	$ 31,548	$ 464,015	$ 7,624,169	$ 6,349,601	$ 14,469,333
Liabilities:					
Current liabilities:					
Property tax payable	$ -	$ -	$ -	$ -	$ -
Due to Islands Trust	2,704	(77)	-	-	2,627
Deferred revenue	-	-	-	-	-
	2,704	(77)	-	-	2,627
Fund Balances:					
Unrestricted	28,844	-	-	-	28,844
Investment in land (note 4)	-	-	7,624,169	-	7,624,169
Internally restricted (note 5)	-	23,525	-	-	23,525
Externally restricted (note 5)	-	440,567	-	-	440,567
Restricted for endowment purposes (note 6)	-	-	-	6,349,601	6,349,601
	28,844	464,092	7,624,169	6,349,601	14,466,706
	$ 31,548	$ 464,015	$ 7,624,169	$ 6,349,601	$ 14,469,333

THE ISLANDS TRUST CONSERVANCY

Statement of Operations

Schedule 2

Year ended March 31, 2019

	Opportunity Fund	Restricted Fund	Capital Fund	Endowment Fund	2019 Total
Revenue:					
Donations:					
Cash	$ 3,610	$ 27,398	$ -	$ -	$ 31,008
Land	-	-	-	85,000	85,000
Grants	-	5,076	-	-	5,076
Rental income	-	10,200	-	-	10,200
Investment income	108	8,468	-	-	8,576
Sale of fundraising items	125	-	-	-	125
	3,843	51,142	-	85,000	139,985
Expenses:					
Repairs and maintenance - Alton property	-	2,598	-	-	2,598
Cost of sales of fundraising items	668	-	-	-	668
Bank charges	222	343	-	-	565
Donations to conservancy groups	3,990	-	-	-	3,990
Consultant fees	-	-	-	-	-
	4,880	2,941	-	-	7,821
Excess (deficiency) of revenue over expenses	$ (1,037)	$ 48,201	$ -	$ 85,000	$ 132,164

The accompanying notes are an integral part of these financial statements.

Islands Trust Conservancy

DRAFT Minutes of Regular Meeting

Date: Thursday, February 13, 2020
Time: 10:02 am
Location: Islands Trust Victoria Boardroom
200-1627 Fort Street, Victoria, BC

Board Members Present: Kate-Louise Stamford, Chair
Sue Ellen Fast, Vice Chair
Linda Adams
Donald Clarke
Doug Fenton
Susan Hannon

Staff Present: Kate Emmings, Islands Trust Conservancy (ITC) Acting Manager
Clare Frater, Director of Trust Area Services
Carla Funk, Acting Communications and Fundraising Specialist (left the meeting at 11:29 am)
Jemma Green, Covenant Management and Outreach Specialist
Kathryn Martell, Acting Ecosystems Protection Specialist
Nuala Murphy, Property Management Specialist
Lisa Wilcox, Senior Intergovernmental Policy Advisor (joined the meeting at 10:40 am)
Alexandra Trifonidis, Recorder

1. CALL TO ORDER

Chair Stamford called the meeting to order at 10:02 am and acknowledged that the meeting was being held in Coast Salish First Nations territory.

1.1 Board Appointments Updates and Introductions

Chair Stamford welcomed Trustee Donald Clarke to the ITC Board. Staff and Board members conducted a roundtable welcoming Trustee Clarke and introducing themselves. Trustee Clarke provided a quick bio for all attendees.

1.2 Election of Chair and Vice-Chair

As per Islands Trust Conservancy *Policy 1.2, Islands Trust Conservancy Board and Committee Elections* all Islands Trust Conservancy members are eligible to be nominated and run for the positions of Chair and Vice Chair of the Islands Trust Conservancy Board.

These members are: Linda Adams; Donald Clarke; Sue Ellen Fast; Doug Fenton; Susan Hannon and Kate-Louise Stamford.

The Islands Trust Conservancy Acting Manager called for nominations three times for Islands Trust Conservancy Board Chair. Trustee Stamford was elected by acclamation as Island Trust Conservancy Board Chair.

The Islands Trust Conservancy Acting Manager called for nominations three times for Islands Trust Conservancy Board Vice Chair. Trustee Fast was elected by acclamation as Island Trust Conservancy Board Vice Chair.

1.3 Election of ITC representative to Financial Planning Committee

As per Trust Council *Policy 2.3.3, Financial Planning Committee Terms of Reference* the committee shall be comprised of the Chair (or an appointee) from each of the other standing committees (2), members of the Executive Committee (4), **a member chosen by the Islands Trust Conservancy Board (1)**, and three other locally-elected or municipal trustees (3).

ITC Board members eligible to be appointed to the Financial Planning Committee are: Linda Adams; Donald Clarke; Sue Ellen Fast; Doug Fenton; Susan Hannon and Kate-Louise Stamford.

ITC Board members discussed liaison with the Financial Planning Committee and Islands Trust Conservancy Board member Chair Stamford was appointed to act as the liaison by acclamation.

2. APPROVAL OF AGENDA

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

3. CLOSED MEETING

3.1 Motion to Close the Meeting

ITC-2020-001
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 Islands Trust Conservancy board; (i) the receipt of advice that is subject to solicitor-client privilege, including communications necessary for that purpose; (j) information that is prohibited, or information that if it were presented in a document would be prohibited, from disclosure under section 21 of the *Freedom of Information and Protection of Privacy Act*; (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 Islands Trust Conservancy board if they were held in public; and that staff be invited to remain in the meeting.

CARRIED

The Islands Trust Conservancy Board convened the closed portion of the meeting at 10:18 am and resumed in open meeting at 12:51 pm to Rise and Report.

4. RISE AND REPORT

The Islands Trust Conservancy Board reported on the following items:

- that the Islands Trust Conservancy has approved an internal Fund Development Strategy and has directed Islands Trust Conservancy staff to create an action plan that addresses the recommendations in the Strategy for Islands Trust Conservancy Board review by the end of 2020.
- that the Islands Trust Conservancy has approved an Opportunity Fund Grant of $3,500 to be awarded to the Salt Spring Island Conservancy.
- that the Islands Trust Conservancy Board consented to change the location of the proposed wildlife viewing platform at the Settlement Lands Covenant, Denman Island from the area proposed in the Covenant Agreement to the pollinator demonstration garden.

5. MINUTES/COORDINATION

5.1 Minutes of Meetings/Resolutions without Meetings

5.1.1 Approval of November 26th, 2019 Meeting Minutes

The following amendment to the minutes were presented for consideration:

- Add the time Trustee Adams left the November 2019 board meeting to the regular meeting minutes

By general consent, the minutes were adopted as amended.

5.1.2 Approval of January 29th, 2020 FDAC Meeting Minutes

By general consent, the Islands Trust Conservancy Fund Development Advisory Committee meeting minutes of January 29th, 2020 were adopted.

5.2 Follow-up Action List

ITC A/Manager provided an update on the items in the Follow-up Action List.

Trustee Fast noted that the Island Profiles are being well received at BIM meetings.

6. BUSINESS

6.1 Items for Approval

6.1.1 Salish View Nature Reserve Management Plan

ITC Property Management Specialist presented the first management plan for the Salish View Nature Reserve. It was brought to the Board's attention that the main financial implications will be building a nature trail through the reserve from the adjacent BC Park and a wetland enhancement plan for the dug pond including riparian planting and exclusion fencing.

Discussion ensued on the following:

- Permanence of the view
- Future covenant wording to allow for adaptive land management

- Explanatory signage in Nature Reserves – contextual wording vs. symbols of what not to do in the Reserve
- Fire protection communication and dialogue

ITC-2020-002
It was MOVED and SECONDED,
that the Islands Trust Conservancy Board approve the first Salish View Nature Reserve Management Plan, dated January 17, 2020.

CARRIED

6.1.2 Revisions to ITC Vision Statement

ITC A/Manager noted that the ITC Regional Conservation Plan directs the ITC to amend or redraft ITC documents, plans and policies to include acknowledgement and consideration of First Nations. A significant guiding statement for the ITC is its Vision Statement. Thoughts to revise the statement were prompted by the website project. Staff believe this is an important first step in moving forward with the ITC Reconciliation Declaration.

ITC-2020-003
It was MOVED and SECONDED,
that the Islands Trust Conservancy Board direct staff to bring the Board recommendations for a revised Vision Statement that is inclusive of Indigenous Peoples.

CARRIED

6.1.3 Salish Sea Ecosystem Conference

ITC A/Manager provided some background on the Salish Sea Ecosystem Conference which is scheduled for April 19-22. At the request of Chair Stamford, ITC trustees were asked to express interest in the conference if they would like to attend. Two trustees expressed interest in attending the conference; Trustee Fenton and Trustee Hannon. The conference happens every two years.

Chair Stamford will be attending the conference as well as select staff.

Discussion ensued on cost sharing options.

ITC-2020-004
It was MOVED and SECONDED,
that the Islands Trust Conservancy fund up to $1000.00 each for Trustee Hannon and Trustee Fenton to attend the Salish Sea Ecosystem Conference in Vancouver from April 19-22, 2020.

CARRIED

The Senior Intergovernmental Policy Adviser asked if the trustees attending the conference would like to brief with her prior to going to discuss networking and relationship building with First Nations as she will also be attending the conference.

6.2 Items for Discussion/Direction

6.2.1 Staff Retreat Update and 2020 Workplanning

ITC A/Manager gave an update on the staff retreat and in particular the work plan for 2020. The retreat was for staff to be able to collaborate as a new group after significant employee turnover. During staff changes, gaps in written procedures and data storage have appeared. Staff will be working to address these gaps in 2020 and attending to these organizational structure items will require time and may divert staff from other projects.

In the near future staff are planning a day of learning and sharing with the Senior Intergovernmental Policy Analyst to integrate the Reconciliation Declaration into all aspects of the ITC Work Plan.

6.2.2 BRF - Upcoming Outreach Activities

The Islands Trust Conservancy Board received the Upcoming Outreach brief for information.

The Board requested that Local Trust Committees and Trust Council receive briefings with highlights of the outreach activities possibly containing infographics or statistical information.

The Board also recommended liaising with local conservancies. The Covenant Management and Outreach Specialist will provide information about the upcoming outreach to local conservancies.

6.3 Correspondence

6.3.1 Medicine Beach Letter - Pender Island Referral

The Islands Trust Conservancy Board received the letter for information.

6.4 Updates for Information

6.4.1 Executive Committee Updates (verbal)

No updates were provided.

6.4.2 Website Update (verbal)

Director of Trust Area Services updated the Board on the major website project.

6.4.3 Public Acquisitions Report

The A/Manager provided a verbal update about the Sandy Beach acquisition project on Keats Island. ITC has completed a legal review of the Transfer Agreement and the applicant has requested a meeting to go over edits. Staff are awaiting further information from the applicant before proceeding.

6.4.4 Public Covenants Report

The ITC Board reviewed the Public Covenants Report for information.

6.4.5 Regional Conservation Plan Progress Report

There was no Regional Conservation Plan Progress report this meeting.

6.4.6 Budget Report and Budget Request Update

The ITC Board reviewed the Budget Report for information. ITC will be slightly underspent at year end. The Financial Planning Committee will meet next week to finalize budget numbers and begin the audit process.

7. NEW BUSINESS

There was no new business.

8. NEXT MEETING

The next meeting will take place on April 7th at 10:00 am.

9. ADJOURNMENT

By general consent, the meeting adjourned at 2:00 pm.

_____

Kate-Louise Stamford, Chair

Certified Correct:

_____

Alexandra Trifonidis, Recorder

DRAFT

ISLANDS TRUST CONSERVANCY

SPECIAL VOTE ON URGENT MATTER (BC Reg. 189/92)

ISSUE TITLE: Islands Trust Conservancy Meeting Cancellation

Due to the Islands Trust office closure and the challenges of holding a public meeting during the Covid-19 pandemic, advice from Senior Islands Trust staff is that meetings up to April 15 should be cancelled.

Therefore, it was Moved and Seconded:

> **That the Islands Trust Conservancy, April 7, 2020, regular scheduled business meeting be cancelled**.

THE CHAIR DECLARED THE ABOVE NOTED RESOLUTION PASSED IN ACCORDANCE WITH THE ISLANDS TRUST SPECIAL VOTING REGULATION THIS 31st DAY OF March, 2020.

RESOLUTION NUMBER: ITC-2020-005

ISLANDS TRUST CONSERVANCY

Print Date: May 15, 2020

Follow Up Action Report

Trust Conservancy Board

24-Sep-2010

Activity	Responsibility	Dates	Status
1 Staff to work with landowners to clarify wording of Cunningham Covenant regarding vegetation removal, while maintaining conservation as a priority.	Kate Emmings	Target: 31-Dec-2020	In Progress

31-Mar-2015

Activity	Responsibility	Dates	Status
1 Staff to prepare possible revisions to the Trust Council Procedure 2.1.xxi Administration of the Crown Land Acquisition Initiative.	Clare Frater Kate Emmings	Target: 21-Mar-2019	In Progress

27-Nov-2018

Activity	Responsibility	Dates	Status
1 Staff to continue to pursue the following options and report back to the ITC board regarding their status at future board meetings until they are complete: 1. Work with Islands Trust and BIM staff to link individual LTC/BIM webpages with their RCP Local Area Profiles located on the ITC website; 2. Provide community engagement tools for LTCs, including an LTC/BIM profile information sheet for each LTC highlighting a few fun facts about the ecology specific to their island. Include a link to the appropriate section of the RCP;	Carla Funk	Target: 01-Oct-2019	Completed

Follow Up Action Report

Trust Conservancy Board

27-Nov-2018

Activity	Responsibility	Dates	Status
2 Staff to continue to pursue the following options and report back to the ITC board regarding their status at future board meetings until they are complete: ... 3. Integrate reminders into planning processes that provide opportunities for the RCP to inform the work of the LTCs and BIM such as integration of RCP consideration into LTC Staff Report and Site Context Report templates and investigate with BIM to see if they can be integrated into BIM templates...	David Marlor Kate Emmings	Target: 15-Nov-2019	In Progress
3 Staff to continue to pursue the following options and report back to the ITC board regarding their status at future board meetings until they are complete: ... 4. Coordinate with Islands Trust Council to ensure that RCP goals are recognized in the Islands Trust Policy Statement and the Islands Trust Strategic Plan; ...	Clare Frater Kate Emmings	Target: 18-Dec-2020	In Progress

29-Jan-2019

Activity	Responsibility	Dates	Status

ISLANDS TRUST CONSERVANCY

Print Date: May 15, 2020

Follow Up Action Report

Trust Conservancy Board

29-Jan-2019

Activity	Responsibility	Dates	Status
1 Staff to work with the Comox Valley Regional District and the Denman Conservancy Association on the location and design of the Lindsay Dickson Nature Reserve portion of the Denman Cross-island Trail and return to the Board for approval of the trail location and design prior to dedicating resources to developing the associated legal agreements.	Nuala Murphy	Target: 31-Mar-2020	In Progress

21-May-2019

Activity	Responsibility	Dates	Status
1 Staff to continue to explore the implications of a Section 11 Agreement with ECCC with regard to benefits to the Islands Trust Conservancy and Islands Trust mandate.	Clare Frater Kate Emmings	Target: 15-Nov-2019	Completed

07-Aug-2019

Activity	Responsibility	Dates	Status
1 Staff to incorporate the climate change actions as discussed at the meeting of August 7, 2019 into staff work programs and develop budgets as required.	Kate Emmings	Target: 26-Nov-2019	Completed

01-Oct-2019

Activity	Responsibility	Dates	Status

ISLANDS TRUST CONSERVANCY

Print Date: May 15, 2020

Follow Up Action Report

Trust Conservancy Board

01-Oct-2019

Activity	Responsibility	Dates	Status
1 Staff to review the Islands Trust Reconciliation Action Plan and provide feedback to the Board prior to the ITC Board / Executive Committee Liaison Meeting for possible discussion at the 2020 Liaison Meeting.	Kate Emmings Lisa Wilcox	Target: 30-Jun-2020	In Progress

26-Nov-2019

Activity	Responsibility	Dates	Status
1 Staff to: a) develop a modification agreement to allow for maintenance of the septic field in the Woodwinds NAPTEP Covenant, Lot 20, Section 23, Pender Island, Cowichan District, Plan 23051 PID 003-201-937; and, b) allow for maintenance of the septic field in the Woodwinds NAPTEP Covenant, Lot 20, Section 23, Pender Island, Cowichan District, Plan 23051 PID 003-201-937; and, c) provide resources about alternatives to traditional septic fields to land owners contemplating septic field maintenance or replacement, and new covenants.	Jemma Green Kathryn Martell	Target: 30-Jun-2020	In Progress
2 Staff to consider including a Note Disclosure highlighting the importance of natural assets to the mandate of Islands Trust and the services they provide for island communities, starting with the current fiscal year's annual financial reporting.	Julia Mobbs Kate Emmings	Target: 30-Apr-2020	Completed

ISLANDS TRUST CONSERVANCY

Print Date: May 15, 2020

Follow Up Action Report

Trust Conservancy Board

13-Feb-2020

Activity	Responsibility	Dates	Status
1 Staff to create an action plan that addresses the recommendations in the Fund Development Strategy for Islands Trust Conservancy Board review by the end of 2020.	Carla Funk Kate Emmings	Target: 31-Dec-2020	In Progress
2 Staff to bring the ITC Board recommendations for a revised Vision Statement that is inclusive of Indigenous Peoples.	Carla Funk Kate Emmings Lisa Wilcox	Target: 26-May-2020	Completed
3 Staff to monitor the MOU regarding the SIERP to ensure it is reflective of the guiding principles of the ITC Reconciliation Declaration.	Kate Emmings	Target: 31-Dec-2020	Completed
4 Staff to provide the RFD and draft MOU regarding the SIERP to a future North Pender LTC in-camera meeting.	Kate Emmings	Target: 31-Mar-2020	Completed
5 Opportunity Fund Grant of $3,500 to be awarded to the Salt Spring Island Conservancy.	Carla Funk	Target: 31-Mar-2020	Completed
6 Staff to invite the SSIC to speak with IT staff about the Reconciliation Declaration.	Carla Funk	Target: 07-Apr-2020	Completed
7 Staff to provide the DCA with a letter of consent to construct the wildlife viewing platform at the edge of the pollinator demonstration garden instead of the original proposed location described in Schedule A of the Covenant Agreement.	Jemma Green	Target: 07-Apr-2020	Completed

ISLANDS TRUST CONSERVANCY

Print Date: May 15, 2020

Follow Up Action Report

Trust Conservancy Board

13-Feb-2020

Activity	Responsibility	Dates	Status
8 Staff to indicate to the MICS and the NCC that the Board requires a Conservation Proposal prior to participation in a land conservation project.	Kate Emmings	Target: 07-Apr-2020	Completed
9 Staff to invite the MIC and NCC to speak with IT staff about the Reconciliation Declaration.	Kate Emmings	Target: 07-Apr-2020	Completed
10 ITCB to share the Fund Development Strategy with TC in-camera at the March 2020 meeting.	Kate Emmings	Target: 10-Mar-2020	Completed
11 ITC to fund up to $1,000 each for Doug Fenton and Susan Hannon to attend the Salish Sea Ecosystem Conference April 19-22, 2020.	Kate Emmings	Target: 30-Apr-2020	Completed

ISLANDS TRUST CONSERVANCY

REQUEST FOR DECISION

To:	ITC Board	**For the Meeting of:**	**May 26, 2020**
From:	Staff	**Date Prepared:**	**March 25, 2020**

SUBJECT: Islands Trust Conservancy Vision Statement revision

RECOMMENDATION: that the Islands Trust Conservancy Board approve the revised Islands Trust Conservancy Vision Statement as drafted and direct staff to change related communications materials to reflect the revision.

PURPOSE: Revise the Islands Trust Conservancy's Vision Statement to be inclusive of Indigenous Peoples.

BACKGROUND: Through its Reconciliation Declaration the Islands Trust Conservancy acknowledges that the lands and waters that encompass the Salish Sea have been home to Indigenous Peoples since time immemorial. The current Islands Trust Conservancy Vision Statement does not reflect the ITC commitment to protect and preserve through processes that respect and honour reconciliation and mutually respectful relationships with Indigenous Peoples.

Current ITC Vision Statement: The vision of the Islands Trust Conservancy 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 community members and conservation partners will work together to protect large natural areas and key wildlife habitat. Viable ecosystems will flourish alongside healthy island communities.

At its February meeting, the ITC Board passed the following resolution:
ITC-2020-003
It was MOVED and SECONDED, that the Islands Trust Conservancy Board direct staff to bring the Board recommendations for a revised Vision Statement that is inclusive of Indigenous Peoples.

ITC staff have worked with the Islands Trust Senior Intergovernmental Policy Analyst to revise the Vision Statement and are suggesting the following:

Revised ITC Vision Statement: The vision of the Islands Trust Conservancy is that the islands and waters of the Salish Sea weave together culture and ecology; this place will be one where people aspire to live and work in harmony with nature.

1 IMPLICATIONS OF RECOMMENDATION

ORGANIZATIONAL: The ITC Vision guides the work of the ITC, including the Regional Conservation Plan, property management and communications. It represents the work of the ITC and its intention for the future. It is key in setting the tone of the ITC work program.

FINANCIAL: None.

POLICY: None.

IMPLEMENTATION/COMMUNICATIONS: Changes will be made wherever the ITC vision statement is used (examples: website, reports, and other documents)

FIRST NATIONS: Revising the ITC Vision to be more inclusive of First Nations supports the intent of the ITC Reconciliation Declaration.

CLIMATE CHANGE: None.

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

3 **ATTACHMENT(S):** None.

RESPONSE OPTIONS

Recommendation: that the Islands Trust Conservancy Board approve the revised Islands Trust Conservancy Vision Statement as drafted and direct staff to change related communications materials to reflect the revision.

Alternative: that the Islands Trust Conservancy Board approve the revised Islands Trust Vision Statement as amended and direct staff to change related documents to reflect the revision.

Prepared By: Carla Funk, A/Communications and Fundraising Specialist

Reviewed By/Date: Lisa Wilcox, Senior Intergovernmental Policy Analyst / May 13, 2020
Kate Emmings, A/Manager, Islands Trust Conservancy / May 13, 2020

ISLANDS TRUST CONSERVANCY

REQUEST FOR DECISION

To:	**Islands Trust Conservancy Board**	**For the Meeting of:**	**May 26, 2020**
From:	**Staff**	**Date Prepared:**	**May 12, 2020**

SUBJECT: Islands Trust Conservancy Submission for 2019-2020 Annual Report

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RECOMMENDATION:

That the Islands Trust Conservancy Board approves the attached text for inclusion in the 2019-2020 Annual Report for approval by Trust Council and submission to the Minister of Municipal Affairs and Housing.

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1 **PURPOSE:** To approve the Islands Trust Conservancy section of the 2019-2020 Annual Report.

BACKGROUND: Staff prepared a draft of the Islands Trust Conservancy section of the 2019-2020 Annual Report, reporting achievements against the goals of the Regional Conservation Plan. Chair Kate-Louise Stamford has reviewed and approved a letter from the Chair. Graphics and images as well as sidebars and callout boxes will be added to the final report. See the 2018-2019 Annual Report.

2 IMPLICATIONS OF RECOMMENDATION

ORGANIZATIONAL: Timely approval of text will ensure smooth delivery of the Islands Trust annual report, in compliance with the *Islands Trust Act*, Section 19 and the annual reporting obligations of the ITC under section 46 of the *Islands Trust Act*.

FINANCIAL: None

POLICY: None. This approach complies with section 19 of the *Islands Trust Act* and Trust Council's Annual Report Policy 6.10.1.

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, 2020. 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. The ITC sections of the Annual Report have been reviewed by staff for consistency with the ITC Reconciliation Declaration.

OTHER: The Executive Committee has requested that the ITC include information on the financial value of Islands Trust Conservancy properties in the Annual Report. Staff are working on a simple infographic to address this request but also note that the value of ITC properties is listed in the financial statements as part of the annual report.

The Islands Trust Conservancy extracts its component of the Islands Trust Annual Report to create its own Annual Report. These reports are maintained on the ITC website at www.islandstrustconservancy.ca/about-us/our-publications/.

3 **RELEVANT POLICY(S):** Islands Trust Policy 6.10.i: Annual Report Policy

4 **ATTACHMENT(S):** Islands Trust Conservancy Annual Report Draft

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RESPONSE OPTIONS

Recommendation: The Islands Trust Conservancy Board approves the attached text for inclusion in the 2019-2020 Annual Report for approval by Trust Council and submission to the Minister of Municipal Affairs and Housing.

Alternative: The Islands Trust Conservancy Board approves the attached text, as amended, for inclusion in the 2019-2020 Annual Report for approval by Trust Council and submission to the Minister of Municipal Affairs and Housing.

Prepared By: Carla Funk, Communications and Fundraising Specialist

Reviewed By/Date: Kate Emmings, A/Manager, Islands Trust Conservancy / May 12, 2020

Cover	[visual]
Inside Photo Double page	[visual]
p.4 p.5 Message from ITC Chair	Over the years Islands Trust Conservancy has focused on **building resilience** for a solid future of conservation in the Islands Trust Area. Little did we know that at the end of this fiscal year we would find ourselves navigating unexpected turbulence with the onset of a global pandemic. Had we predicted extreme change at a global level we would have guessed that it would stem from climate instability. So much so, this year we completed a synthesis of local **climate change projections** for the Trust Area. We used a suite of relevant indicators that help us understand how conditions will change in our region's land, waters, and surrounding ocean. Of importance to management of protected areas in the Islands Trust Area, we conducted an introductory review of impacts of those changes on local ecosystems and species. Understanding the impacts of climate projections will only be strengthened by listening to and respecting **multiple kinds of knowledge**. Islands Trust Conservancy is working to review current processes and policies to ensure that the work we do is reflective of the Truth and Reconciliation (TRC) Calls to Action, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), and the Province of BC Declaration on the Rights of Indigenous Peoples Act (DRIPA). This important work brings together the long-standing work of the ITC mandate of conservation, protection, and preservation of the lands and waters with the foundational principles of recognition, reconciliation, and history. Expanding our ways of knowing, we have welcomed two new Board members to our **leadership** team – Don Clarke is a member of the Black River First Nation, with more than 25 years of experience working with over 50 First Nations communities, and Dr. Susan Hannon is a former Ecology Professor with research expertise in forest ecology and conservation. We are working hard to bring together science-based knowledge with traditional ecological knowledge, knowing that this will strengthen our understanding of how to best preserve and protect these special places. 2019 brought two more special places protected: Lasqueti Island welcomed the Salish View Nature Reserve, and the Swift Family

	protected Link Island with a conservation covenant through the Natural Area Protection Tax Exemption Program (NAPTEP). These exceptional places will be preserved and protected for **future generations**. To keep pace with the number of properties under our care, this year we welcomed the addition of a Covenant Management & Outreach Specialist to the Islands Trust Conservancy team. This **increase in capacity** will enable us to bring our annual monitoring work in-house, better support current covenant landowners to achieve their conservation goals, and be proactive with outreach to prospective covenant donors. Also, with the approval of a new Fund Development Plan, we look forward to further increasing our capacity to conserve natural lands. The impacts and pressures on natural systems and habitats today are extreme. Islands Trust Conservancy understands that we can't preserve and protect the islands and waters of the Salish Sea alone. The work of securing and leaving a legacy for future generations has never been more urgent. Inspiring conservation in the land and waters of the Salish Sea through **compelling story-telling** is critical to the work we all do. That is why we worked so hard on creating a more engaging and inclusive Islands Trust Conservancy website, to be merged with the Islands Trust website this coming fall. During our response to the COVID-19 pandemic, Islands Trust and Islands Trust Conservancy demonstrated a **flexibility** that we didn't even know we had. We swiftly and, for the most part, seamlessly shifted from a regular office to home-based offices. Daily work carried on despite the changes to the very fabric of society. All the while we found we were asking each other "is this the new normal?" and perhaps more fundamentally, "what will the new normal be"? In times of uncertainty we all turn to touchstones of calm, beauty and timelessness. Islanders have those touchstones in their **natural spaces**. Parks, nature reserves and conservation covenants are islands of safe company in a world of physical distancing. If we have learned anything from this chaotic time, it is that it is not just the waters and islands of the Salish Sea that are fragile – as biodiversity declines, global human health is also vulnerable. Is it an exaggeration to say that **our very lives depend on preserving and protecting** rare and sensitive ecosystems? We think not.
Photo/s	[visual]
[New page] Acknowledgement	**Acknowledgement**

	Islands Trust Conservancy acknowledges that we work within the traditional and treaty territories of BOḰEĆEN (Pauquachin), Cowichan, Halalt, Homalco, K'ómoks, Klahoose, Ts'uubaa-asatx (Lake Cowichan), Lək̓ ʷəŋən (SXIMEŁEŁ (Esquimalt), Songhees, T'Sou-ke), Lyackson, MÁLEXEŁ (Malahat), Penelakut, Qualicum, Scia'new (Beecher Bay), səl̓ilwətaʔɬ/sel̓íl̓witulh (Tsleil-Waututh), SEMYOME (Semiahmoo), Shíshálh (Sechelt), Snaw-naw-as (Nanoose), Snuneymuxw (Nanaimo), Sḵwx̱wú7mesh (Squamish), STÁUTW̱ (Tsawout), Stz'uminus (Chemainus), Tla'amin, Tsawwassen, We Wai Kai (Cape Mudge), Wei Wai Kum (Campbell River), W̱JOŁEŁP (Tsartlip), W̱SIḴEM (Tseycum), and xʷməθkʷəy̓əm (Musqueam).
[New page] Reconciliation	**Reconciliation Declaration** *The Islands Trust Conservancy acknowledges that the lands and waters that encompass the Salish Sea have been home to Indigenous Peoples since time immemorial. We recognize that we are all intertwined in the ecosystems that are the lands, waters, culture, and ecology that embody this place.* *The Islands Trust Conservancy will strive to create opportunities for knowledge-sharing, understanding and collaboration as people come together to preserve and protect the special nature of the islands within the Salish Sea.* *The Islands Trust Conservancy is committed to the protection and preservation of this place through processes that respect and honour reconciliation and mutually respectful relationships with Coast Salish Indigenous Peoples. We express our recognition for the past, present, and future stewardship and knowledge that has been shared by Indigenous Peoples and are humbled and grateful.* Adopted: July 16, 2019 Islands Trust Conservancy Board in METULIYE (Victoria)
ITC Role and Board members	**Islands Trust Conservancy Role** Islands Trust Conservancy was established April 1, 1990 by the *Islands Trust Act* to preserve natural landscapes, cultural heritage, and ecosystems in the Islands Trust Area. The area is nestled within the Salish Sea and includes most of the Gulf Islands and Atl'ka7tsem/Howe Sound. As the regional land trust for the Islands Trust Area, Islands Trust Conservancy works with landholders, local conservancies, and communities to protect places of natural significance in perpetuity. Islands Trust Conservancy 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,* Islands Trust Conservancy provides receipts for income tax purposes for all eligible donations. This year Islands Trust Conservancy affirmed its commitment to respect and honour Reconciliation with First Nations, and to develop mutually respectful relationships with Coast Salish Indigenous Peoples, through a formally adopted Reconciliation Declaration. **Board Members** Kate-Louise Stamford, Gambier Island (2014-2018, Chair, 2018-present) Sue Ellen Fast, Bowen Island Municipality (2018-present) Doug Fenton, Thetis Island (2018-present) Linda Adams, Salt Spring Island (Appointed Member, August 2018 - August 2019, August 2019-present) Susan Hannon, Salt Spring Island (Appointed Member, November 2019 – present) Donald Clarke, Victoria (Appointed Member, January 2020 – present) Hoops Harrison, Vancouver and Saturna Island (Appointed Member, August 2016 - August 2019) Robin Williams, Salt Spring Island (Appointed Member, 2017, 2018-2019)
Map N. Islands protected	[visual]
S. Islands protected	[visual]
Bar chart of protected areas by Local Trust Area	[visual]
Bar chart of protected areas by type	[visual]
	Regional Conservation Plan The Regional Conservation Plan 2018 – 2027 guides the work of Islands Trust Conservancy to protect ecosystems in the islands in the Salish Sea. This ten-year plan is science-based and community-informed, and included valuable input from six Coast Salish Nations.

	The Regional Conservation Plan 2018 – 2027 has four long-term goals to focus its efforts and resources on the species and habitats most urgently in need of conservation. The following is a summary of the activities and accomplishments as assessed through the lens of the four long-term goals identified in the Regional Conservation Plan: **Goal 1: Knowledge-based Conservation Planning** **Identify, investigate, and communicate about important natural areas to generate action on conservation priorities** In order to contribute to effective conservation of biological diversity and ecological integrity in the Islands Trust Area, Islands Trust Conservancy seeks to increase its understanding of ecosystems and species in the region. Islands Trust Conservancy uses a variety of information to support careful decisions on how to manage and care for land.
p.13 Mapping and Data –	**Mapping and Data Analysis** Islands Trust Conservancy acquires and analyzes data and shares it with others. In 2019 - 2020, the Islands Trust Conservancy: • Updated protected area mapping for the region and contributed to the British Columbia Non-Governmental Organization Conservation Areas Database. • Coordinated updates of species-at-risk data with federal and provincial governments. • Shared data with seven non-profit organizations, government partners and community members. • Developed a synthesis and analysis of climate change projections and likely impacts to natural areas across the Islands Trust Area. • Worked with the Islands Trust to map contiguous forest, and rated impacts to them from roads and structures. **Planning and Adapting for Climate Change** Islands Trust Conservancy is developing practical and feasible actions to ensure that our work includes both adaptation and mitigation in response to climate change. In 2019 – 2020 Islands Trust Conservancy: • Completed a synthesis of local climate change projections for the Trust Area. We used a suite of relevant indicators that help us understand how conditions will change in our region's land, waters, and surrounding ocean. • Conducted an analysis of impacts of those changes on local ecosystems and species.
Possible Double spread photo	[visual] possibly a visual/infographic on Adaptation vs Mitigation

Goal 2 Collaboration with First Nations and Relationship building	**Goal 2: Collaboration with First Nations** **Strengthen relationships with First Nations to identify and collaborate on shared conservation goals** Islands Trust Conservancy passed a Reconciliation Declaration in July 2019 and in January 2020, Islands Trust Conservancy welcomed its first Indigenous Board member. As part of our commitment to the TRC Calls to Action and reconciliation, Islands Trust Conservancy staff and Board members participated in cultural competency training in 2019. This training has been incorporated into our orientation for new staff and Board members. Islands Trust Conservancy is working to review current processes and policies to ensure that the work we do is reflective of the Truth and Reconciliation (TRC) Calls to Action, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), and the Province of BC's *Declaration on the Rights of Indigenous Peoples Act* (DRIPA). We have created a template for a Cultural Management Plan for nature reserves that can be used alongside ecological plans and have begun the important work of engaging with First Nations regarding land management. We have also broadened the intent of our conservation covenant template to reflect the important work needed to protect cultural sites. We anticipate that these standards will evolve over time as we work to implement UNDRIP. This important work brings together the Islands Trust Conservancy mandate of conservation, protection, and preservation of the lands and waters around us with the foundational principles of recognition, reconciliation, and history. Islands Trust Conservancy looks forward to working closely with First Nations governments to ensure that conservation is reflective of Indigenous ways of knowing, cultural history and heritage, sustainability and stewardship, and management.
Goal 3 Protect core conservation areas	**Goal 3: Protect Core Conservation Areas** **Continue to secure and manage Islands Trust Conservancy lands and conservation covenants to maximize ecological integrity** The core of Islands Trust Conservancy's work is to secure conservation areas that conserve biodiversity within the Islands Trust Area. We have developed systematic approaches rooted in science and best practices to determine which areas are most in need of conservation and focus our outreach, land securement and property management efforts in these areas.
	2019 - 2020 Conservation Covenants

	Covenants are a tool that permanently protects natural features on private property while allowing landholders to retain ownership of their land. Islands Trust Conservancy manages the Natural Areas Protection Tax Exemption Program (NAPTEP), which provides island landholders with an annual 65% property tax reduction on the portion of their land protected by a conservation covenant. This incentive is unique to the Islands Trust Area. In 2019-2020, no new conservation covenants were registered with Islands Trust Conservancy. Instead, Islands Trust Conservancy grew its capacity to promote the NAPTEP program and support land management across our 76 conservation covenants with the addition of a Covenant Management & Outreach Specialist position. This enabled us to transition our covenant monitoring program in-house, take on new ecosystem protection projects in partnership with covenant landholders, and initiate a covenant outreach program to promote private land conservation.
	2019-2020 Land Acquisitions Salish View Nature Reserve (11.5 hectares), Northern Coast Salish Territory, Lasqueti Island: On July 31, 2019, the Salish View Nature Reserve on Lasqueti Island was successfully transferred to Islands Trust Conservancy. Salish View was acquired after a year-long campaign, in partnership with Lasqueti Island Nature Conservancy, which raised $250,000 in cash from 150 individual donors and included a $70,000 in-kind donation from the landholder who generously donated 23 per cent of the market value of the property. The Salish View Nature Reserve connects with Squitty Bay Provincial Park, creating an uninterrupted shoreline-to-ridgetop protected area. Salish View Nature Reserve has a 270-degree vista of the Salish Sea from the summit and is home to peregrine falcons and ancient groves of Arbutus and Coastal Douglas-fir trees. A management plan for the Salish View Nature Reserve was approved in February 2020 and is available online at Salish View Nature Reserve Management Plan.
	Opportunity Fund The Opportunity Fund provides support for ‘hard to fundraise’ costs associated with land protection or leverages donations through matching funds for land acquisition campaigns. The disbursement of funds is guided by the Regional Conservation Plan and the Islands Trust Conservancy Board considers applications twice per year. In 2019 - 2020, the Opportunity Fund received $3,486 in donations and had a closing balance of $20,479. Islands Trust Conservancy awarded the following Opportunity Fund grants: • $2,719.50 to Galiano Conservancy Association

	• $4,500 to Salish View Nature Reserve matching campaign to raise funds for the purchase of the Salish View Nature Reserve on Lasqueti Island • $3,500 to Salt Spring Island Conservancy
Text Side box and photo	[visual] **Designated Island Funds** Some Islands Trust Conservancy donors prefer to designate their gift to a specific island. To accommodate this request, Islands Trust Conservancy has the ability to hold geographically-restricted accounts, and currently maintains acquisition funds for Lasqueti Island, Gambier Island and Thetis Island. Interested donors can donate to an existing fund or set up an island specific fund. Designated Island Funds
	Taking Care of What We Have Acquiring a property or signing a conservation covenant is just the first step in ecosystem protection. Islands Trust Conservancy monitors and manages its nature reserves according to management plans that identify long-term conservation, as well as restoration goals. In 2019 – 2020 Islands Trust Conservancy undertook many property management projects in partnership with local island-based conservancies, including: • Monitoring all Islands Trust Conservancy nature reserves to assess property management needs. • Monitoring all Islands Trust Conservancy conservation covenants to maintain relationships with landowners and ensure compliance. • Revising management plans for Mount Artaban, Brigade Bay Bluffs, and Long Bay Wetland nature reserves (Gambier Island). • Developing management plans for Salish View Nature Reserve (Lasqueti Island) and Fairyslipper Forest Nature Reserve (Thetis Island). • Initiating management plan revisions for Lindsay Dickson, Inner Island, and Valens Brook nature reserves (Denman Island), and Inner Island and Lower Mount Erskine nature reserves (Salt Spring Island) • Removing exotic invasive species from conservation covenants and nature reserves on Bowen, Denman, Gabriola, Galiano, and Salt Spring islands. • Initiating a trail-building project in the new Fairyslipper Forest Nature Reserve (Thetis Island). • Trail maintenance on all nature reserves with trails to ensure safe passage.

	• Planting and caging trees to restore an additional 0.4 ha of Coastal Western Hemlock forest in Brigade Bay Bluffs Nature Reserve (Gambier Island). Since 2017, almost a hectare of forest (more than 2.3 acres) has been replanted at this reserve. • Monitoring forest restoration projects at Singing Woods and David Otter Nature Reserves (Bowen Island), Lindsay Dickson Nature Reserve (Denman Island), Mount Trematon and John Osland Nature Reserves (Lasqueti Island), Trincomali Nature Sanctuary (Galiano Island), and Long Bay Wetland and Brigade Bay Bluffs Nature Reserves (Gambier Island). • Participating in a Parks Canada-led Sidney Island Ecosystem Restoration Project that will benefit the ecological health of Islands Trust Conservancy covenant lands.
Infographic	An infographic showing the value of ITC land holdings (at request of EC)
	Goal 4: A Strong Voice for Nature Conservation **Continue to build internal and shared organizational strength and resilience to ensure long-term nature conservation in the Islands Trust Area** Islands Trust Conservancy has been a consistent presence in the conservation of species and ecosystems for 30 years. In order to remain a long lasting, stable agency, Islands Trust Conservancy must continually adapt to changing circumstances, both on the landscape and as an organization, while maintaining a stable base. **Maintaining Our Capacity for Land Care and Increasing Our Capacity for Outreach** In 2019-2020 Islands Trust Conservancy's land monitoring contractors retired, resulting in a major transition in our monitoring program. After careful consideration, we decided to bring our land monitoring program in-house. Because we were also hearing that islanders wanted more interaction and information from our staff, we concurrently decided to expand our ability to do outreach in island communities. With approval from Trust Council, Islands Trust Conservancy created a new Covenant Management and Outreach Specialist position. The new position has removed management of covenants from the duties of our Property Management Specialist allowing for nature reserve monitoring to be absorbed into this existing position. Additionally, the changes will provide our Property Management Specialist with additional time to do more work with First Nations as we embrace Islands Trust Conservancy's Reconciliation Declaration.

New staff	**Covenant Management & Outreach Specialist** To keep pace with the number of properties under our care, this year we welcomed the addition of a Covenant Management & Outreach Specialist to the Islands Trust Conservancy team. This increase in capacity enables the Islands Trust Conservancy to bring our annual monitoring in house, provides better support current covenant landowners to achieve their conservation goals, and supports proactive outreach to prospective covenant donors.
Text Side box and Photo: Jemma Green	Jemma Green, was hired in 2019 as the Islands Trust Conservancy Covenant Management and Outreach Specialist. Jemma's background is in wildlife and habitat conservation. She holds a BSc in Natural Resources Conservation (UBC) and a MSc in Environmental Studies specializing in ecological restoration (UVic). Jemma is the point of contact for monitoring activities and land management initiatives in ITC's conservation covenants.
	Telling the Islands Trust Conservancy Story The impacts and pressures on natural systems and habitats today are extreme. We know that we can't preserve and protect the islands and waters of the Salish Sea alone. The work of securing and leaving a legacy for future generations has never been more urgent. That is why inspiring conservation in the land and waters of the Salish Sea through compelling story-telling is so critical to the work we all do. Islands Trust Conservancy engages audiences in and beyond the Islands Trust Area through E-news, the Heron Newsletter, Facebook and through our website. In 2019-2020, the Islands Trust Conservancy began a website review and decided to make a big shift to our website through a merger with the Islands Trust site. This shift is expected to increase traffic to the Islands Trust Conservancy website and highlight the "preserve and protect" mandate of the Islands Trust. The website project is set to complete in the 2020-2021 fiscal year.
	Up to Date Tools and Strategies Islands Trust Conservancy needs to engage with the latest technology and best practices to be relevant and effective. Up to date tools enable Islands Trust Conservancy better data collection and accuracy that in turn enhance and strengthen the capacity to paint a picture of conservation with precision and credibility. Improving use of technology builds efficiencies and saves important dollars for use elsewhere. • **Technology Use in Fieldwork** Islands Trust Conservancy is developing technology for fieldwork to streamline data collection and storage of data for the growing number of properties it manages.

- **Islands Trust Conservancy Board Fund Development Advisory Committee**

In March 2019, the Islands Trust Conservancy Board formed a Fund Development Advisory Committee to create a strategy and an action plan to meet Islands Trust Conservancy funding needs. In January 2020, the Fund Development Advisory Committee finalized its Fund Development Strategy, which was approved by the Islands Trust Conservancy Board in February 2020. The Fund Development Strategy will guide the work of Islands Trust Conservancy for the next five years as it develops funding sources for its work.

- **Land Trust Alliance of British Columbia Seminar Series**

Islands Trust Conservancy staff and Vice Chair participated in the Land Trust Alliance of British Columbia Seminar Series in November 2019, gaining valuable knowledge about standards and practices, communications techniques, conservation planning strategies, land and covenant management and emerging issues for land trusts. Staff also presented a joint session about conservation planning tools in with the Coastal Douglas-fir and Associated Ecosystems Conservation Partnership.

- **Island Outreach**

Islands Trust Conservancy staff and Board members hosted celebrations for the completion of Link Island NAPTEP Covenant (Link Island), Valens Brook Nature Reserve (Denman Island) and Salish View Nature Reserve (Lasqueti Island), reaching over 125 people and educating locals and visitors about the role of protecting habitat to conserve sensitive island species.

- **Coastal Douglas-fir and Associated Ecosystems Conservation Partnership**

Islands Trust Conservancy staff are members of the Coastal Douglas-fir and Associated Ecosystems Conservation Partnership (CDFCP) Steering Committee and Securement Committee. In 2019-2020 Islands Trust Conservancy collaborated with the CDFCP and Raincoast Conservation Foundation to produce a stewardship resource for Coastal Douglas-fir forests for island residents, to be released in early 2020-2021. Our joint work with Islands Trust mapping contiguous forest this year in the Trust Area is part of the CDFCP's Priority Sites Project.

- **Partnering to Address Invasive Species**

Islands Trust Conservancy joined the Capital Region Invasive Species Partnership (CRISP) in 2019. This group of land managers, representing the local governments of the region meets regularly to discuss invasive species prevention, control, containment, and eradication concerns, and to share knowledge and resources to tackle the growing problem of invasive species. CRISP also has strong connections with other coastal regional working groups and the province and this network will be an

	invaluable resource for Islands Trust Conservancy as we manage invasive species in our nature reserves and on conservation covenant lands. • **Stewardship Education** Islands Trust Conservancy encourages islanders to get involved in conserving and stewarding private land by supporting conservation education and sharing information on best practices for land care. In 2019-2020, Islands Trust Conservancy promoted private land conservation through its website, the Heron newsletter (printed and online), e-news updates to subscribers, Facebook posts and Twitter. Islands Trust Conservancy brochures are also available in local libraries, real estate offices and Islands Trust offices throughout the islands.
Note – this will only be added to ITC stand alone Annual Report as the ITC portion of the Islands Trust Annual Report does not need a concluding statement	**Concluding Statements** In times of uncertainty people turn to touchstones of calm, beauty and timelessness. Islanders have those touchstones in their natural spaces. We applaud the leaders in British Columbia that had the courage, wisdom and foresight to invest in nature so that future generations may survive and thrive. The preserve and protect mandate of Islands Trust Conservancy has become increasingly relevant since 1974 when Minister of Municipal Affairs James Lorimer first proposed the creation of the *Islands Trust Act*. Land conservation was strengthened with the creation of the Islands Trust Conservancy on April 1, 1990 which enabling land acquisition and receipt of donations from the public. Over its lifetime, the Islands Trust Conservancy has spent $XX million to protect more than $XX worth of land. It is clear that the ecological, cultural, and social value of these lands preserved and protected far exceeds their monetary value.
Appendices	Financial Statements – Include a paragraph or two at the beginning of the appendix that explains in plain English what the tables say.
Financial Statement infographic	[visual] Try putting some of the financial information into an infographic.
Back cover	[visual]

ISLANDS TRUST CONSERVANCY

REQUEST FOR DECISION

To:	ITC Board	**For the Meeting of:**	May 26, 2020
From:	Staff	**Date Prepared:**	May 8, 2020

SUBJECT: Climate Change Impacts Report

RECOMMENDATIONS:

1) **That the Islands Trust Conservancy Board approve the Climate Change Project Charter as drafted.**
2) **That the Islands Trust Conservancy endorse the expenditure of $7,392.63 for the securement of the Climate Projections for Islands Trust Area Report.**

PURPOSE: To present the report *Climate Projections for Islands Trust Area* to the ITC Board and to request direction on next steps to identify and adapt to probable climate change impacts to Islands Trust Area ecosystems and species.

1 BACKGROUND:

In July 2019, the Islands Trust Conservancy Board held a special meeting to discuss the Islands Trust climate change emergency. At that meeting, the ITC Board passed the following resolution:

> ***ITC-2019-026***
> *It was MOVED and SECONDED, that the Islands Trust Conservancy Board direct staff to incorporate the climate change actions as discussed at the meeting of August 7, 2019 into staff work programs and develop budgets as required.*

The work discussed at the August 7, 2019 meeting included, "obtain a literature review synthesizing available climate change impact information specific to the Pacific Northwest region and identifying information gaps" with a view towards appropriately considering climate change impacts in both how we manage existing nature reserves and in guiding priorities for future land securement (covenants and acquisitions).

ITC staff identified a need for a comprehensive review and analysis of projected local impacts in the Islands Trust Area, to support decision making about how our work may be affected by changing climate. The ITC can then begin developing policies and strategic approaches to adapt its work to either best protect existing ecosystems and species, or to anticipate future conservation priorities.

Pinna Sustainability Ltd. was contracted to conduct a preliminary research and review project and prepare a report, *Climate Projections for Islands Trust Area* (attached). They reviewed and compiled available local climate projections within the Islands Trust Area, and then facilitated a discussion with ITC staff to discuss how those changes would lead to impacts on local ecosystems and species. Their report contains two sections:

- detailed projections for a suite of relevant indicators that collectively provide insight into anticipated changes in summer temperature, winter temperature, precipitation patterns, and

oceanic factors. These indicators display how conditions are expected to change within our region's land, waters, and surrounding ocean in the 2050s and 2080s;
- descriptions of how these projected changes are expected to impact the region's biodiversity, as well as its terrestrial, aquatic, and oceanic ecosystems.

The final report is attached to this RFD.

POTENTIAL ITC NEXT STEPS:

This *Climate Projections* report is a foundational piece to understand the present and pending changes to climate indicators in our region. ITC must now conduct further investigations to understand implications of these changes for our work, both in terms of management of existing nature reserves and covenants and also as it may affect our conservation planning.

Staff recommend that the ITC Board review the actions below and suggest additions or changes, and direct staff to evaluate these actions alongside the Regional Conservation Plan work program and the project charter to continue to adapt ITC work to consider climate change actions.

1. Research, Mapping and Planning:
    - Use the *Climate Projections* report as a foundation to identify ecosystem- and species-level implications of predicted changes
    - Expand mapping to include:
        - Identification of movement of ecosystems and species using climate change predictions and modelling
        - Identification of carbon storage and sequestration hot spots (e.g. forests and foreshore areas such as eelgrass)
        - Identification of areas vulnerable to climate change impacts (e.g. sea level rise, increased storm events, fire)
    - Incorporate climate change information into ITC priority area modelling

2. Education and Outreach:
    - Prepare news release about the *Climate Projections* report
    - Ensure that the *Climate Projections for Islands Trust Area* is directly shared with:
        - Local First Nations
        - Conservancies and community organizations throughout the Islands Trust Area
        - Local and regional partnerships and government agencies managing natural areas
    - Incorporate climate change projections information into:
        - information to existing and potential covenant landowners regarding stewardship of land
        - ITC webpage
        - ITC social media
    - Identify focal areas for landowner outreach based on inclusion of climate projections information

3. Management of ITC lands:
    - Identify properties and areas vulnerable to specific impacts from climate change (e.g., sea level rise, loss of key species or at-risk species or ecosystems), and:
        - Plan for expanded monitoring of vulnerable sites
        - Identify and evaluate potential actions to mitigate impacts on vulnerable properties
    - Identify restoration areas where tree planting or tree protection would promote carbon storage and incorporate these areas into property management work
    - Evaluate fuel loads in existing ITC protected areas and consider fuel load reduction measures (e.g. controlled burns)

4. Land Securement (acquisition and covenants):
    - Use climate change considerations such as carbon storage/sequestration potential and climate change vulnerability in evaluating land for securement
    - Review the 2017-2027 Land Securement Strategy to specifically address climate change and focus on properties necessary to protect ecosystem and species predicted to move in response to climate change.

2 IMPLICATIONS OF RECOMMENDATION

ORGANIZATIONAL: ITC has committed to developing feasible actions to address climate change. Continued work on adapting ITC's work provides a clear organizational direction and shows ITC dedication to meaningfully address the climate change crisis.

A portion of the EPS and Manager time, and that of other ITC staff, will need to be dedicated to analyzing how best to protect species and ecosystems through to plausible future climate scenarios, and developing appropriate adaptations to ITC's work.

As part of developing this project, the A/Ecosystem Protection Specialist formed an internal Islands Trust *Climate Action Working Group* with IT staff working on climate action-related projects. This working group is liaising regarding various climate change related projects underway within different divisions of Islands Trust (Trust Area Services, Local Planning Services, and Islands Trust Conservancy).

FINANCIAL: A judicious mix of staff time and expert consultants is likely to be the most appropriate and cost-effective approach to elaborate implications of these projected climate changes, and to develop adaptations to ITC's work. Staff is requesting that the Board authorize spending of up to $15,000 in 2020-2021, as outlined in the Project Charter, to advance this programme.

POLICY: None currently. As adaptation measures are identified and analysed, staff may recommend changes to ITC policies.

IMPLEMENTATION/COMMUNICATIONS: Staff will implement next steps as directed by the Board, including preparing a news release, communication with other Islands Trust bodies, and with the public.

FIRST NATIONS: ITC should consider explicitly reaching out to local First Nations to share the *Climate Projections for Islands Trust Area* report. Local knowledge holders could also make valuable contributions to identifying and evaluating selection of both adapted management actions and priority site selection, in light of these projected climate changes.

CLIMATE CHANGE: None, although actions taken as a result of this report will have a small contribution towards climate change mitigation

OTHER: The Coastal Douglas-fir and Association Ecosystems Conservation Partnership (CDFCP) contributed $2,327.37 towards the *Climate Projections* report, from their Environment and Climate Change Canada "Priority Places" grant.

The work done and planned will also support the Islands Trust Strategic Plan 2018-2022 strategies to achieve Climate Change Objectives:

- Amend the Islands Trust Policy Statement to add climate change mitigation, adaptation and resiliency policies.
- Amend Official Community Plans and land use bylaws to foster climate change resilience, including measures to protect Coastal Douglas fir, foreshore and nearshore environments and groundwater.
- Develop i) a set of climate change, demographic and environmental data and ii) performance criteria in order to identify the effects of climate change in the Trust Area and to measure mitigation and adaption efforts.

3 **RELEVANT POLICY(S):**

- ITC Regional Conservation Plan Goal 1, Goal 3

4 **ATTACHMENT(S):**

- *Climate Projections for Islands Trust Area*, Final Report produced by Pinna Sustainability for Islands Trust Conservancy, March 2020
- *Project Charter* for Climate Change Impacts Project, V1.0, May 2020

RESPONSE OPTIONS

Recommendation:

1) **That the Islands Trust Conservancy Board approve the Climate Change Project Charter as drafted.**
2) **That the Islands Trust Conservancy endorse the expenditure of $7,392.63 for the securement of the Climate Projections for Islands Trust Area Report.**

Alternative: As determined by the Board.

Prepared By: Kathryn Martell, A/Ecosystem Protection Specialist

Reviewed By/Date: Kate Emmings, A/ITC Manager / May 15, 2020

Climate Projections for Islands Trust Area

March 2020



Prepared by: Pinna Sustainability

Table of Contents

Table of Contents ***2***
Introduction ***3***
Methodology *3*
Climate Indicators for Islands Trust Area ***6***
Summary *6*
Projections Indicators *6*
Climate Projection Tables Details *7*
Summer Temperature Indicators *8*
1.1 Annual Hottest Day *8*
1.2 Days over 25°C *10*
1.3 Days over 30°C *12*
1.4 Growing Degree-Days *14*
1.5 Growing Season Length *16*
Winter Temperature Indicators *17*
2.1 Warmest Winter Day *17*
2.2 Coldest Day *19*
2.3 Frost Days *21*
2.4 Ice Days *23*
Precipitation Indicators *24*
3.1 Seasonal Precipitation *24*
3.2 Maximum 1-Day Total Precipitation *26*
3.3 Maximum 5-Day Total Precipitation *27*
3.4 1-in-20 wettest day *28*
3.5 Wettest Days *29*
3.6 Dry Spells *30*
Ocean Indicators *32*
4.1 Sea Level Rise *32*
4.2 Ocean Surface Temperatures *33*
4.3 Ocean Acidification *33*
4.4 Ocean Deoxygenation *34*
Regional Impacts ***35***
Recommendations ***38***

Introduction

Rising temperatures, changes to seasonal precipitation patterns and more extreme weather events are challenging our unique ecosystems. With a mandate to preserve and protect the islands, it is important for Islands Trust to understand how climate change will continue to challenge our terrestrial and aquatic ecosystems, and use this information to inform the Islands Trust Conservancy's conservation planning initiatives and property securement and management actions.

This memo provides climate projections and potential impacts for the Islands Trust Area to support decision-making around how to adapt future acquisition and stewardship of land to appropriately consider climate change. The first section offers key indicators of temperature and precipitation that display how conditions are expected to change within the Islands Trust Area's land, waters and surrounding ocean in the 2050s and 2080s.[1] The second section describes how these projected changes are expected to impact biodiversity, as well as terrestrial, aquatic and oceanic ecosystems.

Methodology

This memo provides regional and site-specific past and future values for climate indicators based on an ensemble of 12 global climate models developed by the Pacific Climate Impacts Consortium (PCIC) that describe climate projections. The climate projections presented in this memo are based on a "business as usual" greenhouse gas emission scenario, using the Representative Concentration Pathway of 8.5 (RCP8.5) within these models.

The projection data was accessed from two different sources:

1. Regional data from PCICs database. This source includes the data for Region 1, and maps for the Area which are offered throughout this memo. This data is not publicly available.
2. Site-specific data accessed through the web portal climatedata.ca.[2] This data is for each region in the data tables.

In many cases, there are two sources of data for Region 1 (PCIC and Climatedata.ca), resulting in two entries for Region 1 data in each table. Additionally, PCIC data includes climate indicators that were not available on climatedata.ca: growing season length, warmest winter day, seasonal precipitation, maximum 5-day total precipitation, 1-in-20 wettest day, 95th and 99th percentile wettest days, and dry spells. In these instances, Region 1 data is provided, and maps of the whole Area, where available. Maps are available only for the 2050s timeframe.

[1] These time periods were chosen based on available data.

[2] Information about modelling can be found here: https://climatedata.ca/about/

For more information on the methodology used to develop these climate projections, please refer to the Capital Regional District (CRD) Climate Projection report.[3] A detailed glossary of terms to support interpretation is available at https://climatedata.ca/glossary/.

The Islands Trust Area was divided into four regions based on available data and local climatic differences. The four 'regions' are summarized in Table 1 and displayed in Figure 1.

Table 1: Island Trust Area region descriptions.

		Site	Source
Region 1	Southern Gulf Islands (CRD)	Southern Region	PCIC Database – Region 1 data including Saturna, Mayne, Galiano, N /S Pender, Saltspring, Sidney, Moresby, and surrounding islets
	Saltspring Island	Saltspring Island	climatedata.ca – Location specific data PCIC Database – Regional maps
Region 2	Gabriola & Thetis Islands	Mudge Island	climatedata.ca – Location specific data PCIC Database – Regional maps
Region 3	Howe Sound	Gambier Island	climatedata.ca – Location specific data PCIC Database – Regional maps
Region 4	Northern Gulf Islands	Denman Island	climatedata.ca – Location specific data PCIC Database – Regional maps

[3] Capital Regional District, 2017, "Climate Projections for the Capital Region", 59 pgs, available at https://www.crd.bc.ca/docs/default-source/climate-action-pdf/reports/2017-07-17_climateprojectionsforthecapitalregion_final.pdf.

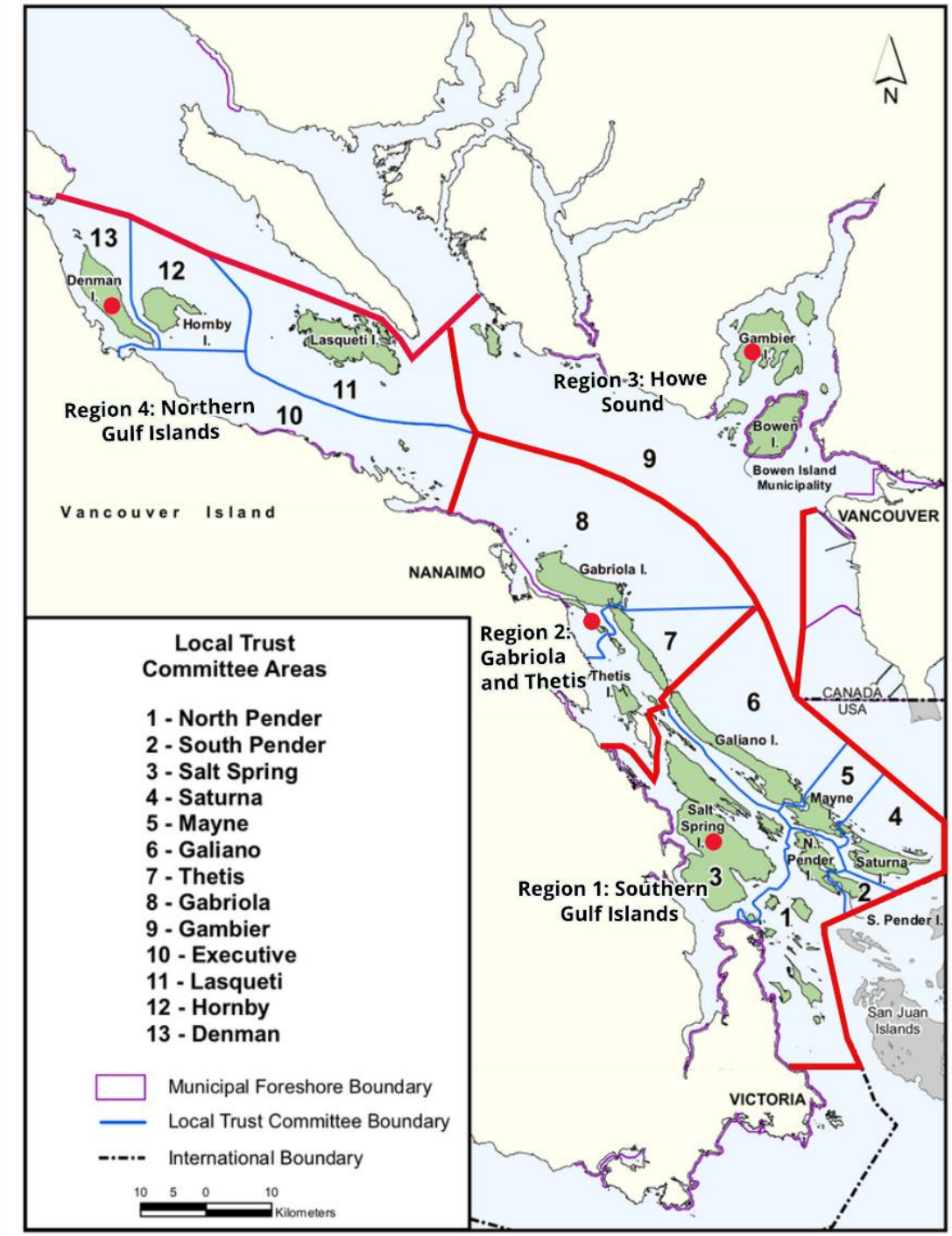

Figure 1: Island Trust Area divided into Regions used for climate projection analyses. Red dots indicate the location of the PICS data sites, given in table 1 above.

Climate Indicators for Islands Trust Area

Summary

In general, rising temperatures, changes to seasonal precipitation patterns and more extreme weather events are already affecting the Islands Trust Area, and we can continue to expect:

- Warmer summer temperatures, with hotter and more extreme heat days in summer.
- Warmer nights and a longer growing season.
- Warmer winter and summer temperatures.
- Less rain and longer droughts in the summer months.
- More precipitation and intense storms.
- Rising sea levels.
- Increasing acidity and temperatures, and reduction of oxygen levels in global ocean waters.

Projections Indicators

The following indicators were selected based on data availability and their applicability to future securement and stewardship of land. For each indicator, plain language definitions are given, along with average annual (or seasonal) projected values for the 2050s, and the 2080s, for each of the four regions in the Islands Trust Area, when available.

Summer Temperature Indicators

1.1 Annual hottest day
1.2 Days over 25°C
1.3 Days over 30°C
1.4 Growing Degree-Days
1.5 Growing Season Length

Winter Temperature Indicators

2.1 Warmest Winter Day
2.2 Coldest Day
2.3 Frost Days
2.4 Ice Days

Precipitation Indicators

3.1 Seasonal Precipitation
3.2 1-in-20 wettest day precipitation
3.3 Maximum 1-Day Total Precipitation
3.4 Maximum 5-Day Total Precipitation
3.5 95th and 99th percentile wettest days
3.6 Dry spells

Ocean Indicators

4.1 Sea Level Rise
4.2 Surface temperature
4.3 Ocean acidification
4.4 Deoxygenation

Climate Projection Tables Details

In the tables below, climate indicators are provided in column A. Past values are in column B. Average values for climate projections derived from 12 global climate models are presented for 2050 and 2080 in columns C, and D, along with the range (upper bound and lower bound) of the models below in brackets. Projections are based on a RCP8.5 (business as usual) climate scenario and do not anticipate impacts of reduction of global emissions. The following terms in the projection tables are explained below:

- **Past** refers to the average value over a 30-year period between 1970-2000. These values are based on historical and measured data.
- **2050** refers to the projected average value over the 30-year period between 2040-2070.
- **2080** refers to the projected average value over the 30-year period 2070-2100.
- **Percent Change** refers to the average percent change from the baseline past value.
- **(Range)** refers to the 10th and 90th percentile values given by the 12 models.

Summer Temperature Indicators

1.1 Annual Hottest Day

About this Indicator: Hottest day refers to the highest daytime high temperature of the year, usually experienced during the summer months. The annual high for each year is an indicator of extreme temperatures and is averaged over a 30-year period. This measure helps us predict what to expect for annual hotter temperatures.

Projections:

- The past average annual hottest day temperature varied from 30 to 32°C for the Islands Trust Area, with the Northern Gulf Islands region experiencing slightly hotter temperatures, and the Howe Sound and the Southern Gulf Islands regions experiencing slightly cooler temperatures.
- Temperature of the Annual Hottest Day will increase to about 33 to 34°C by the 2050s, and to 35 to 36°C by the 2080s.

Table 2: Annual Hottest Day

			2050s (°C)		2080s (°C)	
		Past (°C)	Average	Range	Average	Range
Region 1	Southern Gulf Islands (CRD)	30	33	(32 to 34)	36	(34 to 38)
	Saltspring Island	31	34	(32 to 37)	36	(33 to 40)
Region 2	Gabriola & Thetis Islands	32	33	(32 to 37)	36	(33 to 40)
Region 3	Howe Sound	31	33	(31 to 36)	35	(32 to 38)
Region 4	Northern Gulf Islands	32	34	(31 to 37)	36	(32 to 39)

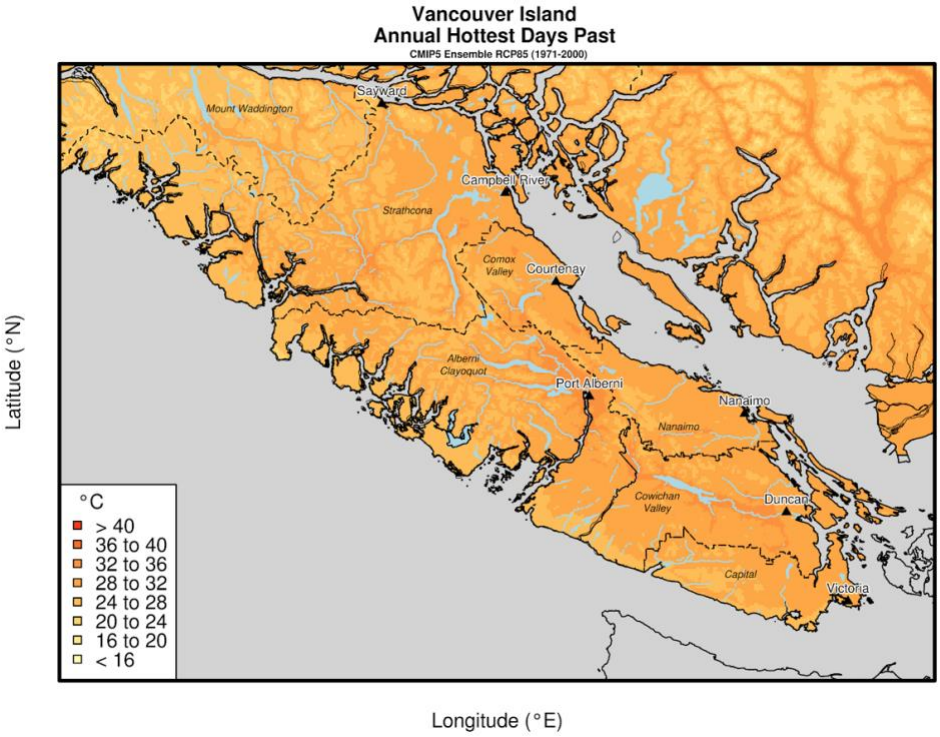

Figure 2: Annual Hottest Day - Past

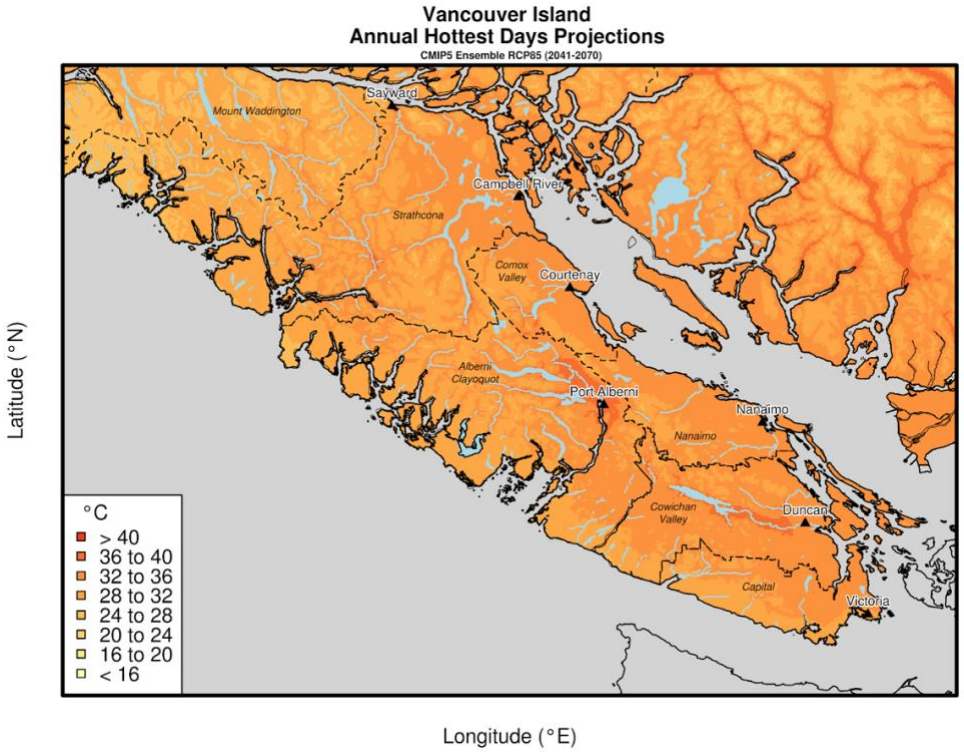

Figure 3: Annual Hottest Day - Future (2050s)

1.2 Days over 25°C

About this Indicator: This is the number of days when daily maximum temperature is greater than 25°C and gives an indication of the number of days with 'summer-like' temperatures. Values are calculated based on a 30-year average.

Projections:

- The past number of days over 25°C each year varied from 17 to 23 for the Area, with the Southern Gulf Islands and Howe Sound regions on average experiencing fewer summer days and the Northern Gulf Islands and Gabriola & Thetis regions experiencing more.
- The number of days per year over 25°C is projected to increase by approximately 30 days by the 2050s, and by about 60 days by the 2080s. Total days are offered in the tables below.

Table 3: Days over 25℃

		Past (days)	2050s (days)		2080s (days)	
			Average	Range	Average	Range
Region 1	Southern Gulf Islands (CRD)	17	54	(40 to 68)	82	(57 to 107)
	Saltspring Island	19	46	(29 to 70)	81	(58 to 113)
Region 2	Gabriola & Thetis Islands	23	54	(34 to 75)	89	(62 to 122)
Region 3	Howe Sound	18	47	(27 to 72)	84	(58 to 108)
Region 4	Northern Gulf Islands	21	55	(34 to 74)	91	(60 to 120)

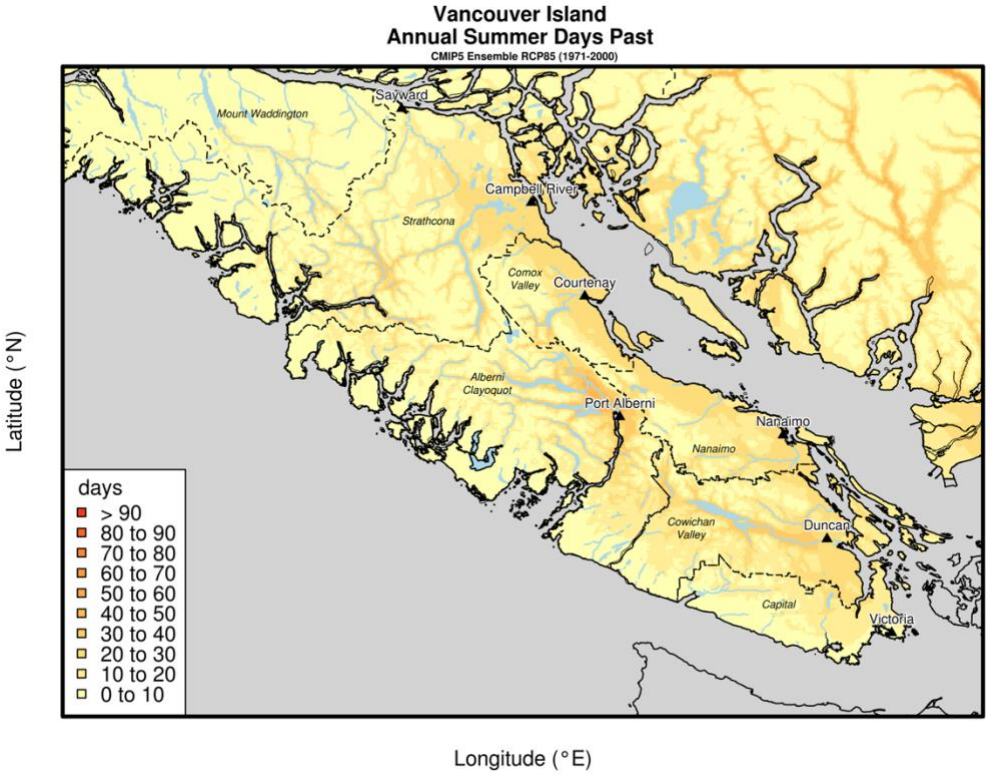

Figure 4: Days over 25℃ - Past

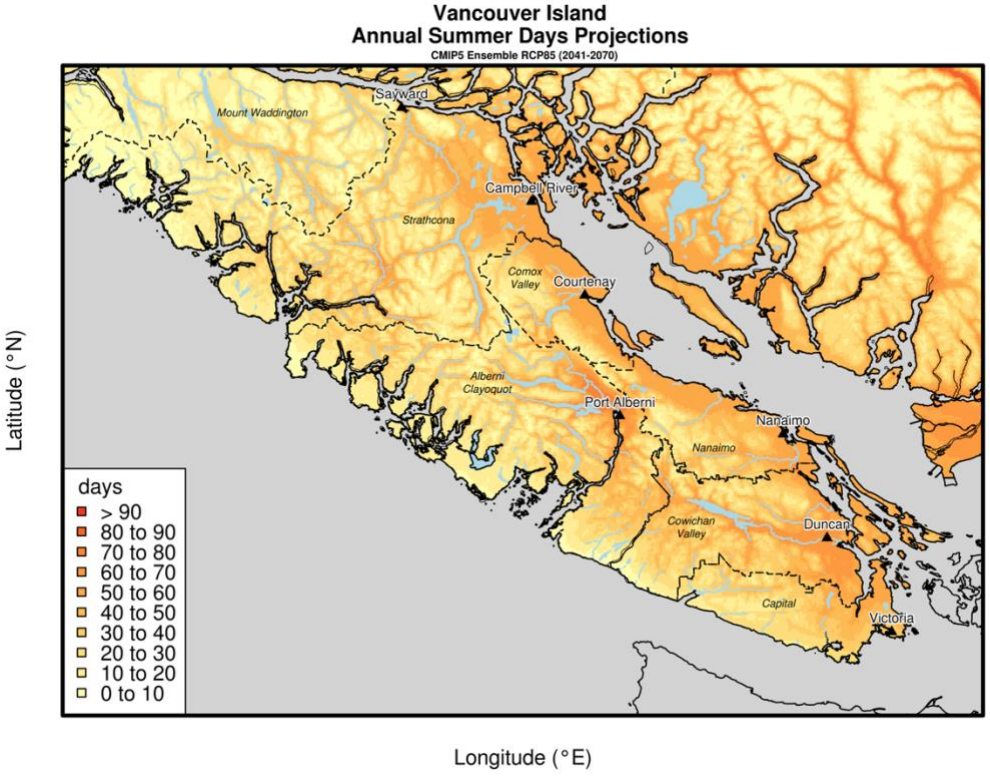

Figure 5: Days above 25℃ - Future (2050s)

1.3 Days over 30°C

About this Indicator: This is the number of days when daily maximum temperature is greater than 30°C and gives an indication of the number of higher temperature summer days.

Projections:

- In the past, the Area experienced 1 to 2 days over 30°C on average.
- Across the Islands Trust Area, annual number of higher temperature summer days will increase by about 5 to 8 by the 2050s, and by 20 to 30 days by the 2080s, with the Northern Gulf Islands experiencing the largest increase, and Howe Sound experiencing the lowest increase for the Area. Total days are offered in the tables below.

Table 4: Days over 30℃

		Past (days)	2050s (days)		2080s (days)	
			Average	Range	Average	Range
Region 1	Southern Gulf Islands (CRD)	n/a[4]	n/a	n/a	n/a	n/a
	Saltspring Island	2	7	(3 to 24)	22	(9 to 60)
Region 2	Gabriola & Thetis Islands	2	10	(3 to 24)	27	(11 to 66)
Region 3	Howe Sound	1	6	(2 to 23)	21	(8 to 60)
Region 4	Northern Gulf Islands	2	9	(3 to 24)	33	(10 to 60)

[4] There is no available data at a Southern Gulf Islands regional level from PCIC on this indicator.

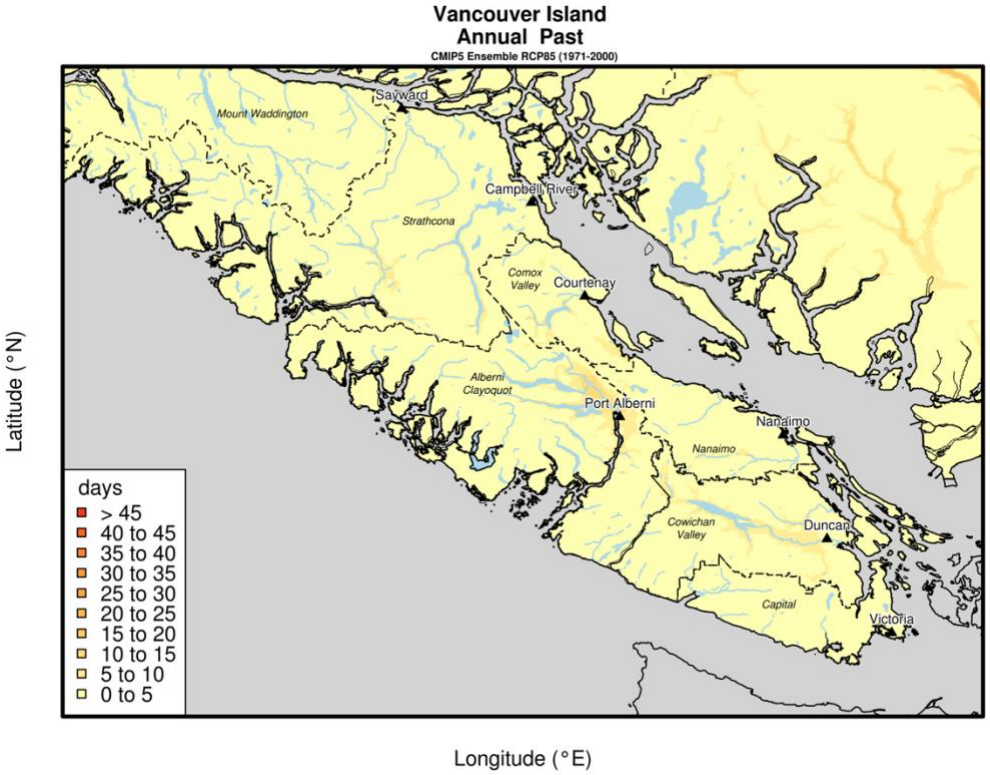

Figure 6: Days over 30℃ – Past

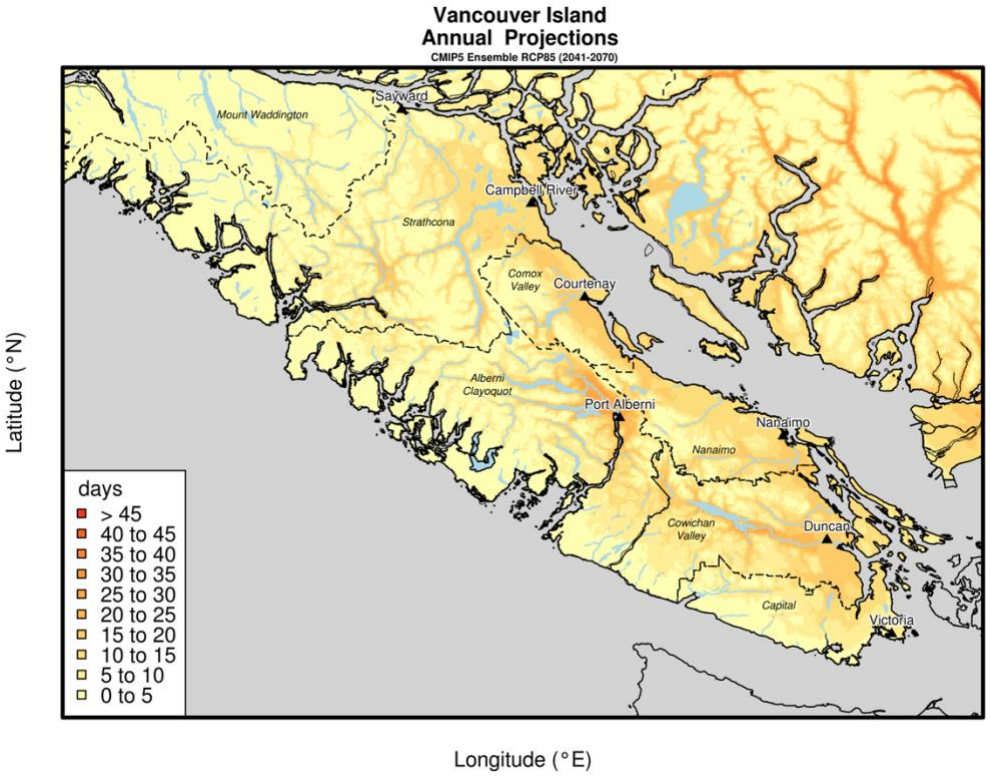

Figure 7: Days over 30℃ - Future (2050s)

1.4 Growing Degree-Days

About this Indicator: Growing degree-days is a measure of whether climate conditions are warm enough to support plant growth. When the daily mean temperature exceeds the threshold temperature, growing degree-days are accrued. A threshold temperature of 5°C was used, as it is generally used to calculate growing degree-days for forage crops in this region. This indicator also has relevance to native plants. For example, degree-days over 5°C have been used to model the geographic distribution of areas climatically suited to Garry oak ecosystems.[5]

Projections:

- The past growing degree-days varied from 1,900 to 2,100 for the Area.
- Growing degree-days will increase by about 45% by the 2050s, and by about 65% by 2080s, with the Northern Gulf Islands experiencing the largest increase, and Howe Sound and the Southern Gulf Islands (CRD) experiencing the lowest increase for the Area.

Table 5: Growing Degree-Days

		Past (degree-days)	2050s (degree-days)			2080s (degree-days)		
			Average	Range	Percent Change	Average	Range	Percent Change
Region 1	Southern Gulf Islands (CRD)	2,000	2,900	(2,500 – 3,300)	45%	3,500	(2,900 – 4,000)	75%
	Saltspring Island	1,900	2,700	(2,331 – 3,037)	42%	3,200	(2,800 – 3,900)	68%
Region 2	Gabriola & Thetis Islands	2,100	2,900	(2,500 – 3,200)	38%	3,400	(3,000 – 4,200)	62%
Region 3	Howe Sound	1,950	2,700	(2,400 – 3,100)	38%	3,200	(2,900 – 4,000)	64%
Region 4	Northern Gulf Islands	2,000	2,700	(2,400 – 3,000)	35%	3,200	(2,900 – 4,000)	60%

[5] Pellatt et. al. 2007. *Fire History and Ecology of Garry Oak and Associated Ecosystems in British Columbia*. Parks Canada. Available at https://www.researchgate.net.

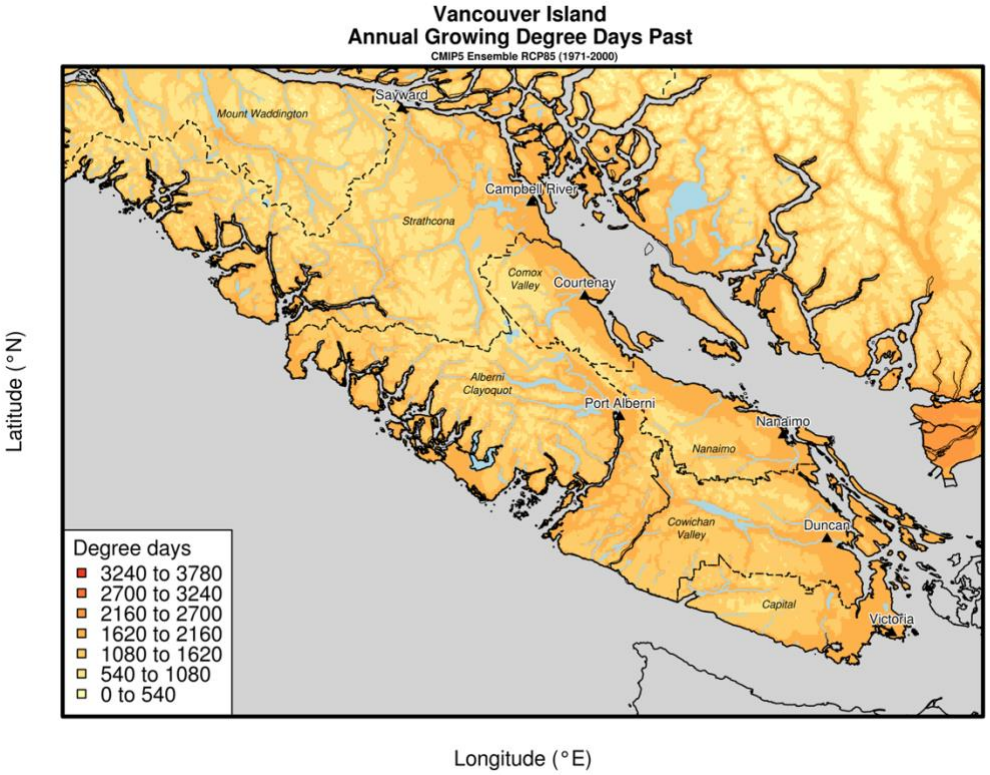

Figure 8: Growing Degree-Days - Past

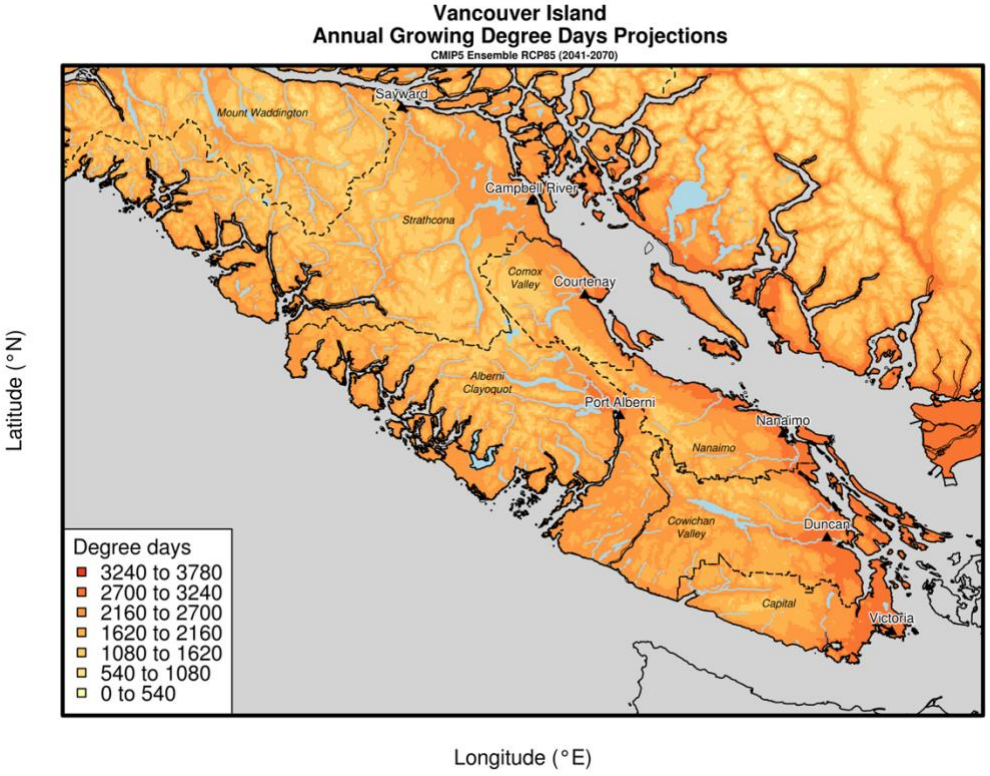

Figure 9: Growing Degree-Days - Future (2050s)

1.5 Growing Season Length

About this Indicator: Growing season length is an annual measure that counts the number of days between the first span of at least 6 days with a daily average temperature greater than 5°C and the first span after July 1 of 6 days with temperature less than 5°C. While each plant species has unique environmental cues to start and end its annual growth cycle, this growing season metric is a widely used general indicator of the timing of plant photosynthetic activity, and indicates the length of the growing season for typical plants or crops.

Projections:

- The past growing season length was on average 300 days in the Southern Gulf Islands.
- Growing season length will increase by 15% in the 2050s, and by 20% in the 2080s.

Table 6: Growing Season Length

		Past (days)	2050s (days)			2080s (days)		
			Average	Range	Percent Change	Average	Range	Percent Change
Region 1	Southern Gulf Islands (CRD)	300	345	(340 - 350)	15%	360	(355 – 360)	20%

Winter Temperature Indicators

2.1 Warmest Winter Day

About this indicator: Warmest winter day is the highest temperature recorded during the winter months, in an average year. Winter is considered to be the months of December, January, and February.

Projections:

- The past warmest winter day ranged from 4 to 8°C.
- Warmest winter temperatures will increase for the Southern Gulf Islands to about 9°C by the 2050s, and to 11°C by 2080s.
- Regional data are available only for the Southern Gulf Islands (CRD). The remainder of the Warmest winter day projections for the other regions have been estimated from the maps (Figure 10 and Figure 11).

Table 7: Warmest Winter Day

		Past (°C)	2050s (°C)		2080s (°C)	
			Average	Range	Average	Range
Region 1	Southern Gulf Islands (CRD)	7	9	(8 to 10)	11	(10 to 13)
	Saltspring Island	(4-8)	(8-12)	n/a	n/a	n/a
Region 2	Gabriola & Thetis Islands	(4-8)	(8-12)	n/a	n/a	n/a
Region 3	Howe Sound	(4-8)	(8-12)	n/a	n/a	n/a
Region 4	Northern Gulf Islands	(4-8)	(8-12)	n/a	n/a	n/a

Note: Site-specific data is not available as climatedata.ca does not provide data on warmest winter day indicator. The range for Past and 2050s average the values based off the maps below.

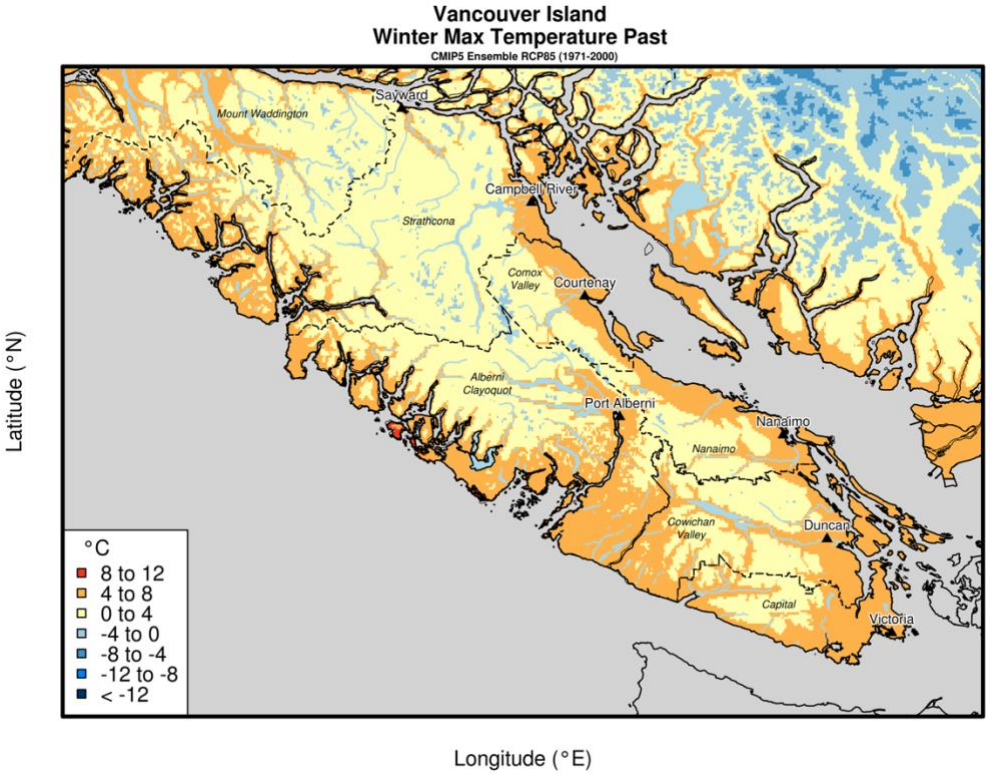

Figure 10: Warmest Winter Day – Past

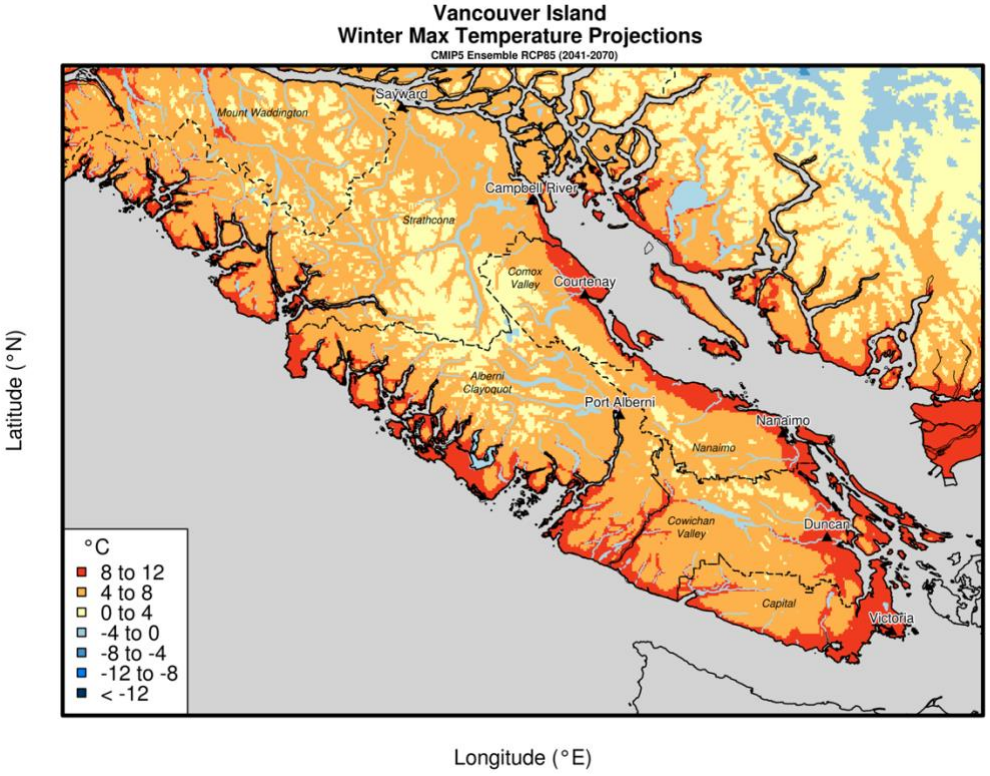

Figure 11: Warmest Winter Day - Future (2050s)

2.2 Coldest Day

About this indicator: Coldest day is the lowest minimum temperature value in this time period, usually experienced at nighttime during winter months.

Projections:

- The past coldest day in the region was on average -8°C.
- Average annual coldest day temperatures will increase by about 3°C by the 2050s, and by about 7°C by 2080s.

Table 8: Coldest Day

		Past (°C)	2050s (°C)		2080s (°C)	
			Average	Range	Average	Range
Region 1	Southern Gulf Islands (CRD)	-8	-4	(-5 to -2)	-2	(-3 to 0)
	Saltspring Island	-7	-3	(-6 to 0)	0	(-4 to 4)
Region 2	Gabriola & Thetis Islands	-8	-2	(-6 to 0)	0	(-4 to 4)
Region 3	Howe Sound	-9	-4	(-7 to 0)	0	(-4 to 4)
Region 4	Northern Gulf Islands	-8	-4	(-7 to 0)	-1	(-4 to 3)

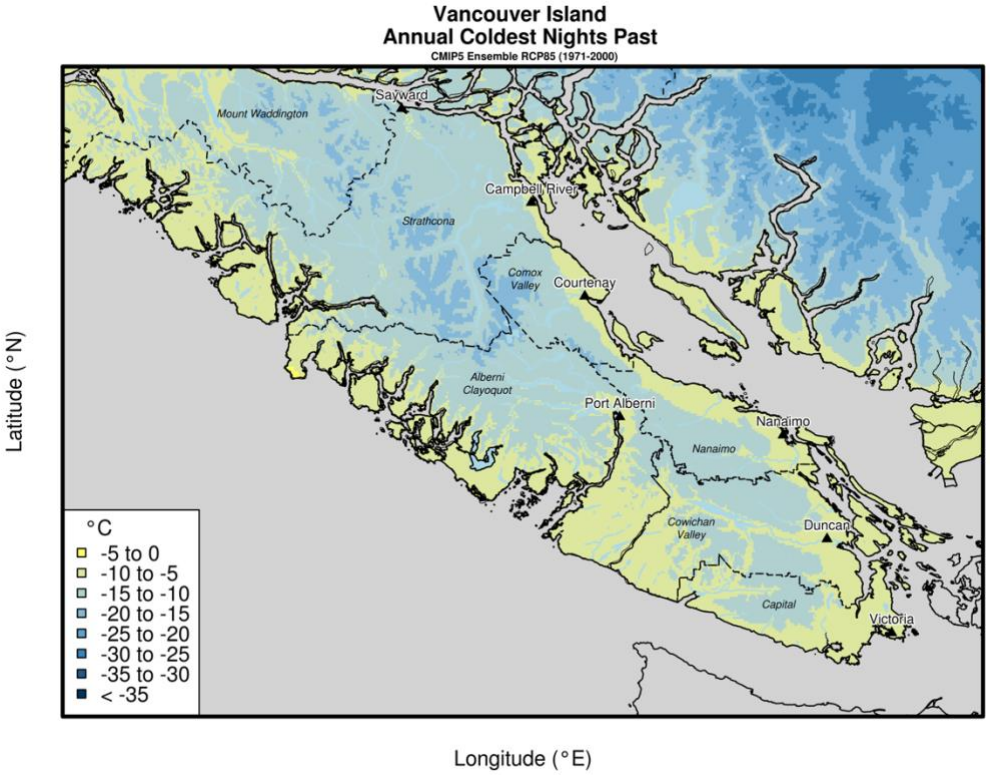

Figure 12: Coldest Day – Past

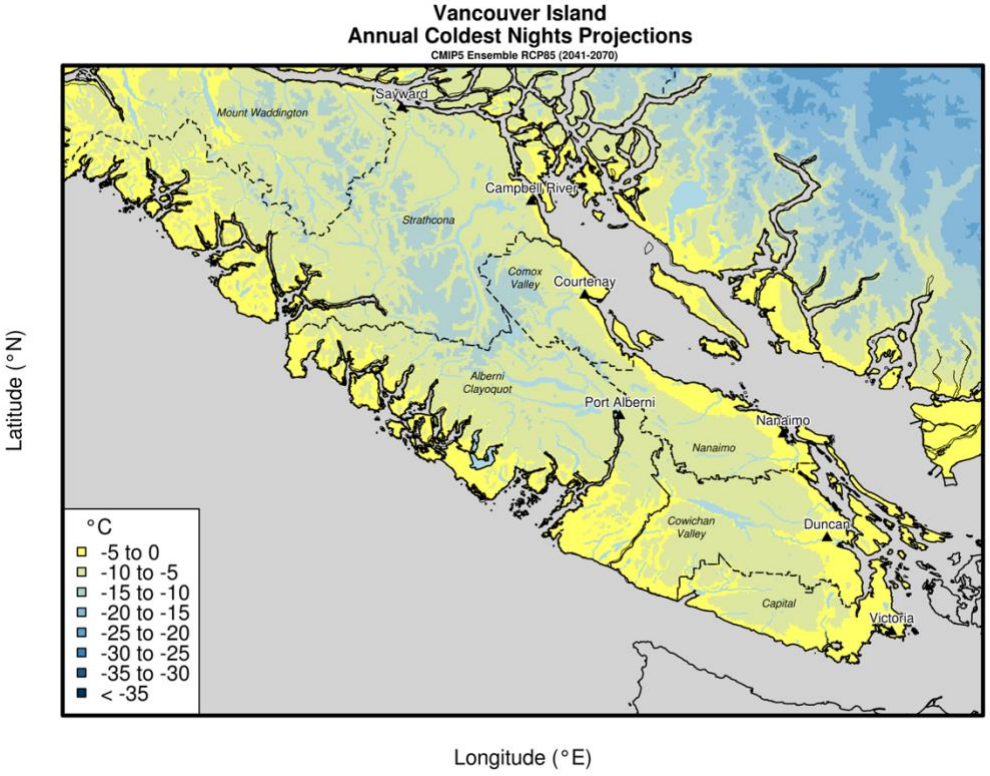

Figure 13: Coldest Day - Future (2050s)

2.3 Frost Days

About this indicator: Frost Days is the number of days when daily minimum temperature is less than 0°C and indicates when conditions are below freezing, usually overnight.

Projections:

- The past average annual number of frost days varied from 40 to 50 for the Area.
- This number will decrease by just over 30 days by the 2050s, and frost days will nearly never occur by the 2080s.

Table 9: Frost Days

		Past (days)	2050s (days)		2080s (days)	
			Average	Range	Average	Range
Region 1	Southern Gulf Islands (CRD)	40	9	(4 to15)	3	(0 to 8)
	Saltspring Island	45	9	(0 to 27)	1	(0 to 13)
Region 2	Gabriola & Thetis Islands	40	7	(0 to 26)	1	(0 to 10)
Region 3	Howe Sound	40	9	(0 to27)	1	(0 to 11)
Region 4	Northern Gulf Islands	50	9	(1 to 30)	2	(0 to 16)

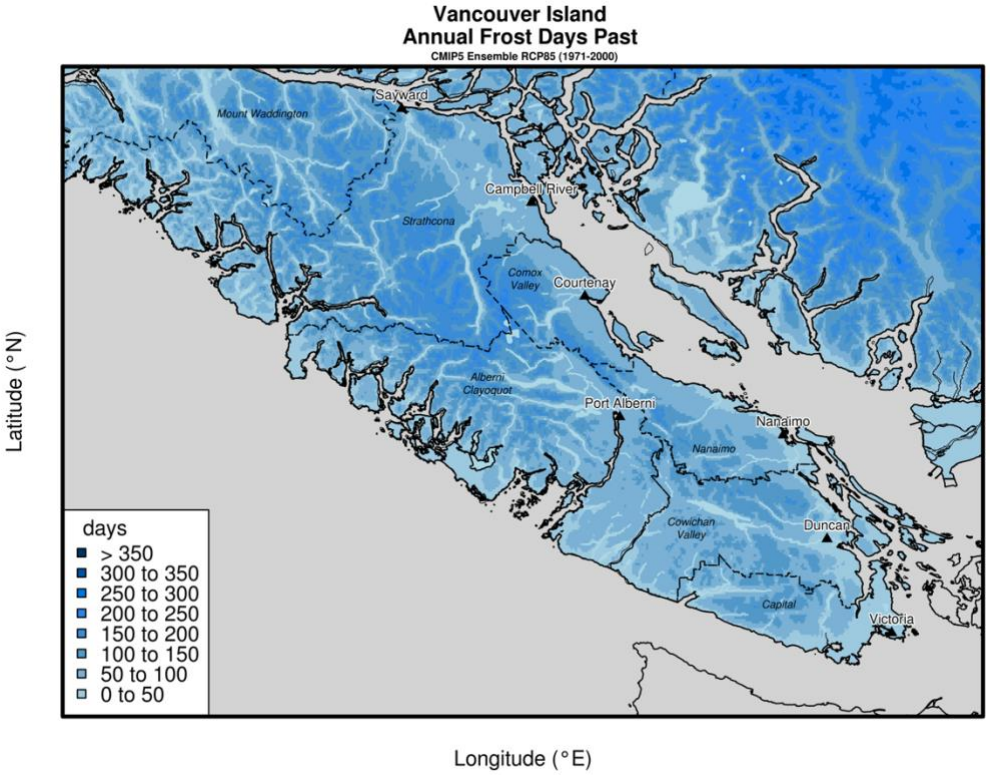

Figure 14: Frost Days - Past

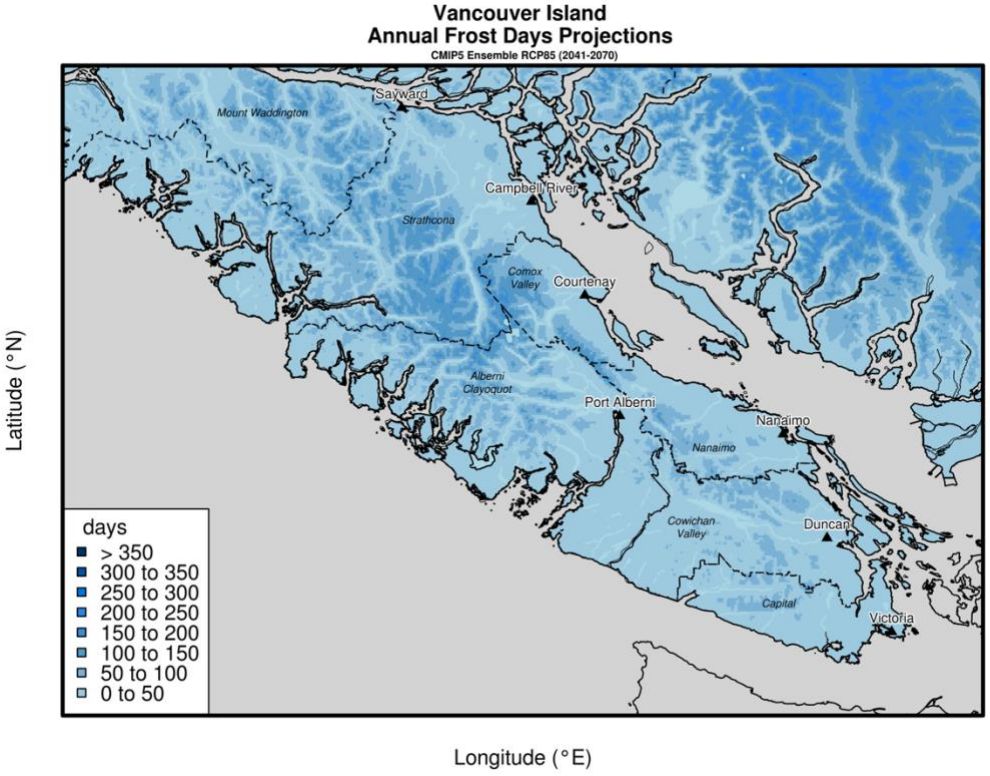

Figure 15: Frost Days – Future (2050s)

2.4 Ice Days

About this indicator: Ice days refers to the number of days when the daily maximum temperature does not exceed 0°C.

Projections:

- In the past, there were approximately 2-3 ice days a year, on average.
- By the 2050s there will be a very low chance of an ice day, and by the 2080s, temperatures will almost never remain below freezing all day.

Table 10: Ice Days

		Past (days)	2050s (days)		2080s (days)	
			Average	Range	Average	Range
Region 1	Southern Gulf Islands (CRD)	3	1	(0 to 2)	0	(0 to 1)
	Saltspring Island	3	0	(0 to 2)	0	(0 to 1)
Region 2	Gabriola & Thetis Islands	2	0	(0 to 1)	0	(0 to 0)
Region 3	Howe Sound	3	1	(0 to 2)	0	(0 to 1)
Region 4	Northern Gulf Islands	2	0	(0 to 1)	0	(0 to 0)

Note: The maps were not useful for this measure, as the degree of change was too small to be viewed for this region.

Precipitation Indicators

3.1 Seasonal Precipitation

About this indicator: Seasonal precipitation is all precipitation summed over the season, including rain and snow water equivalent. This is a high-level indicator of how precipitation patterns can be expected to change.[6]

Projections:

- The past summer precipitation total was about 80 mm for the Southern Gulf Islands, and between 100 – 200mm for the other regions.
- For the Southern Gulf Islands, summer precipitation will decrease by approximately 20% (to ~70 mm) in the 2050s and by 27% (to ~61 mm) in the 2080s.
- For the Southern Gulf Islands, Fall precipitation will increase by approximately 15% in the 2050s and by 25% in the 2080s.

Table 11: Seasonal Precipitation for Region 1: South Gulf Islands (CRD)

	Past (mm)	2050s (Percent change)		2080s (Percent change)	
		Average	Range	Average	Range
Summer	84	-19%	(-44 to 3)	-27%	(-51 to -5)
Fall	272	13%	(5 to 29)	24%	(9 to 47)
Winter	388	4%	(-2 to 12)	15%	(2 to 27)
Spring	174	7%	(-5 to 15)	10%	(-1 to 25)

[6] Seasons refer to Summer (June, July, August), Fall (September, October, November), Winter (December, January, February), Spring (March, April, May).

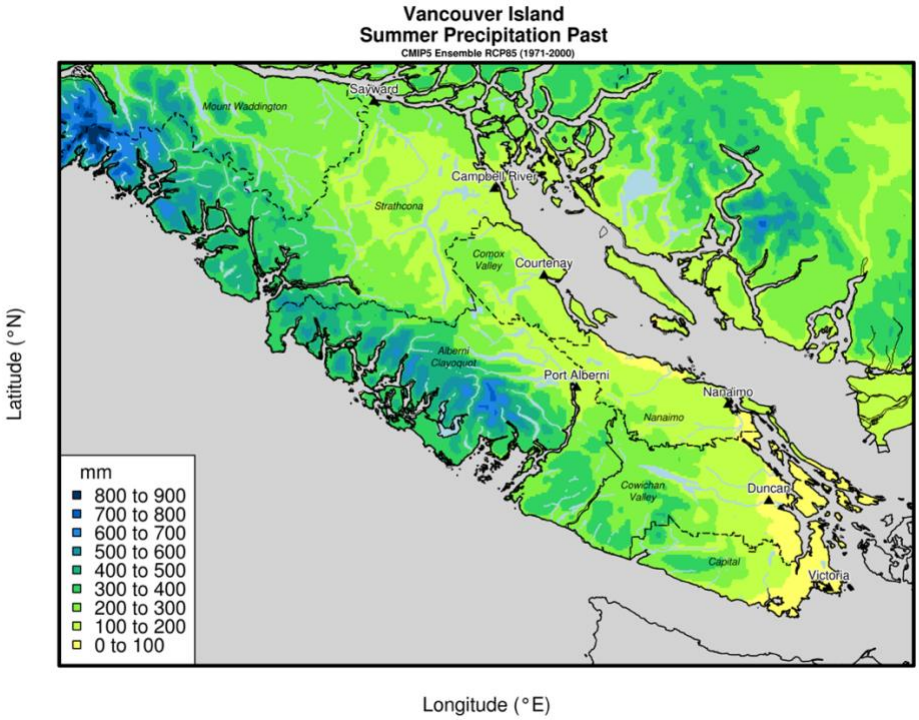

Figure 16: Summer Precipitation - Past

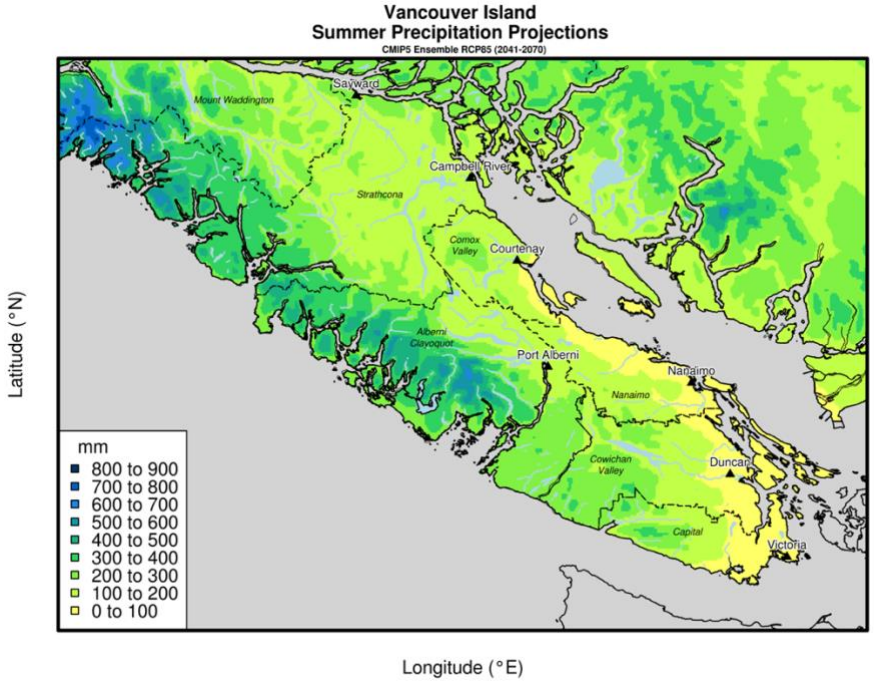

Figure 17: Summer Precipitation – Future (2050s)

Note that for the other seasons, maps are not shown as they do not show interpretable changes within the Islands Trust Area as the scale of the maps is too large relative to that of predicted changes.

3.2 Maximum 1-Day Total Precipitation

About this indicator: Single-day annual maximum precipitation describes the amount of precipitation that falls on the wettest day of the year, on average.

Projections:

- The wettest single day of the year will see an average of 15% more rain by the 2050s, and up to 35% more by the 2080s for the Southern Gulf Islands.
- Howe Sound and the Northern Gulf Islands will see an approximate increase of just over 10% by the 2050s, on average, and approximately 15% by the 2080s.
- The southern portion of this Area will see a larger percentage change in precipitation than the northern.

Table 12: Maximum 1-Day Total Precipitation

		Past (mm)	2050s Average (mm)	2050s Range (mm)	2050s Percent change	2080s Average (mm)	2080s Range (mm)	2080s Percent change
Region 1	Southern Gulf Islands (CRD)	42	49	(43 to 58)	17%	56	(47 to 64)	35%
	Saltspring Island	42	49	(39 to 76)	17%	51	(42 to 60)	21%
Region 2	Gabriola & Thetis Islands	41	47	(34 to 71)	15%	50	(38 to 57)	22%
Region 3	Howe Sound	70	77	(60 to 107)	10%	83	(63 to 106)	18%
Region 4	Northern Gulf Islands	60	68	(48 to 89)	13%	67	(53 to 89)	12%

3.3 Maximum 5-Day Total Precipitation

About this indicator: Five-day annual maximum precipitation describes the largest amount of rain that falls over a period of 5 consecutive days in the year.

Projections:

- The wettest five-day total precipitation event in the summer will see a decrease in rain of approximately 7% by the 2050s, and 8% more by the 2080s;
- The wettest five-day total precipitation amount in Fall will increase by approximately 15% in 2050s and 35% in the 2080s.

Table 13: Maximum 5-Day Total Precipitation for Region 1: Southern Gulf Islands

	Past	2050s			2080s		
	(mm)	Average (mm)	Range (mm)	Percent Change (%)	Average (mm)	Range (mm)	Percent Change (%)
Summer	29	27	(20 to 31)	-7	26	(18 to 31)	-8
Fall	70	81	(67 to 105)	16	93	(79 to 111)	33
Winter	83	89	(85 to 95)	7	97	(84 to 105)	17
Spring	42	47	(38 to 54)	12	49	(43 to 54)	16

3.4 1-in-20 wettest day

About this indicator: The 1-in-20 wettest day is the day so wet that it has only a 1-in-20 chance of occurring in a given year. That is, there is a 5% chance in any year that a 1-day rainfall event of this magnitude will occur. This indicator measures total annual precipitation during heavy precipitation events, which is a combination of both how often these events occur (frequency) and the size of these events (magnitude).

Projections:

- More precipitation is expected to fall during the 1-in-20 (or 5% chance) wettest day extreme storm events in the future. Larger 1-in-20 wettest day events could mean over 30% more rain falling during these events, on average, by the 2050s.
- There are expected to be more 1-in-20 day events in the future, which is indicated by the volume of precipitation.
- Note: Due to variability and timing of precipitation displayed through the seasonal precipitation indicator (3.1 above), more storms may not lead to more stormwater retention, groundwater and surface water recharge.

Table 14: 1-in-20 wettest day

		Past (mm)	2050s (mm)		2050s (Percent change)
			Average	Range	Average
Region 1	Southern Gulf Islands (CRD)	67	87	(65 to 119)	32%

3.5 Wettest Days

About this indicator: The 95th and 99th percentile wettest days precipitation indicator describes the number of days when precipitation exceeds a threshold set by the annual 95th (wettest days) and 99th (very wettest days) percentile of wet days during the baseline period (1971–2000). This measure indicates how many days will experience these heavy rain events, and very heavy rain days.

Projections:

- The amount of precipitation in 95th percentile wettest days will increase by approximately 30% by the 2050s, and 63% by the 2080s.
- The amount of precipitation in 99th percentile wettest days (the very wettest days) will increase by approximately 68% by the 2050s, and 138% by the 2080s.
- These increases are a product of more frequent heavy event days (more big storms), and wetter wet days (more rain falling during storms).
- It is likely that precipitation will be concentrated into the wettest days. The wettest days of the year could occur anytime from September to May. Historically, total precipitation has been highest in the winter months, but this may shift to the fall in the future.

Table 15: Region 1 - Southern Gulf Islands Wettest Days

	Past	2050s			2080s		
	(mm)	Average (mm)	Range (mm)	Percent Change (%)	Average (mm)	Range (mm)	Percent Change (%)
Wet Days (R95P)	201	260	(206 to 317)	30	327	(281 -386)	63
Very Wet Days (R99P)	62	102	(71 to 137)	68	145	(108 - 200)	138

3.6 Dry Spells

About this indicator: Dry spells are a measure of the number of consecutive days where daily precipitation is less than 1 mm. The value denotes the longest stretch of dry days in a year, typically in summer. This number does not indicate extreme droughts, as it is averaged over the 30-year period.

Projections:

- Dry spells lasted between 20 and 30 days in the past, on average.
- Dry spells will increase to 30 – 35 days by the 2050s for the Southern Gulf Islands region, and to approximately 37 days by 2080s, on average.

Table 16: Region 1 - Southern Gulf Islands (CRD) Dry Spells

		Past (days)	2050s (days)		2080s (days)	
			Average	Range	Average	Range
Region 1	Southern Gulf Islands (CRD)	27	33	(29 to 38)	37	(31 to 43)
Region 1	Saltspring Island	(25 – 30)	(30 – 35)	n/a	n/a	n/a
Region 2	Gabriola & Thetis Islands	(25 – 30)	(30 – 35)	n/a	n/a	n/a
Region 3	Howe Sound	(20 – 25)	(20 – 25)	n/a	n/a	n/a
Region 4	Northern Gulf Islands	(20 – 25)	(20 – 25)	n/a	n/a	n/a

Note: Site specific data is not available for this indicator from climatedata.ca. The range for Past and 2050s average values are calculated based off the maps below.

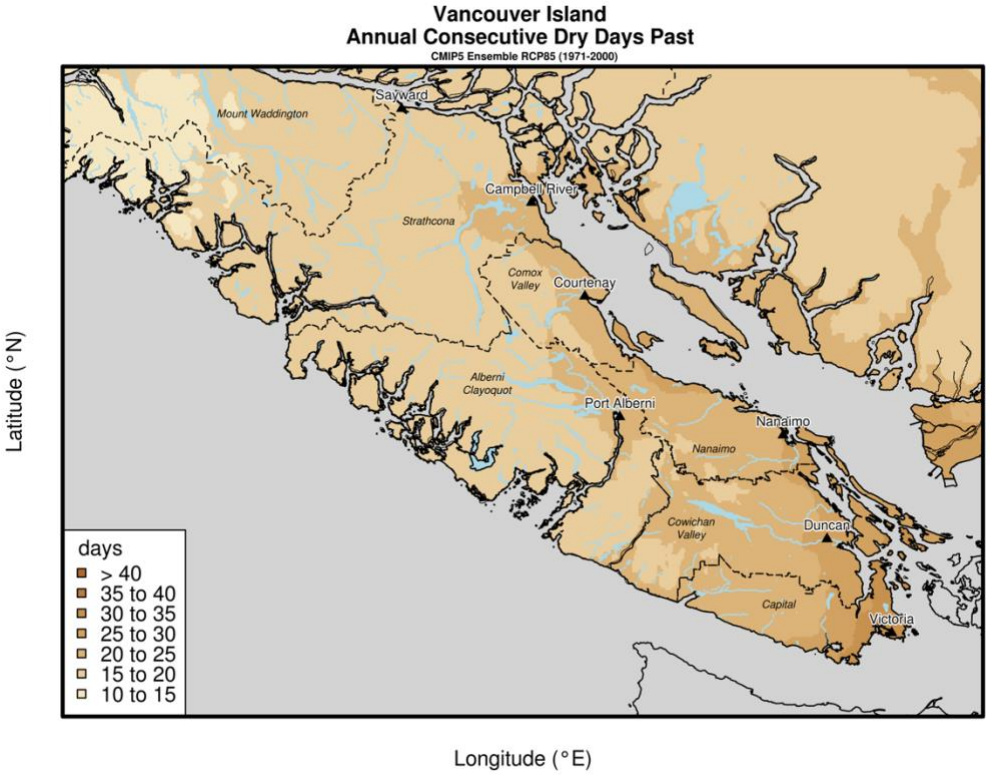

Figure 18: Dry Days - Past

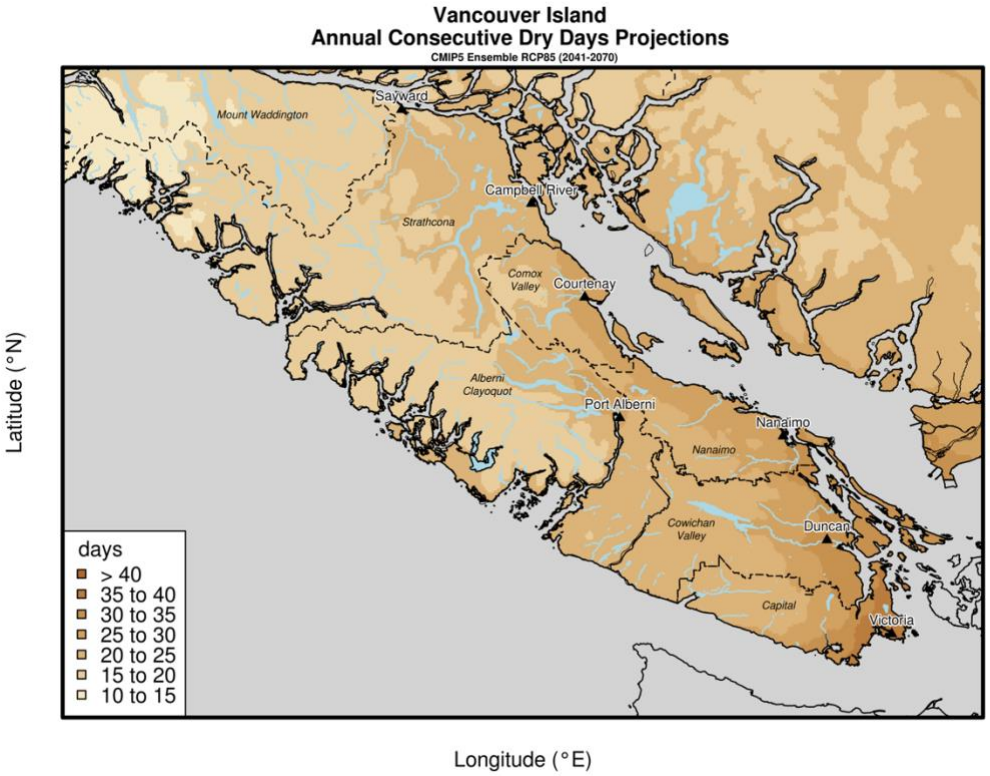

Figure 19: Dry Days - Future (2050s)

Ocean Indicators

4.1 Sea Level Rise

About this indicator: Sea level rise identified for coastal B.C. reflects the combined impacts of climate change and vertical land movements. Relative sea-level changes are displayed below, and are the changes in sea level that are observed or experienced relative to the solid surface of the Earth. The coast of B.C. is still rising from a geological process called post-glacial rebound—the rising of land due to past thinning and retreat of the massive ice sheet that once covered much of the province. In addition, the shifting of the tectonic plates generates vertical land motion in coastal B.C. causing parts of Vancouver Island to rise, and subduction in the Georgia Strait. These factors result in a difference in sea level rise across the region.

Projections:[7]

- Recent technical guidelines published by the Provincial government projected a sea level rise of half a metre by the year 2050, one metre by 2100 and two metres by 2200. Detailed local projections are offered in the bullets below.
- The past sea level rise varied from -0.3cm in North Saanich to 0.8cm in Vancouver.
- There will be an increase in sea level rise to between 15 and 20 cm in the 2050s, to between 34 and 42 cm in the 2080s.[8]

Table 17: Sea Level Rise

	Past 2007 (cm)	2050s (cm)		2080s (cm)	
		Average	Range	Average	Range
North Saanich	-0.3	15	(5 to 25)	34	(13 to 54)
Vancouver	0.8	20	(10 to 30)	42	(21 to 62)

Note: The table above is based on relative sea-level projections, for more information see James et al., 2015, report referenced in footnote 7 below.

[7] Sea level past level and projected rise is sourced from James et al, 2015. For more information see report: James, T.S., Henton, J.A., Leonard, L.J., Darlington, A., Forbes, D.L., and Craymer, M., 2015. Tabulated values of relative sea-level projections in Canada and the adjacent mainland United States; Geological Survey of Canada, Open File 7942, 81 p. doi:10.4095/297048.

4.2 Ocean Surface Temperatures

About this indicator: Ocean surface temperatures indicate the temperature in the top 100m of the ocean. Note that this indicator does not include local variability that may come from the influence of freshwater lenses on the ocean surface. For example, the Fraser River temperatures are predicted to increase and will likely have an impact on the east side of the Southern Gulf Islands, but this nuance is not included in this indicator.

Projections:

- The average global ocean surface temperature has increased at a rate of 1.1°C per century between 1971 and 2010, according to the Intergovernmental Panel on Climate Change (IPCC).[9]
- For the Strait of Georgia, the mean water temperature could be 1.5–3 °C warmer by the end of the 21st century.[10]
- Climate models project that average global ocean surface temperature will increase by 0.6°C to 2°C in the top 100m of the sea by the end of 2100. [11]

4.3 Ocean Acidification

About this indicator: Ocean acidification is the ongoing decrease in the pH of the ocean due to uptake of Carbon Dioxide from the atmosphere.

Projections:

- There is an overall global trend towards decreasing pH levels in the oceans, resulting in acidification.
- Since the industrial revolution, ocean pH has dropped from 8.2 to 8.1, and is expected to decrease to an average of ~7.7 pH level by 2091-2100.[12]

[9] Intergovernmental Panel on Climate Change. 2013. Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WGIAR5_SPM_brochure_en.pdf

[10] Riche O, Johannessen S, Macdonald R. 2014. Why timing matters in a coastal sea: Trends, variability and tipping points in the Strait of Georgia, Canada. Journal of Marine Systems. 2014 vol: 131 pp: 36-53. https://www.sciencedirect.com/science/article/pii/S092479631300225X

[11] British Columbia Ministry of Environment. (2016). Indicators of Climate Change for British Columbia: 2016 Update. Ministry of Environment, British Columbia, Canada.

[12] Canadian Centre for Climate Modelling and Analysis, Environment Canada, 2013.

4.4 Ocean Deoxygenation

About this indicator: Ocean deoxygenation is the expansion of oxygen minimum zones in the world's oceans as a consequence of anthropogenic emissions of carbon dioxide.

Projections:

- Research published in 2014 projects declining dissolved oxygen levels for the Northeast Pacific Ocean.[13]
- This century, dissolved oxygen is expected to decrease in the global ocean by 1–7%.[14]
- Changes to oxygen levels are occurring rapidly in the North Pacific Ocean, where oxygen has already decreased by 22% at depths of between 100 and 400 m during the last 50 years.[15]
- In the North Pacific Ocean, oxygen has decreased at a rate of 0.39–0.70 µM $year^{-1}$ or an integrated rate of 123 mmol m^{-2} $year^{-1}$. Canada's Pacific coast has experienced loss rates of 0.5 to 1.0 µM per year measured below the surface mixed layer.[16]

[13] T.A. Okey, H.M. Alidina, V. Lo, S. Jessen, Effects of climate change on Canada's Pacific marine ecosystems: a summary of scientific knowledge, Rev Fish Biol Fisheries. 24 (2014) 519–559. doi:10.1007/s11160-014-9342-1.

[14] Keeling RF, Kortzinger A, Gruber N (2010) Ocean deoxygenation in a warming world. Ann Rev Mar Sci 2:199–229. doi:10.1146/annurev.marine.010908.163855

[15] Batten S, Chen X, Flint EN, Freeland HJ, Holmes J, Howell E, Ichii T, Kaeriyama M, Landry M, Lunsford C, Mackas DL, Mate B, Matsuda K, McKinnell SM, Miller L, Morgan K, Peña A, Polovina JJ, Robert M, Seki MP, Sydeman WJ, Thompson SA, Whitney FA, Woodworth P, Yamaguchi A (2010) Status and trends of the North Pacific oceanic region, 2003–2008. In: McKinnell SM, Dagg MJ (eds) Marine ecosystems of the North Pacific Ocean, 2003–2008. PICES Spec Publ 4:56–105

[16] Crawford WR, Pena MA (2013) Declining oxygen on the British Columbia Continental Shelf. Atmos Ocean 51(1):88–103. doi:10.1080/07055900.2012.753028

Regional Impacts

The projected changes to our climate presented throughout this memo will have multiple impacts on the Islands Trust Area. This section provides an overview of the types of impacts we can expect as a result of the changing climate and is in no way an exhaustive snapshot of impacts. The impacts were gathered from a meeting with Islands Trust Conservancy staff, and research from neighbouring regions with similar ecological impacts.[17] Climate change will impact the Islands Trust Area in complex ways, as species that reside here are part of an interdependent system. Species may experience benefits from one change and stress from another and the variability and instability of climatic factors will stress all species and ecosystems.

Expected Impacts to our Ecosystems and Biodiversity

The changing climate will create undue stress to ecosystems and species which will ultimately impact biological diversity, species ranges and species health. Due to increased variability and higher temperatures, the Islands Trust Area can expect strains to sensitive habitats. Further, warmer temperatures will increase the likelihood of spread of invasive species and pests and pathogens, all of which have the potential to compromise native species.

Significant impacts to aquatic, marine and terrestrial species will come as a result of the changing climate. The Islands Trust Area can expect to see new species migrating to the region. The region can also expect the presence and range of some species (e.g. Western redcedar) to decline and contract, respectively, as the local climate becomes less suitable, with the potential for other species, such as Garry oak, to expand their range.

Specific threats to ecosystems and biodiversity include:

Earlier springs and longer growing season

Early springs and a longer growing season may cause species' reproductive and biological cycles to be out of sync with new conditions. The timing of pollination may be negatively affected, causing changes to occur within insect populations, and impacting the fruiting of plants. Finally, the changing climate in spring could increase pests and the introduction and spread of disease. For example, invasive species such as House Sparrows, rats, and domestic rabbits may be able to raise greater numbers of successful young.

The ability of native and non-native plant species to change the timing of life-cycle events may alter the extent and outcome of invasive species spread as climate changes. Non-native species are typically better able to adapt their lifecycles to temperature changes than native species. For example, recent studies show that non-native plants are better able than native species to flower earlier in response to earlier warm temperatures. Climate change may therefore promote invasion success and population persistence.[18]

[17] Cowichan Valley Regional District. (2017). Climate Projections for the Cowichan Valley Regional District. 46 pgs.

[18] For a recent field trial, see MA. Zettlemoyer, EH. Schultheis, JA. Lau. Phenology in a warming world: differences between native and non-native plant species**.** *Ecology Letters*, 2019; DOI: 10.1111/ele.13290

Warmer, drier summers

In general, the Islands Trust Area can expect to see a shortage of water during the summer months, increase in heat stress for plants, impacts on growth rates and a reduced quality of forage crops. Hotter, drier summers will increase risk of wildfires. This will result in ecosystem stress, stress of upland forest water-holding capacity, soil exposure, and erosion.

Increased summer temperatures could curb summer growing and, depending on precipitation patterns, result in a shift in growth to spring and fall with a potential dormant period in the summer due to drought. Further, the Islands Trust Area can expect stress on aquatic species due to decreased summer streamflow and warmer water temperatures, with potential severe consequences for freshwater aquatic invertebrates and fishes and estuaries. Warmer temperatures may increase invasive weed and algae growth, and will result in lower dissolved oxygen levels, putting further stress on important marine shoreline ecosystems such as eelgrass and kelp beds. Further, soil microfauna will be impacted, particularly fungi. We may see big shifts in the abundance and timing of mushrooms, and impacts to survival of different types of plants based on changes to their symbiotic relationships. The changes to moisture and temperature will also likely shift decomposition rates which will affect soils.

Changing precipitation regimes

Longer drought periods followed by more intense precipitation will significantly impact soil chemistry and capacity to absorb and retain water. As a result, the Islands Trust Area can expect increased risk of slope failure, overland flooding, streambank collapse, and the transport of silt to water bodies. Changes to water quality and levels will also likely result in:

- Scouring of streams could result of loss of eggs and juveniles (fishes, amphibians) and of larval stages of aquatic insects
- Reduced quality of drinking water, requiring additional chemical and filtration systems
- The loss of property as it sloughs away during large events
- Compromised soil conditions and root systems, increasing risk of tree blow-down.

Warmer, wetter winters

Warmer, wetter winters will increase demand on resources for species that typically overwinter on the Islands. The Islands Trust Area can anticipate a shift in migration patterns, with some migrating birds becoming year-long residents. Further, small mammals and snakes that typically hibernate may remain active. Changing activity patterns may cause shifts in predator prey relationships, for example, more fish and amphibian eggs may be eaten as demand for resources increases and predators are more active during winter.

Growth and development of plants is also likely to change. For instance, the season of algal blooms is likely to be extended. Both native and introduced plant species that typically require

or experience dormancy may not go dormant. Life cycles of insects, both native and non-native, may be significantly altered, especially those that require one or more over-wintering stages. Additionally, cyclical species' death, for example of pests and pathogens that currently die or become inactive during the winter, may not occur as temperatures do not go below a certain level in winter.

It is important to note that the Islands Trust provides respite to tourists during the warmer winter months. Warmer winters may also shift tourism patterns, resulting in increased tourism in the winter, which may put more strain on ecosystems if the spectrum of use for natural spaces increases.

Warmer more acidic ocean conditions

Ocean acidification, as a result of warmer temperatures, will impact growth of nearshore species such as eelgrass beds, and kelp beds, as well as the ability of molluscs such as clams and oysters to make shells. Warmer more acidic ocean conditions will also increase algal blooms and affect the ability of deep water species, such as glass sponge, to thrive[19]. These stresses may change populations and movement patterns of keystone species such as eelgrass, bull kelp and sea stars, with potentially disproportionately large impacts to intertidal ecosystems, salt marshes and estuaries.

Increase in the intensity of storms combined with sea level rise

An increase in the intensity of storms, combined with sea level rise may result in loss of shoreline property. Further, salt water intrusion into freshwater can be expected, possibly increasing the presence of salt marshes but also shifting dynamics of estuaries and surface freshwater. Shoreline erosion will also create:

- Impacts to archeological sites
- Impacts to traditional harvesting such as loss of clam beds
- Impacts to trail management, access to beaches, restoration prescriptions, shoreline infrastructure (e.g. stairs)
- Increase in turbidity will impact eelgrass beds and kelp

[19] See article for more details: https://thetyee.ca/News/2018/05/08/Glass-Sponges-Climate-Change-BC-Ocean-Environment/

Recommendations

This memo marks a first step for the Islands Trust Conservancy's pathway towards understanding and managing the challenges posed by the changing climate. Early recommendations that have come out of discussions with staff include:

- Take a no-regrets approach to climate action. The time for change is now.
- Explore further how key ecosystems and species will be impacted by the projected change in climate.
- Engage in new work to explore specific impacts as they pertain to each ecosystem and signature species. For example, Garry oak, Douglas-fir, wetlands, shoreline, intertidal, and riparian.
- Update property management policies and procedures as required to plan for management activities based on shifting cycles. For example, potential alteration of breeding timing for birds may require changes to the timing of management activities such as trail building and danger tree removal.
- Use this information in existing and future planning processes.
- Explore the best way to communicate the content of this memo with various audiences, including the public and partners.
- Work with neighbouring regional districts to align research and work on climate change and climate action.

Climate Change Impacts Project
Project Charter v 1.0

Islands Trust Conservancy Date: May 15, 2020

Purpose: To determine the costs and scope of work associated with better identifying the local area impacts of climate change, in order to adapt Islands Trust Conservancy's work to best protect local species and ecosystems

Background: Islands Trust Conservancy's Board directed staff to incorporate climate change actions into work programs and budgets. ITC staff commissioned a data review synthesizing available climate change projections for key indicators for the Islands Trust Area. This information can now support development of policies and strategic approaches to explicitly consider climate change impacts in how ITC manages existing nature reserves and prioritizes land securement.

Objectives

- Develop and implement next steps for understanding species and ecosystem changes due to climate change
- Identify potential changes to securement and management of conservation properties in response to anticipated climate change impacts
- Communicate results of climate change projections report
- Determine budget requirements for mapping and analysis

In Scope

- Liaison with Islands Trust staff via internal Climate Action Working Group
- Hiring consultant and/or conducting expert workshops
- Staff and First Nations consultations to determine needs and approaches
- Consultations with applied ecologists and protected areas managers at Provincial and Federal agencies
- Developing a news release, social media, and website content to communicate results of Climate Impact Projections Report
- Mapping expected impacts of sea level rise, and ecosystem / species range shifts

Out of Scope

- Original research
- Production of data
- Developing outreach materials or stewardship actions for land holders (forms part of Phase 2)

Workplan Overview

Deliverable/Milestone	Date
Develop communications about Climate Change Projections Report	May—June 2020
Determine appropriate approaches for expert consultations	May—June 2020
Analyse anticipated species/ecosystem impacts of projected climate changes	July—November 2020
Evaluate potential actions and incorporate into work planning and budgets	November 2020—February 2021

Project Team

Kate Emmings	Project Manager
Kathryn Martell	Project Lead
Contractor	Researcher
Carla Funk	Communications
Jackie O'Neill	Mapping support

Approved by:
ITC Board
Date:

Endorsement:
Resolution #:
Date:

Budget 2020/21

Budget Source: 2020/21 approved budget

Item	Approximate-Cost
Third-Party Contractor (Phase 1)	$5,000
Expert consultation workshops	$3,000
Expert-facilitated internal workshops (SHIFT collaborative)	$3,000
Contingency	$4,000
Total	$15,000

ISLANDS TRUST CONSERVANCY

REQUEST FOR DECISION

To:	ITC Board	**For the Meeting of:**	May 26, 2020
From:	Vice Chair, Sue Ellen Fast	**Date Prepared:**	March 20, 2020

SUBJECT: Wildfire Risk Management in ITC Nature Reserves

RECOMMENDATION: That Islands Trust Conservancy Board direct staff to prepare a budget request for the 2021-2022 fiscal year for a report with options and recommendations for managing wildfire risks on ITC conservation properties.

ITC Manager Comments: Development of a fire risk assessment and associated actions for ITC Nature Reserves will assist staff in ongoing land management. Currently, there is minimal staff expertise in this area and outside resources will be required. It would be appropriate to also build staff expertise around fire management as it will be a needed skill set in our area as the climate changes. Fire management is an emerging urgent issue for our nature reserves and conservation covenants; it is a growing conversation with landowners and conservation partners.

It is also important to recognize that both human caused fires (from cultural practices) and fires from natural sources (e.g. lightning strikes), have been a part of the Islands Trust landscape for millennia. Our current fire suppression regime is likely having impacts on the natural resilience of our landscape to fire.

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1 PURPOSE: To obtain ITC Board direction to move forward with development of a budget request for a wildfire risk assessment on ITC properties. The content of the risk assessment might also:

a) Inform the ITC approach to managing wildfire risks in ITC Nature Reserves; and
b) Explore possible risk management opportunities with First Nations.

2 BACKGROUND:

Australia's devastating wildfires during 2019–2020 were made at least 30 percent more likely to occur by human-caused climate change. It was horrifying to watch Australia burn while some media and members of the public blamed biodiversity conservation programs and protected areas for the fires.

Concern about heightened fire risks within and near the Islands Trust Area appears to be growing as well. Some communities around the Trust Area are looking at clearing and fuel-removal as fire-prevention treatments, such as large-scale removal of dead cedar trees. Other programs and activities have been taking place as well based on the FireSmart materials. FireSmart is a federal program which originated in Alberta (see: https://firesmartcanada.ca/). In 2017, BC formed the BC FireSmart Committee (BCFSC) (see: https://firesmartbc.ca/). Members of the BCFSC include: BC Wildfire Service (BCWS), Office of the Fire Commissioner (OFC), Union of BC Municipalities (UBCM), Fire Chiefs' Association of BC (FCABC), Emergency Management BC (EMBC), Forest Enhancement Society of BC (FESBC) and First Nations' Emergency Services Society of BC (FNESS).

Australia's wildfires also brought attention to Indigenous knowledge and practices for the fine-scale management of vegetation. Combining traditional knowledge with modern science and technology has the potential of reducing loss of property and human life from out-of-control blazes, while also protecting biodiversity and ecological functions on ITC conservation properties. This potential warrants exploration as climate changes escalate.

Discussion:

a) Research indicates that fires are a natural part of ecological processes in the Islands Trust Area (see research article at https://www.frontiersin.org/articles/10.3389/fevo.2019.00090/full), but many parts of the Islands Trust Area are no longer completely natural. There have been human interventions that have prevented fire, causing buildup of fuels and most forests have seen at least some human disturbance that has increased their susceptibility to fire.

   The FireSmart Program is very similar across the country and doesn't provide much guidance that is specific to forest region. Coastal ecosystems are different from those in other areas of the forest, and effective approaches to managing wildfire risk can be expected to be different as well. A new FireSmart brochure from qathet Regional District (Lasqueti Island, Savary Island, Powell River) (attached) for coastal homes and properties describes more relevant approaches, such as using the shade created by large coastal trees to help maintain forest moisture levels. However this brochure also contains wording that may not be accurate for the Trust Area, such as:

   1. The qathet brochure talks about "fire-prone" forests. Which Trust Area ecosystems could be accurately be described as "fire-prone"?
   2. Would "dense coastal forests, if untreated, are prone to vigorous fires", be an accurate statement for the Trust Area?

b) Positive values of ecosystems protected by the ITC would be good to include in stewardship education. For example, recent research has found that old forest in the Pacific Northwest was up to three times more likely to burn at low severity (see attached).

   "Somewhat to our surprise, we found that, compared to other forest types within the burned area, old-growth forests burned on average much cooler than younger forests, which were more likely to experience high-severity fire. How this actually plays out during a mixed-severity wildfire makes sense when you consider the qualities of old-growth forest that can limit severe wildfire ignitions and burn temperatures, like shading from multilayer canopies, cooler temperatures, moist air and soil as well as larger, hardier trees." (Ecosphere, April 9, 2019, Available at https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.2696)

   Thinning or clearing treatments by homeowners and organizations on Trust Area islands may be contra-indicated in and near old and mature forest stands. Portraying these as protective to be near, rather than risky, might be better. Aspects like shading from multilayer canopies, cooler temperatures, moist air and soil as well as larger, hardier trees can also be portrayed as protective, as opposed to dangerous, when we consider communicating with the public. Allowing old forest ecosystems to mature even further can also be portrayed as increasing the Trust Area's natural resilience to escalating climate change.

   Younger second-growth forests are not nearly as fire resistant. "[They] have very different forest structures," said Dr. Lori Daniels (attachment 3). "The tree sizes and woody debris on the floor is not large, and therefore absorbs and releases water a lot more rapidly. It takes a shorter period of time to dry out the logs in a second-growth forest."

   Other ecosystems such as native coastal bluff can also be examined, compared to coastal bluff ecosystems containing invasive cheat grasses, for example, which are probably more fire-prone.

c) I gather that First Nations in the Trust Area used fire for camas production, for example, and I would like to know more about how they used fire. What knowledges developed over millennia might be more effective when it comes to land and management of wildfire risks under climate change? E.g. archeological, dendrochronological, paleoecological, traditional ecological knowledge, anthropological, or any current practices studies and information that the Islands Trust does not possess at the current time, and that might inform our ITC approach to managing wildfire risks, and possible co-management opportunities with First Nations.

3 IMPLICATIONS OF RECOMMENDATION:

ORGANIZATIONAL: Fire risk assessment is not an area where ITC staff currently have expertise. The development of a risk assessment will require that the ITC bring in outside experts; however, there may be opportunities for staff to build skills through this process. Areas to explore in a request for contractor expressions of interest might include looking specifically at the Trust Area ecosystems and how they are affected by fire:

a) Gather research that is available, find where the gaps in knowledge are for the Islands Trust area: how age class, species, stand spacing, coarse woody debris, understory vegetation height, etc. within the Trust Area ecosystems affects fire risk.
b) Review literature and create links with First Nations to gain insight into historical practices of fire use and management and to encourage First Nations co-management of the ITC nature reserves into the future.
c) Determine how climate change will affect fire management, linking the ongoing ITC climate change and adaptation work with fire research.
d) Utilize the research on hand to inform ITC fire management practices and reduce fire risk while insuring ecological values are protected by developing a fire risk management plan for ITC Nature Reserves.

FINANCIAL: At this time, staff do not know what fire risk assessment will cost. The current fiscal year may be used to assess required expertise and associated costs in preparation for a budget request for the next fiscal year. Should the Board wish to proceed, staff will present a business case for consideration by the Board in October.

POLICY: ITC policy currently states that "Property management activities will focus on the preservation of the ecological integrity of the Nature Reserve." Management of fire risk should comply with existing policy if possible, but conducting a fire risk analysis for ITC nature reserves may result in needed changes to Property Management policies and procedures.

IMPLEMENTATION/COMMUNICATIONS: Staff will investigate the cost of conducting a fire risk assessment for ITC nature reserves and will prepare a budget request for ITC Board review in October.

FIRST NATIONS: There may be opportunities for incorporating traditional burning into fire risk management and opportunities to employ First Nations to do this work. There may also be opportunities for co-management of fire risk with First Nations in ITC Nature Reserves. These opportunities should be explored under the ITC Reconciliation Declaration. See the First Nations Adapt Program information (attached, link below).

CLIMATE CHANGE: Fire risk will be exacerbated by climate change which anticipates a longer dry season in the Islands Trust Area. Adaptation to this change in the climate might require interventions to manage fire risk. Interventions might include vegetation and woody debris removal, but it may also include management of forests to mimic old growth or to accelerate progression of forests to an old growth condition.

OTHER: ITC staff have been liaising with other land management agencies regarding fire risk management:

- Parks Canada: ITC staff have been in contact with staff at Parks Canada to initiate conversations about fire risk management and to begin conversations about joint fire response planning and training.
- Land Trusts: Land trusts have identified fire risk management as an increasingly urgent issue for conservation on the south coast of British Columbia. ITC staff have been exploring ways to communicate about fire risk and the FireSmart Program with work colleagues.

4 RELEVANT POLICY(S): ITC Policy 2.3 Acquisition and Management of Land

5 ATTACHMENT(S):

1) qathet Regional District FireSmart Brochure
2) Old-growth forest may provide valuable biodiversity refuge in areas at risk of severe fire (July 2019): https://www.eurekalert.org/pub_releases/2019-07/ufs--ofm070219.php?fbclid=IwAR3_ECImaJfLdGpgoq5xNpY23wtUxPhbXv5CDIepsRPUGD1u1iwyc77HZFY
3) Changing Climate, Vanishing Old Growth Bring Increased Fire Risk for Coastal Forests (July 2019): https://thetyee.ca/News/2019/07/15/Increase-Fire-Risk-Coastal-Forests/
4) First Nations Adapt Program: https://www.fness.bc.ca/core-programs/forest-fuel-management/first-nations-adapt-program
5) The 10 Deserts Project: https://10deserts.org
6) Attribution of the Australian bushfire risk to anthropogenic climate change (January 2020): https://www.worldweatherattribution.org/bushfires-in-australia-2019-2020/>

RESPONSE OPTIONS

Recommendation: that Islands Trust Conservancy Board direct staff to prepare a budget request for the 2021-2022 fiscal year for a report with options and recommendations for managing wildfire risks on ITC conservation properties.

Alternative: that Islands Trust Conservancy Board direct staff to conduct research on the subject matter and report back on the feasibility and benefits of creating such a report with options and recommendations.

Prepared By: Sue Ellen Fast, Vice Chair

Reviewed By / Date: Nuala Murphy, Property Management Specialist / May 14, 2020
Kate Emmings, A/ITC Manager / May 14, 2020



Get to know your **Zones**

The foundation of FireSmart mitigation is the “Priority Zone System” which means that focusing efforts starting from the home and working outwards (Zone 1-3) will yield the best fire mitigation improvements.

Forest ecosystems in coastal BC allow for a unique approach to treating the Zone 2 areas around our homes. Dense coastal forests, if untreated, are prone to vigorous fires and even crown fires can occur when high fuel accumulations or steep slopes are present. Fortunately our forests are less prone to catastrophic crown fires than in other parts of our province. More good news is that we can make simple improvements within the forest to further reduce its volatility. By reducing surface and ladder fuels we can eliminate the potential for fire to travel from the ground up into the tree canopies. Combining this with the shade created by our large coastal trees will help maintain forest moisture levels. Implementing these FireSmart practices results in reduced fire potential by decreasing intensity, spread rates, thrown embers, and increases our firefighting effectiveness. We can eliminate the risk of hard to control crown fires if we FireSmart our forests.

This same principle also explains why slash fires can be very challenging to control. Slash areas in the summer exposed to direct sunlight become very dry, and are typically loaded with small diameter branches and other fast burning fine fuels such as needles, twigs, etc.



Photo: BC Wildfire Service

Wildfire evacuations can happen, and our best option is to implement FireSmart principles to our homes and yards to increase the probability of returning to intact homes.

Do you have a plan in case of an evacuation? Check out the FireSmart evacuation checklist and other information on the FireSmart website at **FiresmartCanada.com**

For local evacuation info visit **qathet.ca** or call the qRD at **604-485-2260**

FireSmart BC and FireSmart Canada both have great Facebook pages to follow!

For more information contact the qathet Regional District’s FireSmart coordinator at: **firesmartpr@gmail.com** or call **604-414-7839**

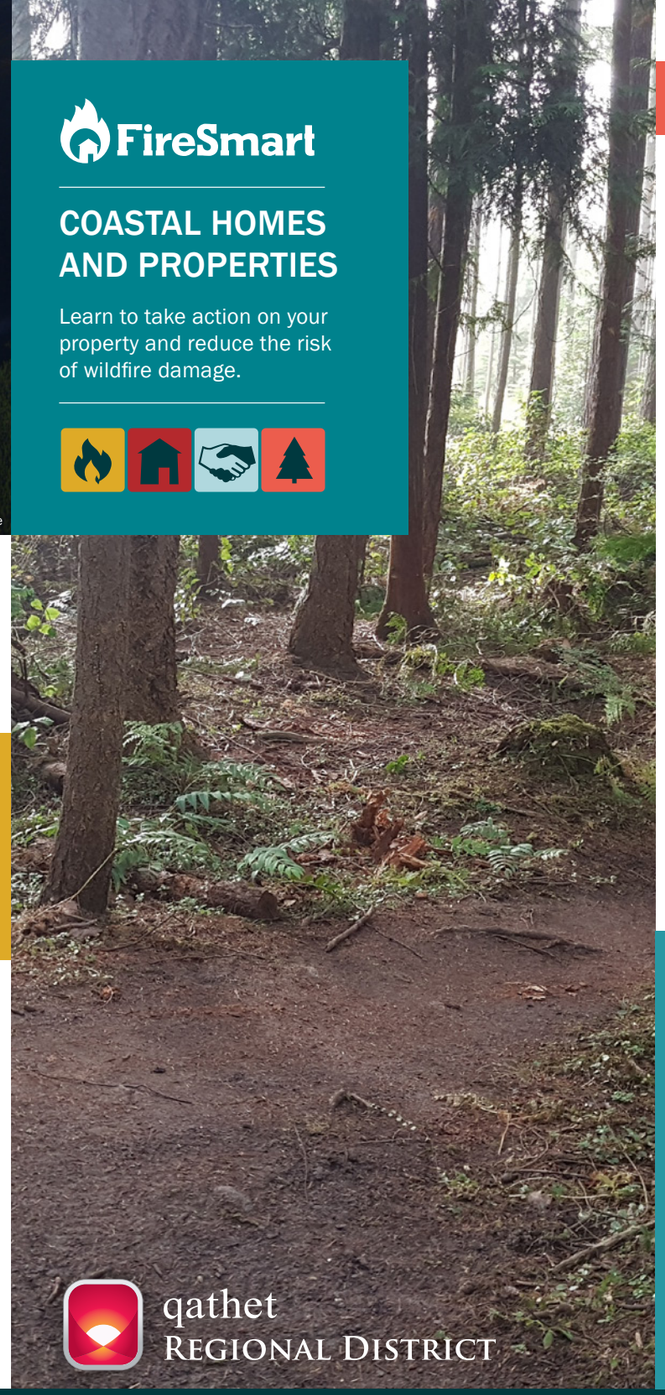
BRITISH COLUMBIA FireSmart

qathet Regional District

FireSmart

COASTAL HOMES AND PROPERTIES

Learn to take action on your property and reduce the risk of wildfire damage.



qathet Regional District

Why a **Coast specific** brochure?

Our coastal forest environment has experienced wildfires for millennia and they are a natural part of wildland ecosystems. Without wildfire, the landscape loses its diversity – fire recycles nutrients, helps plants reproduce and create a mosaic of vegetation that provides habitat for a variety of wildlife. By choosing to extend communities into forested areas, we become more exposed to the danger of wildfire, however, it is possible to reduce potential wildfire impacts on our homes by following some basic principles.

FireSmart principles are based on research into wildfire behaviour to answer why wildfires cause the destruction of one house while the adjacent home is unscathed. This research has determined that 90% of homes and buildings damaged or destroyed during a wildfire is caused by embers and not the main fire front. The resulting FireSmart principles have time and time again shown it is possible to mitigate losses.

The recommendations in this brochure build on the FireSmart foundation and add strategies specifically relevant to our coastal ecosystem.

FIRESMART IS A SHARED RESPONSIBILITY. As residents living in a fire-prone ecosystem it is essential to take steps to protect our families, properties, and communities from wildfire.

Working together as a neighbourhood and implementing FireSmart strategies could help transform homes and properties into a firebreak, protecting ourselves and others from spreading wildfire.

Starting from the home and working your way outwards will offer the best resiliency rewards for you efforts.



This brochure aims to help you understand the steps and principles of wildfire hazard mitigation in our coastal BC ecosystem.

This guide emphasizes FireSmart priorities specific to coastal forests in Zone 2. For more detailed information on Home and Zone 1 minimum standards visit the FireSmart homeowners manual from **firesmartbc.ca.**

Home (1a) Minimum Standards

- Ensure that exterior wall coverings are noncombustible and not susceptible to melting. Concrete, fibre-cement board, stucco and masonry are all recommended materials
- Noncombustible roof that is in good repair and free of combustible debris build up
- A minimum 1.5 metre noncombustible surface should extend around the entire home
- 15 centimetres of ground-to-siding noncombustible clearance
- Multi-panel or tempered glass windows with screening
- Garage and entrance doors that are properly fitted and well maintained
- Noncombustible vents with 3 millimetre screening or fire rated vents
- Gutters and downspouts constructed of noncombustible materials and kept clean. Ensure metal drip edge is in place as part of the roof assembly
- Fire rated composite decking material that is sheathed with noncombustible material, such as fibre cement board or metal screening
- Noncombustible fencing materials such as, metal, chain link, metal privacy slats, concrete stone or masonry

Zone 1 Minimum Standards

- Plant a low density of fire-resistant plants and shrubs. Avoid having any woody debris, including mulch, as it provides potential places for fires to start
- Store items such as firewood piles, construction materials, patio furniture, tools and decorative pieces at least 10 metres from home and locate any outbuildings in Zone 2
- Maintain grass to a maximum of 10 centimetres in height
- Irrigate vegetation and grass in this zone

FIRE RESISTANT PLANT CHARACTERISTICS:

Deciduous plants. eg: alder, maple and dogwood trees with watery sap

Moist supple foliage. eg: ferns, green grass

Minimal deadfall. Does not produce much fine, dry, dead accumulations. eg: laurel, boxwood and oregon grape

FLAMMABLE PLANT CHARACTERISTICS:

High sap or resin content. eg: pine or fir trees with thick, aromatic, sticky sap

Needles or foliage containing oils and resins, often aromatic. eg: Cedar, juniper and scotch broom

Loose, papery, flaky, bark or stems. eg: pampas grass

Zone 2-3 Minimum Standards

Historically, before fire suppression, fires would go unchecked and burn off fine surface fuels and ladder fuels while leaving large healthy trees alive. This helped prevent accumulations that could cause more severe fire behaviour. We cannot let fires burn unchecked near populated areas due to the risk to homes, lives and infrastructure, therefore it falls to all of us to replicate this natural process by other means.

The following guidelines will help you create a stand of forest that also serves as a form of fuel break.

If you have **forested land**, you can further improve its resiliency by applying FireSmart principles to create a Shaded Fuel Break. The goal here is to promote canopy closure and increase the gap between surface and over story fuels.

- Leave all healthy deciduous trees and shrubs. Although not deciduous, live salal bushes and arbutus trees are considered fire resistant and can be retained
- Remove understory conifers under 6” in diameter. Where spacing allows, consider leaving the occasional conifer in the understory to promote future crown closure
- On conifer trees, remove all branches to a height of 3 metres above the ground (maximum of 1/3 the height of the tree)
- Remove surface fine fuels under 6”. Any logs retained should be bucked so that they lay flat and in contact with the ground





If you have recently **cleared land** such as slash, some mitigation is strongly recommended since this can be our region’s most volatile fuel type.

- Remove fine fuels
- Choose to replant with deciduous trees or other fire resistant plants
- Converting this area from slash or brambles into grazed pasture, managed field or lawn will reduce a fire’s intensity
- Limb remaining conifers to 3 meters above the ground (maximum 1/3 the height of the tree)

DEFINITIONS:

Fine Fuels - Twigs, branches, tall dry grass and logs and lumber that are 6” in diameter or smaller. These fuels ignite more readily and burn faster, thus are more likely to contribute to increased fire spread rates.

Ladder Fuels - Typically these are limbs on conifers or entire coniferous saplings if they are in the understory. In coastal BC, the reason fire climbs up into the tree canopy is because branches act as a ladder for the fire to climb up into the canopy.

ISLANDS TRUST CONSERVANCY

REQUEST FOR DECISION

To:	ITC Board	**For the Meeting of:**	May 26, 2020
From:	Staff	**Date Prepared:**	May 14, 2020

SUBJECT: Conservation Proposal, Clam Bay Road, North Pender Island

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RECOMMENDATION: that the Islands Trust Conservancy Board approve the conservation proposal submitted by Lisa Baile to place a NAPTEP covenant on approximately 3.99 ha on Clam Bay Road, North Pender Island, PID: 024-289-582, Lot B Section 22 Pender Island Cowichan District Plan VIP 67942.

PURPOSE:

The Islands Trust Conservancy has received a Natural Area Protection Tax Exemption Program (NAPTEP) application from Lisa Baile to covenant approximately 3.99 ha (9.85 acres) of North Pender Island (see map). The ITC Board must make a decision as to whether or not to accept this proposal.

BACKGROUND:

The landholder is interested in protecting this 3.99ha undeveloped property from any future development. The property has a small existing covenant held by the Islands Trust Conservancy and the Pender Islands Conservancy Association along its northern boundary, adjacent to Clam Bay Road, to protect mixed old forest and several scattered old growth Douglas-fir trees across several properties (shown in green on map).

1 IMPLICATIONS OF RECOMMENDATION

ORGANIZATIONAL: Negotiation of a covenant will require staff time. It is likely that this covenant will require slightly more staff time than usual because of the existing conservation covenant on a small portion of the property.

FINANCIAL: It will cost approximately $2,000 for legal review and document registration and approximately $500-$750 to discharge the prior covenant if desired. Annual monitoring will be required. There are no anticipated survey costs. Other costs will be covered by the landowner or through grants.

POLICY: The application is consistent with ITC policies and regulations for accepting NAPTEP covenants, and aligns with the Regional Conservation Plan and Securement Strategy conservation priorities.

IMPLEMENTATION/COMMUNICATIONS: Staff will convey the Board's response to the LTC, the applicant, and Executive Committee and Trust Council, and will begin covenant negotiation.

FIRST NATIONS: There are no known archaeological features or cultural sites on the land. There are potential archaeological sites nearby, however, so staff will discuss with the Senior Intergovernmental Policy Advisor and consider First Nations referral.

CLIMATE CHANGE: This property contains largely mature forest, with some component of young forest, and therefore contributes towards climate change mitigation by protecting carbon sequestration sources. Additionally, protecting ecosystems in several seral stages may assist with species persistence and/or migration with future climate instability and change.

OTHER: The landholder has requested that the covenant be co-held by the Pender Islands Conservancy Association. Staff has not yet discussed this covenant with PICA to get their agreement to co-hold. The land holder may also apply to the Ecological Gifts Program and to the Morrison-Waxler Biodiversity Fund but has not yet made a decision. Staff is discussing best approaches with the land holder from a tax perspective, with the potential that this will not be pursued as a NAPTEP covenant.

2 **RELEVANT POLICY(S):**

The application is consistent with Islands Trust Conservancy policies:

2.2 Assessing Conservation Proposals Policy
2.4 Conservation Covenants Policy
2.5 Natural Area Protection Tax Exemption Covenants Policy

3 **ATTACHMENT(S):**

a. Staff report and related attachments
b. Site photos – from Ledingham Covenant Area
c. Sensitive Ecosystem Mapping of the Property
d. Air Photo of the Property
e. Conservation Proposal and map

RESPONSE OPTIONS

Recommendation: As above

Alternative:

1. **Request further information**

   That the Islands Trust Conservancy Board defer decision until staff has conducted a site visit

2. **Approve the proposal, with conditions**

That the Islands Trust Conservancy Board approve the Conservation Proposal from Lisa Baile, subject to:

- *Staff site visit*
- *Discussion with PICA regarding the Ledingham Covenant already on the property*

Prepared By: Kathryn Martell, A/Ecosystem Protection Specialist

Reviewed By/Date: Kate Emmings, A/Manager, Islands Trust Conservancy / May 15, 2020

STAFF REPORT

File No.: NP-NAP-2020.1

MEETING DATE:	May 26, 2020	
TO:	Islands Trust Conservancy	
FROM:	Kathryn Martell, A/Ecosystem Protection Specialist	
SUBJECT:	Conservation Proposal –NAPTEP	
	Applicant:	Lisa Baile
	Location:	3205 Clam Bay Road, North Pender Islands Trust
		PID: 024-289-582
		Lot B Section 22 Pender Island Cowichan District Plan VIP 67942

RECOMMENDATION

1. **That the Islands Trust Conservancy approve the Conservation Proposal**

REPORT SUMMARY

A Conservation Proposal (attached) for a covenant was submitted on January 23rd, 2020 for Islands Trust Conservancy Board consideration. Section A(1) of Islands Trust Conservancy (ITC) Policy 2.2, *Assessing Conservation Proposals*, states The Board will only consider a proposal that is accompanied by a completed Conservation Proposal Form and a Staff Report. This staff report presents an assessment of the Conservation Proposal, based on selection criteria outlined in Policy 2.2, Policy 2.4 *Assessing Conservation Proposals*, 2.5 *Natural Area Protection Tax Exemption Covenants Policy*, and the ITC Securement Strategy.

The landholder is interested in protecting this 3.99ha undeveloped property from any future development. A narrow strip (26m wide x 38m long, 0.376 ha) at the northern boundary of the property, along Clam Bay Road, is protected by an existing covenant (Ledingham Covenant) that ITC co-holds with Pender Islands Conservancy Association (PICA). The property contains 3 ecological communities Red-listed in BC; it is mostly mature second-growth forest, with small patches of woodland on the steep slopes at the southern boundary. The covenanted strip at the northern boundary has several old growth trees, including one measured in the Ledingham baseline at more than 7m in diameter.

Staff recommends that the ITC Board accept this NAPTEP application, and direct staff to pursue next steps in negotiating a conservation covenant on this property, based upon:

- The presence of 3 rare plant communities, and potential to increase protection of sensitive and at-risk ecosystems;
- The relatively intact nature of the mature forest present on the property; and,
- Alignment with NAPTEP and Regional Conservation Plan conservation priorities.

PROPERTY INFORMATION

Property Description:
PID: 024-289-582, Lot B Section 22 Pender Island Cowichan District Plan VIP 67942

The property is located on the northeast section of North Pender Island, south of Clam Bay (Figure 1.0). Clam Bay Road forms the northern boundary of the property, which is southeast of Clam Bay Farms; the property slopes generally northward and forms part of the Clam Bay drainage. ITC currently co-holds a very small covenant (0.376ha) that protects mature forest and individual old-growth Douglas-fir trees along the northern boundaries of this property and those on either side (Ledingham Covenant [EN27064]).

Property size: 3.99ha (9.85 ac); [BC Assessment: 4.05ha (10ac)]

Proposed protected area size: 3.99ha, either via two covenants which collectively protect entire property (with existing Ledingham covenant along northern property boundary), or with NAPTEP covenant for entire property and subsequent discharge of Ledingham covenant

Co-covenant Holder: Pender Islands Conservancy Association (PICA)(to be confirmed)

Property notes:
The property has a small existing covenant (the Ledingham covenant) along its northern boundary, along Clam Bay Road, to protect mature forest and several scattered old growth Douglas-fir trees. This Ledingham covenant spans three properties, of which this one is the middle parcel, and is co-held by PICA and ITC. On this property, the covenanted strip is 26m wide x 38m long (0.376 ha). While the simplest approach would be for the new covenant to protect the entire property, discharging the existing one, staff will discuss best approaches with PICA as part of covenant negotiations and with Environment and Climate Change Canada as the Ledingham Covenant was the subject of an Ecological Gift through the Ecological Gifts Program.

Due to the current travel ban as a result of coronavirus restrictions, a site visit was not possible. However, the A/ITC Manager and the Covenant Monitoring and Outreach Specialist have both previously visited the Ledingham Covenant portion of the property, and staff was able to use the information in the Ledingham Covenant Baseline Report to augment that provided by the landholder. ITC staff is confident in making a recommendation based on our analysis.

BACKGROUND

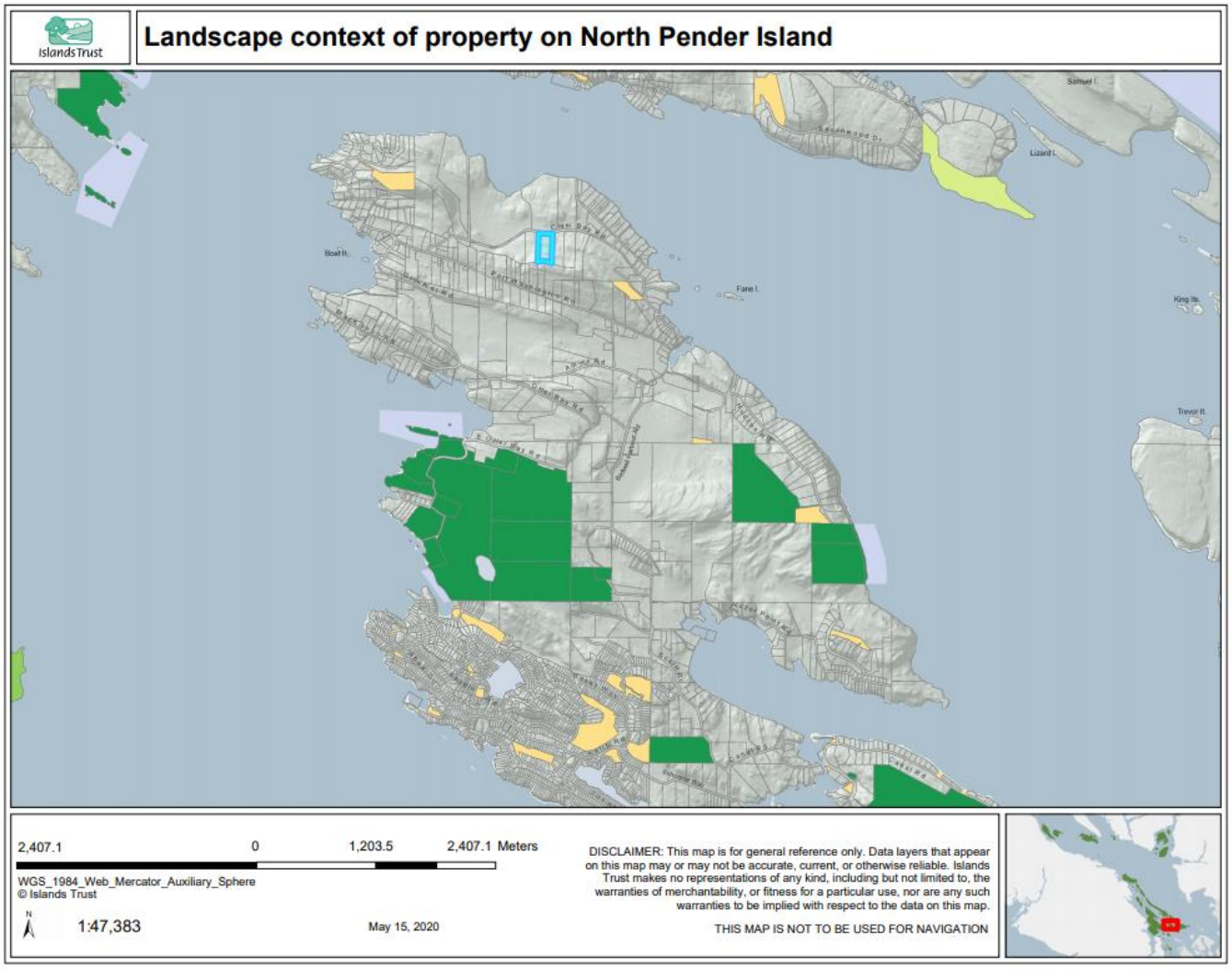
The applicant purchased the property in 2019 with the intention of protecting it from future development.

The property is one of 3 lots created in 1999 by subdivision of a 30 ac lot. At that time, a conservation covenant was placed over the northern boundary of each of the new lots, to protect mature forest and scattered individual old-growth Douglas-fir trees, and to protect the “scenic byway” nature of Clam Bay Road. This Ledingham Covenant is co-held by PICA and ITC, and was granted as an Ecological Gift.

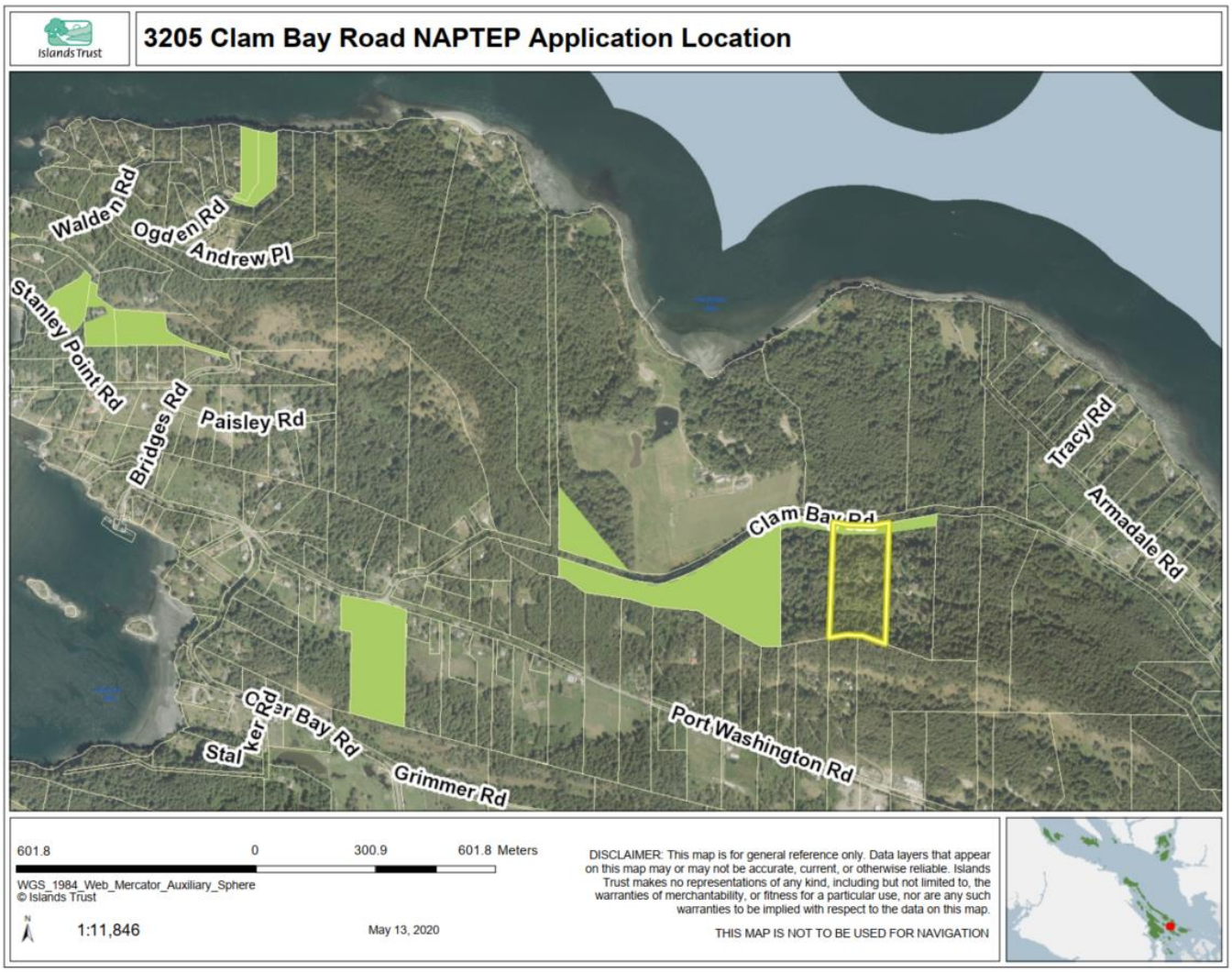
On January 27th, 2020, the applicant submitted a conservation proposal for a covenant to ITC. In a follow-up phone call with the A/EPS, the applicant indicated an interest in donating the property as a Nature Reserve instead of pursuing a NAPTEP covenant. It was agreed to discuss these options further during a site visit. The scheduled site visit was cancelled due to COVID-19 restrictions, however, the applicant and A/EPS discussed options by phone on April 21st, 2020. The land holder subsequently decided to pursue a NAPTEP covenant for the property and also to consider a life estate.

Figure 1. Subject Property and nearby Protected Areas

A. **Location of property (blue outline) on North Pender Island, showing landscape context of nearby Protected Areas.** *Shown are: Federal Park (dark green), Federal Marine Park (violet), Community Park (orange), Regional Park (light green).*



B. Location of subject property (yellow outline), showing local context of existing Islands Trust Conservancy conservation covenants (shown in green).



ANALYSIS

Values were determined by evaluating the application submitted by the property holder, the baseline report for the existing Ledingham Covenant on the property's northern boundary, and Islands Trust mapping resources. No site visit was conducted due to travel restrictions resulting from the Covid-19 pandemic.

Natural Values

The property slopes generally down from steep, mossy rocks and open woodland at the southern boundary, towards the north and Clam Bay / Navy Channel. The proposed protected area contains largely undisturbed mixed mature forest, dominated by Douglas-fir and Western redcedar, with some mature Big-leaf Maple. The covenanted strip at the northern boundary protects several large old-growth Douglas-fir trees, including one measured at more than 7m in diameter.

The property contains 3 ecological communities Red-listed in BC (see details in next section). It is relatively undisturbed other than the presence of a (unused) access road (Photo 1) and minimal clearing around an established well-site.



Photo 1 (left). The unused driveway / access road that runs through the property, showing mixed mature forest on either side and relative lack of disturbance.

Photo 2 (below). The mossy openings in dry forest in the mapped Woodland sensitive ecosystem at the property's south end.



This property qualifies for the NAPTEP program based on the presence of areas relatively undisturbed by human activity that are good examples of target ecosystems (Regulation 2[a]) and that are key habitat for rare native plant communities (2[b]).

Ecosystems and Species at Risk

The proposed covenant area contains 3 ecological communities considered at-risk (Red-listed) in British Columbia:

a. Douglas-fir – Dull Oregon-grape

b. Douglas-fir – Alaska Oniongrass

c. Grand fir – Dull Oregon-grape

There are no recorded sightings of species at risk on the property, however, staff has not yet conducted a site visit nor has a detailed baseline survey been done.

Sensitive Ecosystems

The proposed covenant area contains mapped areas of 2 sensitive ecosystems, Mature Forest and Woodland. Most of the property is mixed mature forest (Photo 1). At the southern boundary are steep mossy bluff areas, with dry, open stands of Douglas-fir and with non-forested openings (Photo 2).

Regional Conservation Plan Context

The proposed covenant is not within the Islands Trust Conservancy's top 3000 identified hectares for conservation, however, it does directly address conservation of the following Biodiversity Priorities of the 2018-2027 Regional Conservation Plan (RCP) (see attached SEM map):

- *Sensitive Ecosystems,*
- *Healthy Forests, and*

- *Species and Ecosystems at Risk*
- *Size, Corridors & Connectivity*

The ITC conservation prioritization model indicates that the property is in a medium to high priority area. Compared with other islands in the Trust Area, protection of Sensitive Ecosystems and of Forests is considered of Medium conservation priority for the North Pender Island Local Trust Area, and the North Pender LTA in general is considered a medium conservation priority in the RCP.

Securement Strategy Assessment

Assessment category	Score	Comments
Representation:	10/15	Mature second growth forest, small areas of woodland: significant representation of sensitive ecosysems
Site Condition:	15/15	Largely undeveloped, with presence of unused access road and well site (uncertain of presence of invasive species)
Viability:	15/15	Extension of existing covenant, and in between two others; covenant has relatively low securement cost
Known Rare Species:	0/15	None known.
Ecological Value Subtotal:	**40/60**	
Management Ease:	8/10	Adjacent properties are largely undeveloped aside from home site; easy access and no current use of the property; presence of invasives currently unknown but believed to be minimal
Time/Urgency	2/10	None
Threat Subtotal:	**10/20**	
Total:	**50/80**	

Organizational Consideration

No major considerations. The site is readily accessible and monitoring can be incorporated into monitoring of existing Ledingham covenant. Securement of this conservation covenant may provide a good opportunity to discuss stewardship and forest protection with adjacent landholders.

Policy Consideration

The application is consistent with ITC policies and regulations for accepting NAPTEP covenants, and aligns with the Regional Conservation Plan and Securement Strategy conservation priorities.

Financial Consideration

Negotiating and drafting the covenant may take slightly more resources than usual (staff time and legal costs) because of the need to consider how best to address the existing Ledingham covenant: consolidate / discharge, or have two conservation covenants over different areas of the property. In either case, since the proposed covenant(s) will cover the entire property, there are no anticipated survey costs. In addition, staff will need to discuss the covenant with the CRD and emergency fire services (see below). The only foreseen ongoing cost to ITC for this property is staff time to conduct annual monitoring and to prepare and provide annual reporting on the covenant. The risk of unauthorized use or development in the proposed covenant area is considered to be low.

Property Management Consideration

The property has a rough access road / driveway that zig zags to provide access through most of the property (see Photo 1, and attached map from proposal). There is an easement granting fire vehicle access to the adjacent lots using this driveway and landholder is under the impression that this road must be maintained for fire access purposes, although this is not specified in the legal instrument. This driveway connects in two places to access roads and driveways on Lot C to the east (where there is a residence), and in 1 place to Lot A to the west (currently undeveloped). There is a risk of impact to the covenant area from use of the road for emergency access if it is ever needed, and also of unauthorised use (trespass). Both the road and well site, and the presence of Clam Bay Road along the northern property boundary, pose a risk for introduction and spread of invasive species across the covenant area. The land holder's requirement to maintain the existing driveway as a fire access road is currently unknown. There are currently no known issues with trespass.

Land Title and Relevant Land Status Information

The applicant is the registered owner of the property, Elisabeth Baile. She lives nearby on Armadale Road.

Registered on title are the existing conservation covenant (EN27064) in favour of PICA and the Islands Conservancy Board, and the associated Statutory Right of Way. The need to either discharge that covenant, or to retain it and coordinate alignment with a new covenant, is a minor complication but staff does not forsee any issues with either PICA or the land holder in determining the best approach. Environment and Climate Change Canada will need to provide permission for discharge of the existing covenant as it was gifted under the federal Ecological Gifts Program.

There are three additional charges registered on title.

- Covenant (EM101640) granted to the Province (MOTI) restricting building of any structures on certain areas of the property with steep slopes;
- Covenant (EW23983) and its associated easement (EW26216) granted in favour of the Capital Regional District, to provide emergency fire vehicle access to Lot A or Lot C via Lot B, since driveways servicing Lot A and Lot B are not at a suitable grade for emergency vehicles.

There is also one notation indicating an easement (EM101645) registered on Lot C in favour of Lot B, providing access to Lot B via driveway entrance across Lot C.

ITC staff will work to build good relationships with the adjacent land holders. In additional to requesting legal advice, staff will need to discuss the potential covenant with the CRD and North Pender Island Fire Protection

Society, as well as to consult with the applicant and with the neighbours to address any concerns related to those existing charges and their potential effects on achieving conservation goals for the covenanted area.

The property is classed as Residential.

First Nations Consideration

There are no known archaeological features or cultural places on the property or immediately nearby. However, there are a number of potential archaeological sites mapped nearby. Staff will discuss these potential archaeological sites with the Senior Intergovernmental Policy Advisor and determine whether or not the proposal should be referred to local First Nations.

Referrals

The proposal has been sent to the North Pender Islands Local Trust Committee for their information, for their meeting May 21, 2020. In order to accommodate NAPTEP timelines for this year, the proposal has been sent to the NP LTC in advance of the ITC Board meeting.

Following ITC Board decision, the proposal will be sent to Islands Trust Executive Committee / Trust Council for their review and approval of the tax exemption certificate.

Other Issues and Opportunities

In light of the existing Ledingham Covenant that links this property to the ones on either side, there are opportunities to discuss covenants and other stewardship measures with the adjacent landholders.

In addition to those already mentioned above, a number of issues remain outstanding:

- Staff is discussing best approaches with the land holder from a taxes perspective, with the potential that this will not be pursued as a NAPTEP covenant.
- Whether or not the land holder is comfortable paying for the costs of baseline inventory and Ecological Gift assessment (if pursuing). The land holder has not confirmed whether she will apply for the Morrison-Waxler Fund to assist with costs.

Rationale for Recommendation

Staff recommends that the ITC Board accept this NAPTEP application, and direct staff to pursue next steps in negotiating a conservation covenant on this property, based upon:

- The potential to increase protection of sensitive and at-risk ecosystems;
- The relatively intact nature of the mature forest present on the property; and,
- Alignment with NAPTEP and Regional Conservation Plan conservation priorities.

ALTERNATIVES

The Islands Trust Conservancy may consider the following alternatives to the staff recommendation:

1. **Request further information**

   Request that staff conduct a site visit prior to making a decision. Staff advise that the implications of this alternative are that the covenant will likely not be completed in time for NAPTEP benefits next year.

2. **Approve the proposal with conditions**

   The Islands Trust Conservancy Board approves the Conservation Proposal, but subject to:

- Staff site visit; and,
- Discussions with PICA regarding the Ledingham Covenant already on the property

NEXT STEPS

- Trust Council review of application, 3 June 2020
- Follow-up staff site visit once travel restrictions are removed.
- First Nations review, as deemed necessary.

Submitted By:	Kathryn Martell, A/Ecosystem Protection Specialist	May 15, 2020
Concurrence:	Kate Emmings, A/Manager	May 15, 2020

ATTACHMENTS

1. Photos of Ledingham Covenant area at property's northern boundary
2. Sensitive Ecosystem Mapping for subject property
3. Aerial view of property
4. Conservation Proposal

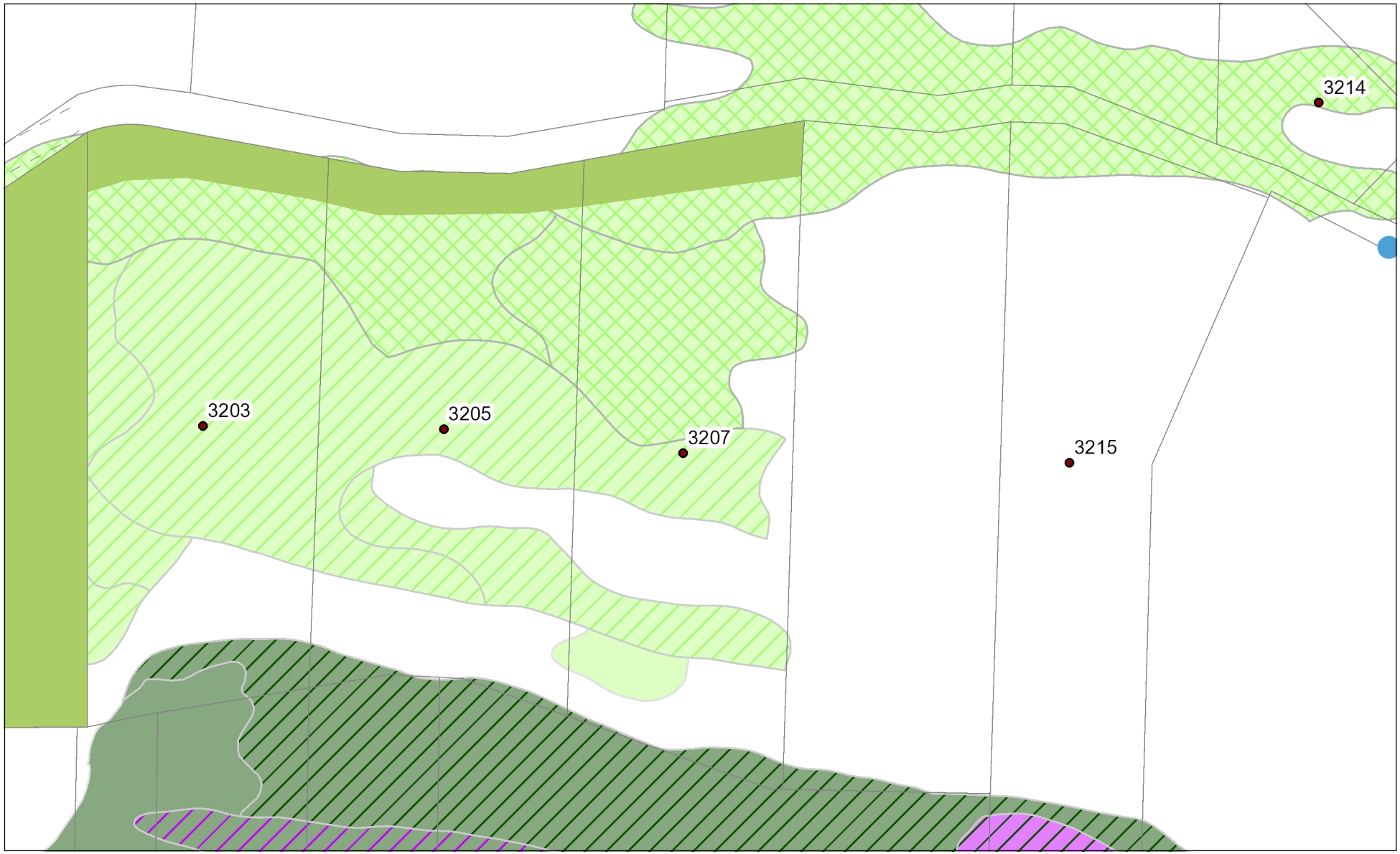
3205 Clam Bay Road, North Pender

Photos of portion of property protected by Ledingham Covenant (taken during monitoring visit, 2019)





3205 Clam Bay Road SEM



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May 12, 2020

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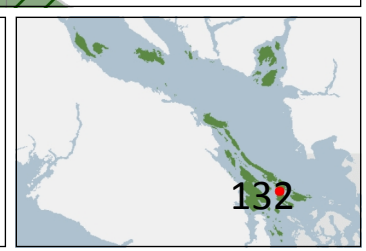

LEGEND - Base Maps

- Property Boundary
- Roads
- Water Courses
- Lakes
- Zoning Boundary

Zoning Class

- Not Zoned
- Commercial/Industrial
- Community
- Residential
- Resource
- Water

Contours

- Index Contour
- Intermediate Contour

LEGEND - Operational Layers

- Civic Address
- Conservancy Covenant
- North Pender Tertiary Class
  - FW
  - WN
  - RI
  - OF
  - CL
  - MF
  - IT
  - HB
  - WD
  - CB
- North Pender Secondary Class
  - FW
  - WN
  - RI
  - OF
  - CL
  - MF
  - IT
  - HB
  - WD
  - CB
- North Pender Primary Class
  - Freshwater
  - Wetland
  - Riparian
  - Older Forest
  - Cliff
  - Mature Forest
  - Intertidal
  - Herbaceous
  - Woodland
- First Nations Reserves
- SAR (Secure)

3205 Clam Bay Road imagery



150.4 0 75.2 150.4 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere
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1:2,961

May 12, 2020

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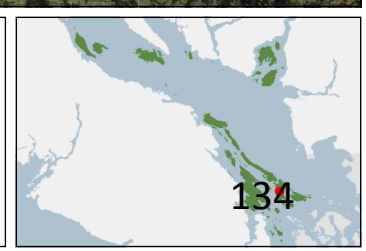


ISLANDS TRUST CONSERVANCY

200 - 1627 Fort Street, Victoria, BC V8R 1H8
Telephone: 250-405-5186 Fax: 250-405-5155
Toll Free via Service BC in Vancouver 604-660-2421
Elsewhere in BC 1-800-663-7867
Email: itcmail@islandstrust.bc.ca
Website: www.islandstrustconservancy.ca

RECEIVED
JAN 23 2020
ISLANDS TRUST CONSERVANCY

Islands Trust

Natural Area Protection Tax Exemption Program

APPLICATION FORM

OFFICE USE ONLY

Size of Property_____ **Application Fee**_____ **Receipt Number**_____ **File Number:** _____

Please complete and attach the **Application Checklist** at the end of this form to your application. Be sure to include all required information with your application and ensure your site plan is complete and accurate.

We can only accept and process complete applications.

PROPERTY OWNER (Please Print)

Please list all registered owners as indicated on State of Title Certificate. Add additional page if more than two owners.

Name: Lisa BAILE
Street Address: 3209 ARMADALE RD
City: PENDER ISLAND Province: BC
Postal Code: V0N 2M1
Telephone:
Cell Phone: 250 222 0308
Email: LbailleB@gmail.com

Name:
Street Address:
City: Province:
Postal Code:
Telephone:
Cell Phone:
Email:

APPLICANT INFORMATION
(If different from owner)

Name_____ Street Address _____

City_____ Province_____ Postal Code _____

Telephone _____ Cell _____ E-mail _____

DESCRIPTION OF PROPERTY
(As indicated on State of Title Certificate)

Parcel Identifier (PID) 024 289 582

Legal Description: LOT B SECTION 22 Pender Island Cowichan District Plan VIP 67942

Street Address or General Location 3205 CLAM BAY RD

Jurisdiction and Folio Number_____ (from Property Assessment/Tax Notice)

Property Size (hectares) ~~4.05~~ 3.99 GT Proposed Covenant Size (hectares) ~ ~~4.05~~ (less existing covenant) PICA covenant Ledingham Cem. Ecogift

(1) Why do you want to covenant your land?

To protect in perpetuity as a Nature reserve
(Dense cover of) douglas fir, cedar, maple, alder.
Yew - salal, oregon grape, flowering currant - ...
(See images - sent by email to Kate emmings.

(2) Please describe the **current** use(s) of land and building(s) on the property.

There is no current use of this land and no buildings

(3) Please describe the **current** use(s) of land and building(s) on **adjacent** properties.

Lot ~~A~~ has a residential building
Lot A is undeveloped - no buildings

(4) Please check as many of the following boxes as necessary to indicate the natural features on your property that you believe make it eligible for a Natural Area Exemption Certificate and that the property owner(s) is (are) willing to permanently protect through NAPTEP.

- [x] Areas relatively undisturbed by human activity that are good examples of eligible ecosystems (see *Islands Trust Act NAPTEP Regulations* for details)
- [ ] Areas relatively undisturbed by human activity that are key habitat for rare native plant species or plant communities
- [x] Areas that are critical habitat for native animal species in relation to breeding, rearing, feeding or staging
- [x] Geological features

(5) If you have additional information, such as photographs, maps, reports, letters from qualified parties or professional assessments that support your application for a Natural Area Exemption Certificate, please attach to your application.

or email to kemmings@islandstrust.bc.ca

(6) Site Plan: Please submit a sketch that shows the location of the natural features and buildings on the property. Reference the attached Application Checklist for a list of features to be included on the Site Plan.

(7) Is your property adjacent to a park or a protected area? YES [ ] NO [x] but close!

(8) Do you have a preference for an organization/conservancy to co-hold the covenant with the Islands Trust Conservancy? Note that such an organization/conservancy must be authorized to accept covenants under Section 219 of the *Land Title Act* and authorized to accept a statutory right of way under Section 218 of the *Land Title Act*.

YES [x] Pender Island Conservancy Associated NO [ ]
Name of Organization/Conservancy

(9) Please indicate what you would like to name your NAPTEP Covenant. If you do not have a preference, the default is to name it using your last name (i.e. Jones NAPTEPcovenant).

_____

Important: Before you apply, we recommend you obtain independent legal and tax advice to fully understand how a Natural Area Exemption Certificate will affect your particular situation.

The Natural Area Protection Tax Exemption Program is available throughout the Islands Trust area.

CERTIFICATION

I hereby certify that the above information is true to the best of my knowledge and I have reviewed the Annotated Standard Conservation Covenant for NAPTEP. I am willing to permanently protect the proposed area with a covenant of this standard and any necessary easements.

Lisa Baile — **Signature of Applicant**

Jan 17/2020 — **Date**

Lisa BAILE — **Print Name**

AUTHORIZATION

*Required if the applicant is not the sole registered owner. Please list all owners indicated on the Certificate of Title.

Strata Titled Developments require a written endorsement from Strata Councils.

I hereby consent to the application contained herein.

Signature of Owner	Signature of Owner
Print Name	Print Name
Date	Date
Signature of Owner	Signature of Owner
Print Name	Print Name
Date	Date

Freedom of Information and Protection of Privacy

Personal information contained on this form is collected under the authority of the *Islands Trust Act* and is subject to the *Freedom of Information and Protection of Privacy Act.*

The personal information will be used for purposes associated with the conservation proposal. Enquiries about the collection or use of information in this form can be directed to the Islands Conservancy Manager, phone: 250-405-5191.

Contaminated Sites Regulation

Please note that pursuant to Section 4(4) of the *Contaminated Sites Regulation, B.C. Reg. 375/96* **a site profile is not required and will not be accepted by the Islands Trust.** If you have any questions, please contact this office.

NAPTEP

Natural Area Protection Tax Exemption Program

APPLICATION CHECKLIST

Please ensure that all of the information below is included in your application. The Application Checklist is part of the Application Form and must be enclosed with your application. If you have questions regarding submission requirements, please contact Islands Trust Conservancy staff at (250) 405-5186. **Staff cannot begin processing your application until all of the information below has been provided.**

Application Form

- [x] Completed and signed application form
- [x] Authorization signatures from all owners

Application Fee

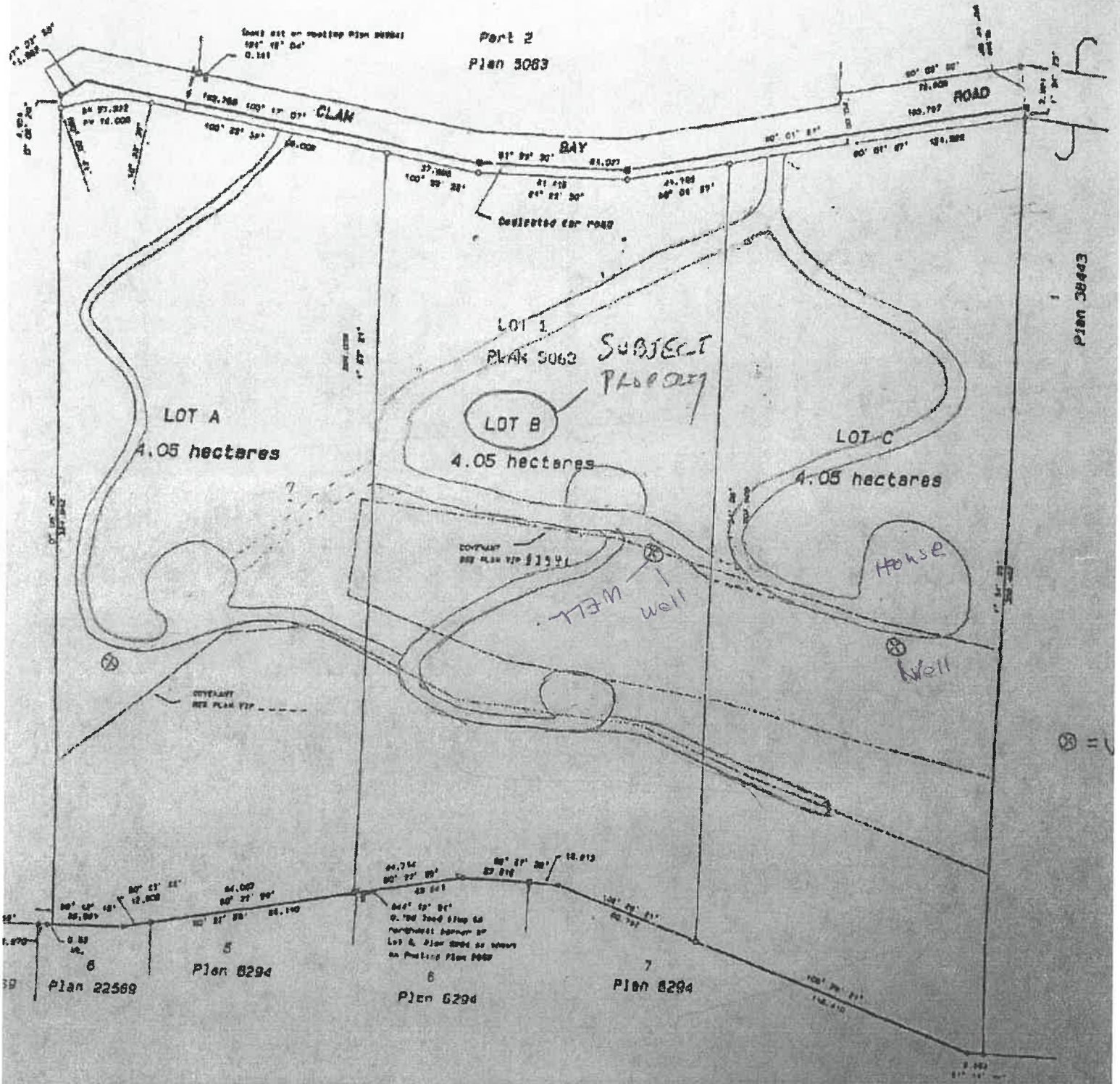
- [x] Phase 1 Application fee of **$275** payable to the **Islands Trust**

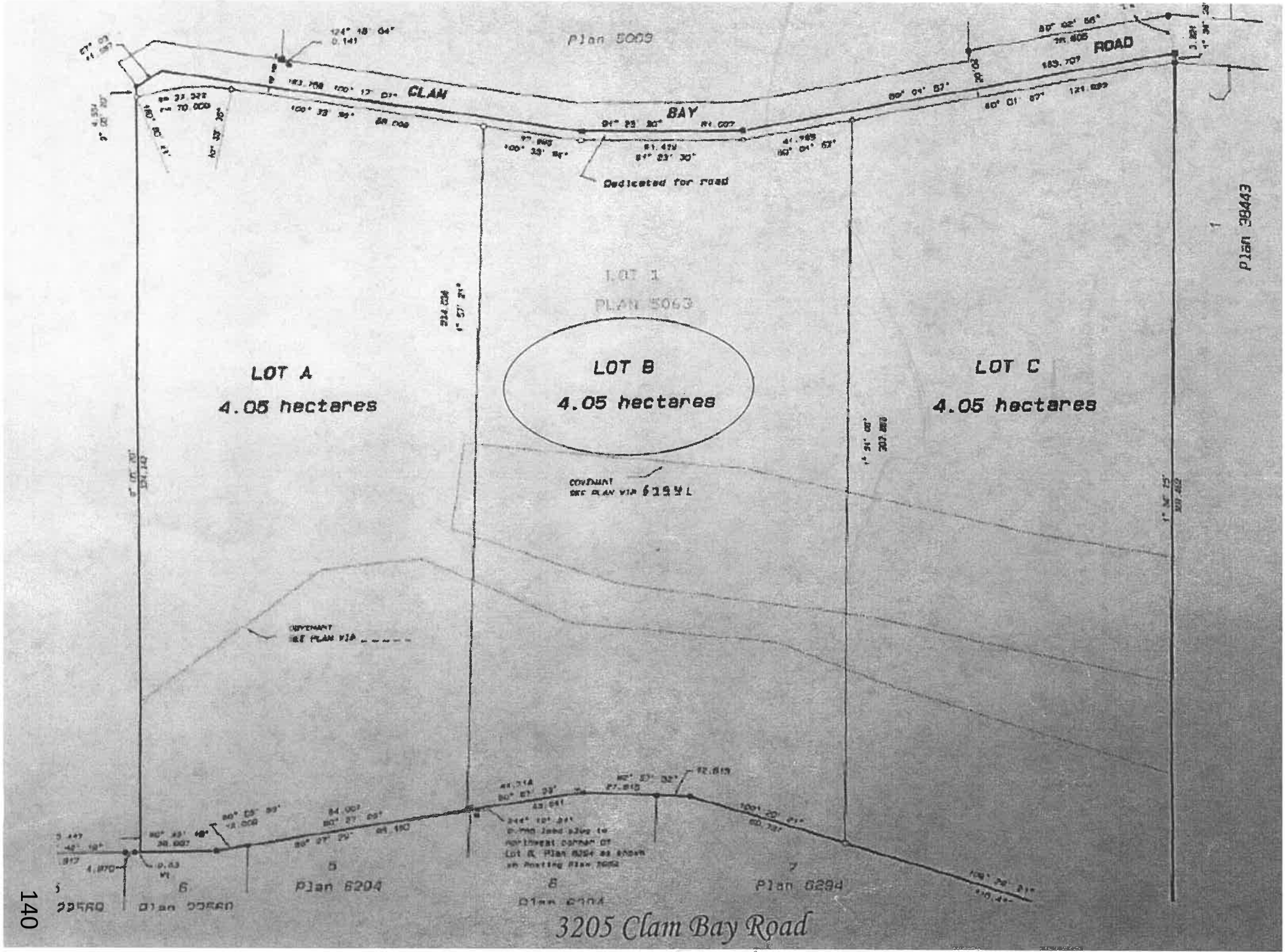
Site Plan Sketch Showing:

- [x] Approximate location of all water bodies (including the ocean), wetlands, drainage areas, ponds, sewage disposal field(s), well(s) and general topography
- [x] Size of the parcel and existing uses
- [x] Uses and approximate dimensions of existing buildings
- [x] Approximate location of all driveways, trails, site access points and adjacent roads
- [x] Approximate location and description of all natural values and amenities proposed for protection
  - Streams
  - Water bodies
  - Wetlands
  - Herbaceous areas
  - Woodlands (open forests)
  - Mature and old forests
  - Cliffs
  - Geological features
  - Known rare species
- [x] Approximate location and dimensions of proposed covenant areas and easement areas (if required)

OCEAN (NAVY CHANNEL)

PLAN OF SUBDIVISION OF LOT 1, SECTION 22, PENDER ISLAND, COWICHAN DISTRICT, PLAN 5083





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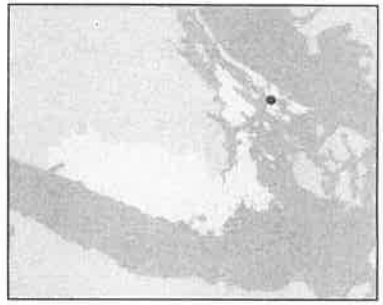
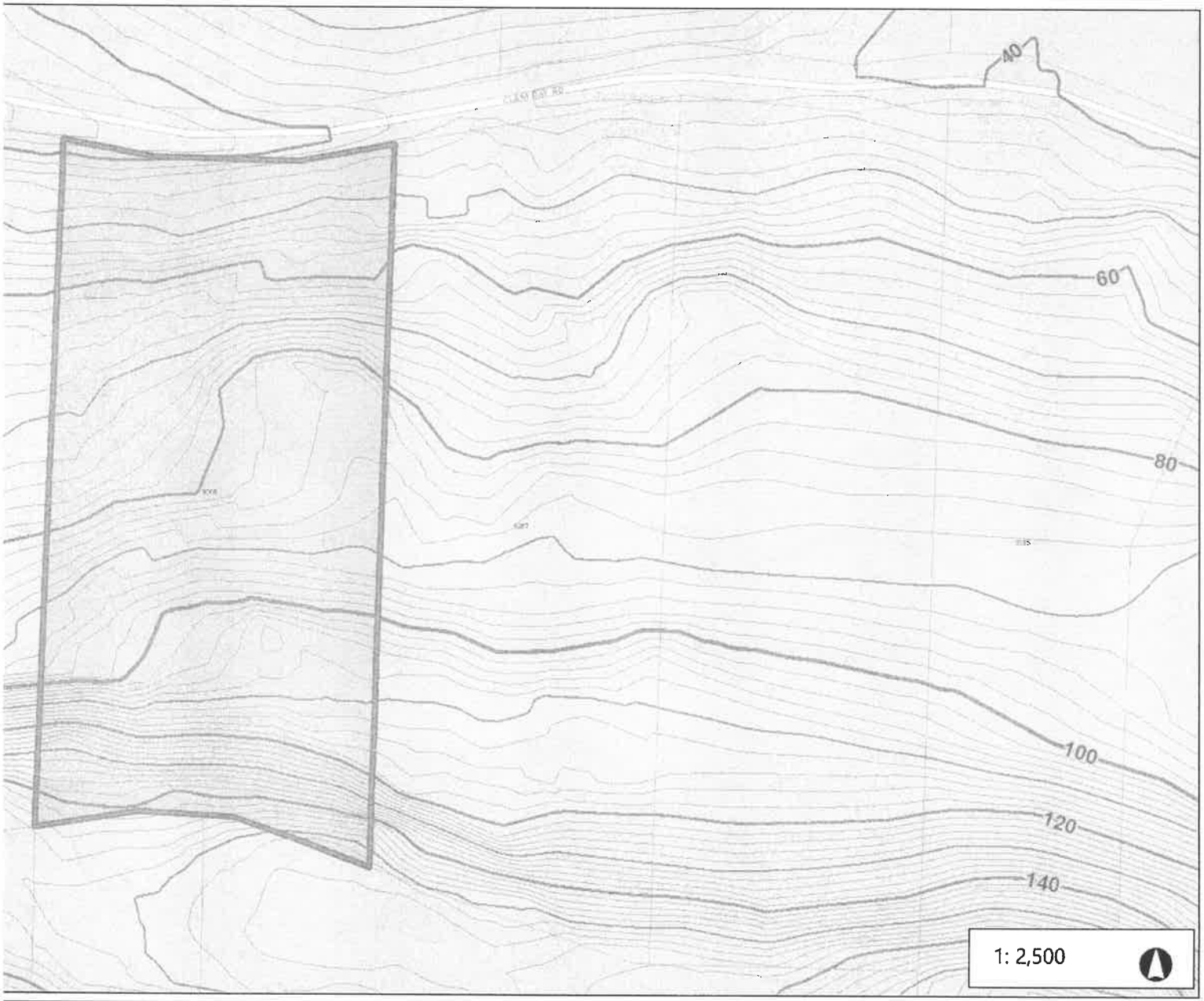
Covenant plan showing Clam Bay Rd OG

a difference...together

3205 Clam Bay-contours





Legend

- Shoreline 1.6m
- 1m
  - Hundred
  - Twenty
  - Ten
  - Five
  - Metre
- Bathymetry
  - 2
  - 5
  - 10
  - 20
  - 30
  - 50
  - 100
  - 200

1: 2,500

Notes

0 0.06 0.1 Kilometres

83_UTM_Zone_10N
al Regional District

Important: This map is for general information purposes only. The Capital Regional District (CRD) makes no representations or warranties regarding the accuracy or completeness of this map or the suitability of the map for any purpose. This map is not for navigation The CRD will not be liable for any damage, loss or injury resulting from the use of the map or information on the map and the map may be changed by the CRD at any time.

ISLANDS TRUST CONSERVANCY

REQUEST FOR DECISION

To:	Islands Trust Conservancy Board	**For the Meeting of:**	May 26, 2020
From:	Staff	**Date Prepared:**	March 13, 2020

SUBJECT: Inner Island Nature Reserve Management Plan, Denman Island

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RECOMMENDATION: That the Islands Trust Conservancy Board approve the 2020 update of the Inner Island Nature Reserve Management Plan dated February 6, 2020.

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1. PURPOSE:

To approve the revision of the management plan for Inner Island Nature Reserve.

2. BACKGROUND:

Islands Trust Conservancy Board policy (ITC 2.3) indicates, "The Board will prepare and approve a management plan for each property it acquires as a Nature Reserve…within one year of acquisition, and will update each management plan approximately every 10 years." Islands Trust Conservancy 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 Inner Island Nature Reserve (IINR) is a 9.4-hectare (23.2-acre) property located in central Denman Island, south of Chickadee Lake, and was established as ITC's first nature reserve in 1992. Denman Conservancy Association negotiated and fundraised to obtain the Reserve and donated it to ITC. The Reserve is made up of two pieces of land that are separated by a long, narrow wetland property, known as Pickles Marsh, held by BC Parks. A Section 219 conservation covenant, held by the Nature Conservancy of Canada, was placed on the Reserve in 1995. Denman Conservancy Association is the official management partner for this property.

The IINR has significant ecological and recreational value. Most of the forest within the IINR is classified as grand fir / three-leaved foamflower (*Abies grandis* / *Tiarella trifoliata*), a rare ecological community in the coastal Douglas-fir moist maritime biogeoclimatic zone. The rest is in a drier ecological community classified as Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii* / *Berberis nervosa*), which is also rare. Most of the extensive wetland area is in a rare wetland classification, Western redcedar / sword fern - skunk cabbage (*Thuja plicata* / *Polystichum munitum - Lysichiton americanus*). Three rare species are confirmed within the Reserve: Northern Red-legged Frog, Western Pondhawk Dragonfly and Great Blue Heron. Visitors to the IINR use a pleasant walking trail on the east side of Pickles Marsh to link up with other forested trails crossing Denman.



Figure 1 *Location of Denman Island; (Denman Island overlay) location of Inner Island Nature Reserve.*

Table 1 *Rare Ecological Communities in Inner Island Nature Reserve and their status.*

Ecological Community Name		**Status**		
Common	**Scientific**	**Provincial**	**BC List**	**Global**
Douglas-fir / dull Oregon-grape (CDFmm/01)	*Pseudotsuga menziesii / Berberis nervosa*	S1 (2018)	Red	G2
Grand fir / three-leaved foamflower (CDFmm/06)	*Abies grandis / Tiarella trifoliata*	S1 (2013)	Red	G1
Western redcedar / sword fern - skunk cabbage (CDFmm 11/Ws53)	*Thuja plicata / Polystichum munitum - Lysichiton americanus*	S3? (2012)	Blue	GNR

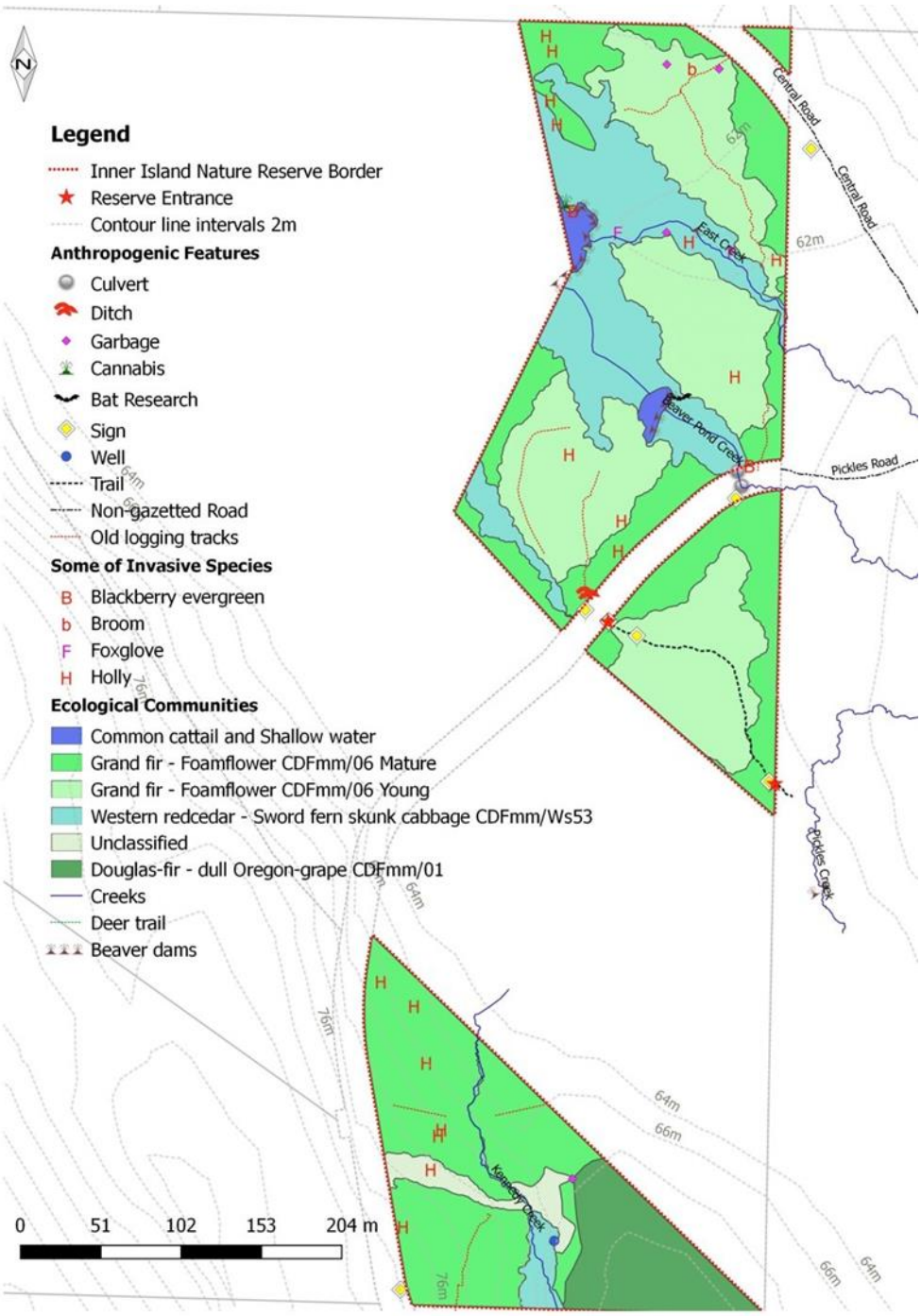

Figure 2 *Map of ecological and anthropogenic features in Inner Island Nature Reserve.*

Table 2 *Species at Risk in Inner Island Nature Reserve.*

Species Name		Status				
Common	**Scientific**	**Provincial**	**BC List**	**Global**	**COSEWIC**	**SARA**
Northern Red-legged Frog	*Rana aurora*	S3 (2016)	Blue	G4 (2015)	SC (2015)	1-SC (2005)
Western Pondhawk Dragonfly	*Erthemus collocata*	S3S4 (2015)	Blue	G5 (2016)		
Great Blue Heron, *fannini* subspecies	*Ardea herodias fannini*	S2S3B,S4N (2018)	Blue	G5T4 (2016)	SC (2008)	1-SC (2010)

This is the third revision of the management plan. It was prepared by biologist Jenny Balke with support from the Denman Conservancy Association and Islands Trust Conservancy. A draft was provided to the covenant holder, Nature Conservancy of Canada, for their input; their edits are incorporated into the Management Plan and the final Management Plan will be sent to them for approval before being implemented.

Key management recommendations are to manage invasive species and engage with First Nations to develop a Management Plan for Areas of Cultural Heritage, gathering and harvesting species, and Sacred Significance. Further inventories for species at risk would provide a clearer picture of the ecology of the reserve and guide future management.

ITC will continue to incorporate new information and knowledge sharing of First Nations interests, species at risk, invasive species, and management techniques over the lifetime of the plan.

The management objectives for Inner Island Nature Reserve are to:

- Preserve and protect the ecological communities, biological diversity, species at risk and natural values of the Reserve;
- Restore plant and animal communities and ecological process where necessary;
- Allow for low-impact pedestrian access and nature enjoyment of the site in areas where such uses are appropriate and compatible with protection of ecological values and in compliance with the conservation covenant held by the Nature Conservancy of Canada;
- Support and protect continued use of areas of sacred and cultural significance for First Nations as per Section 35[1] and UNDRIP[2];
- Support ongoing inventory, mapping and monitoring to guide management actions provided these human activities do not negatively impact native species or the natural ecological functioning of the Reserve;
- Allow the natural ecological processes and functions of the site to proceed unimpeded, except in the case of wildfire or other exceptional situations where remediation is considered imperative; and
- Remove invasive species throughout the Nature Reserve where they compromise natural values.

Immediate Actions proposed for the next 1-2 years:

1. Support all partners, contractors and volunteers to complete cultural competency training in regard to reconciliation, knowledge and history of Coast Salish and Indigenous Peoples.
2. Seek out and appoint a volunteer warden and invite other volunteers to join a 'Friends of' group if there is interest. Decide on the monitoring tasks for the warden and other volunteers.
3. Plan an overall strategy for the removal of invasive species:
    - Plan and begin the removal of English holly
    - Remove the Scotch broom from the logging road
    - Develop a plan to control the spread of reed canary grass
4. Remove illegally dumped materials and other evidence of trespass, including removal of the materials from the recently-discovered cannabis growing operation (plastic bags, soil, etc.). This should be done in the late fall to minimize disturbance of breeding birds.

[1] Section 35 of the Constitution Act, 1982 recognizes and affirms the existing aboriginal and treaty rights of the aboriginal peoples of Canada and the courts have stated that aboriginal rights include aboriginal title.

[2] The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) is an international instrument adopted by the United Nations on September 13, 2007, to enshrine (according to Article 43) the rights that "constitute the minimum standards for the survival, dignity and well-being of the indigenous peoples of the world." The UNDRIP protects collective rights that may not be addressed in other human rights charters that emphasize individual rights, and it also safeguards the individual rights of Indigenous people. Canada signed in 2010.

5. Engage with First Nations to ensure that the management plan is reflective of treaty, inherent rights, and the traditional territories of each Nation.
6. Work in collaboration towards a Management Plan for Areas of Cultural Heritage, gathering and harvesting, and Sacred Significance with First Nations.
7. Analyze the bat calls that have been collected with the bat acoustic call logger as part of the ecological inventory for this Management Plan to give an indication of the species diversity. Plan for subsequent acoustic inventories in future years if resources are available.
8. Consider the need for a kiosk. Design and secure funding for a kiosk if desired. Successful design models include the Cultural Journey kiosks on the Sea to Sky Highway.
9. Consider the need for trail markers.
10. Conduct a fire risk analysis for the Nature Reserve. Meet with the Denman Island Volunteer Fire Department to discuss approaches for mitigating the threat of wildfire in the Reserve, particularly human-source fires.

Short Term Actions proposed for the next 3-5 years:

1. As resources allow continue with invasive species management by implementing a comprehensive invasive species strategy (inventory, removal, reassessment), particularly for English holly.
2. As resources allow, conduct species at risk surveys at appropriate times of year to document species of concern, collect baseline data, guide future management and restoration efforts, and to provide a better understanding of the natural values of the reserve.
3. Begin the discussion of anticipated climate change. As resources allow, design effective monitoring tasks to collect basic data on possible ecosystem changes, perhaps through brainstorming with other reserve managers. Work and liaise with First Nations associations on climate strategies and knowledge.
4. If supported, construct and install an information kiosk.

Long Term Actions proposed for the next 5+ years:

1. Review the effectiveness of invasive species management strategies and adapt as needed.
2. Review the effectiveness of climate change monitoring programs and adapt as necessary.
3. Maintain and update plant species inventories for the Reserve as funding allows.
4. Consider preparing an educational pamphlet about the significant Reserve species if funds allow.

Ongoing or Annual Actions proposed:

1. Annual monitoring walk and discussion between Islands Trust Conservancy, management and covenant partners, volunteer warden and First Nations.
2. Annual review of issues identified by the volunteer warden, Nature Conservancy of Canada and DCA (e.g., invasive species management, trail and incursion impacts, etc.).
3. Annual review of the wildfire risk, ideally every April to prepare for wildfire season.
4. Review of possible climate-related changes and adaptations occurring within the Reserve, as required.

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 ITC properties. The primary management costs for this nature reserve will be the continuation of invasive species removal and trail upkeep. Resources will also be required to engage with First Nations toward cooperative management, conduct climate change research, and coordinate species at risk surveys.

POLICY: Consistent with policy.

IMPLEMENTATION/COMMUNICATIONS: Staff will provide the Board-approved version of the management plan to the covenant holder, Nature Conservancy of Canada, and management group, Denman Conservancy Association, for their final approval. Once approved by all parties, the management plan will be posted to the ITC website. ITC contractors and conservation partners working within the Reserve, will be provided with the management plan.

FIRST NATIONS: ITC staff sent letters to First Nations listed in the First Nations Consultative Areas Database for Denman. There has been no response to date, but this management plan is intended to be a living document and ITC staff will work to engage and receive management input from the First Nations with traditional territory on Denman Island at any time. ITC is just beginning engagement with First Nations in the Islands Trust area and is developing ways to obtain engagement funding. ITC will work over the next year to establish mutually respectful relationships and share management plans and reconciliation goals with First Nations to create more meaningful relationships for the future. Over the 10-year timeframe of this revised management plan, ITC will work more closely with First Nations to build trust through in-person meetings and development of a Management Plan for Areas of Cultural Heritage, gathering and harvesting, and Sacred Significance.

CLIMATE CHANGE: The future impacts of climate change on Inner Island Nature Reserve are unknown, although a summer drying trend and an increase in both frequency and intensity of storm events are predicted. More powerful storms may cause increasing erosion, especially in areas with exposed soil, such as trails. The regular monitoring program recommended in the management plan will ensure timely attention to trail damage and public safety concerns.

Increasingly hotter, drier summers threaten the persistence of wetlands and associated species, such as the Northern Red-legged Frog. Risk of catastrophic wildfire is also increased. The management plan proposes the development of a fire risk evaluation in consultation with local fire authorities. Ongoing protection of Inner Island Nature Reserve will help facilitate the south-to-north and low-to-high-elevation shifts in ecological communities that are predicted with climate change.

OTHER: None.

4. **RELEVANT POLICY(S):** ITC 2.3 - Acquisition and Management of Land

5. **ATTACHMENT(S):** Inner Island Nature Reserve Management Plan

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RESPONSE OPTIONS

Recommendation: That the Islands Trust Conservancy Board approve the 2020 update of the Inner Island Nature Reserve Management Plan dated February 6, 2020.

Alternative: That the Islands Trust Conservancy Board approve the Inner Island Nature Reserve Management Plan as amended.

Prepared By: Nuala Murphy, Property Management Specialist

Reviewed By/Date: Kate Emmings, A/Manager, Islands Trust Conservancy / May 13, 2020

Inner Island Nature Reserve Management Plan

Denman Island, British Columbia



PREPARED FOR:

ISLANDS TRUST CONSERVANCY

REVISIONS: **SECOND:** **J. Balke, Ecofocus Environmental Consultants, Denman Conservancy Association, Islands Trust Conservancy 2020**
FIRST: **Denman Conservancy Association, 2005**

INITIAL PLAN PREPARED BY: Joel Ussery, Victoria, B.C. 1994

SECOND REVISION APPROVED BY:

Islands Trust Conservancy, Date by Resolution Number: ITC-2020-XXX
Denman Conservancy Association, Date
Nature Conservancy of Canada, Date

Executive Summary

Islands Trust Conservancy acknowledges and respects that Sla-dai-aich/Ihaytayich (Denman Island) is within the traditional territory of Coast Salish Peoples, whose historical relationship to the land, culture, and spirit of this place continues to this day. Islands Trust Conservancy is committed to honouring the rich history of Indigenous stewardship in the lands and waters of the Islands Trust Area and to building mutually respectful relationships between Indigenous and non-Indigenous partners in conservation. Therefore, this Management Plan for Inner Island Nature Reserve is a living document that will evolve as opportunities for knowledge sharing arise and understanding grows[1].

The Inner Island Nature Reserve is a 9.4-hectare (23.2-acre) property located in central Denman Island, south of Chickadee Lake. The Reserve is made up of two pieces of land that are separated by a long, narrow wetland property held by BC Parks. This wetland is known as Pickles Marsh or Pickles Beaver Pond. The Inner Island Nature Reserve protects part of Pickles Marsh, as well as three connected creeks. Starting in 1970, the land changed hands several times while Denman islanders made ongoing efforts to protect the wetland and its surrounds. Landholders included private interests, the Vancouver Foundation, the Province, and then the Denman Conservancy Association (DCA), before the Reserve land was finally conserved and donated to the Islands Trust Conservancy in 1992. A conservation covenant, held by the Nature Conservancy of Canada, was placed on the Reserve in 1995.

Located within 640 hectares (1580 acres) of protected forest land, the Reserve is a critical link connecting large areas of forest, wetland habitat, and the drainage system of a broad freshwater catchment area. The Reserve's creeks and adjacent Pickles Marsh contribute freshwater to the year-round flows of Beadnell Creek, Denman's largest salmon-bearing creek. This significant freshwater system is maintained by two beaver dams that are in and immediately adjacent to the Reserve. The mature Douglas-firs and western redcedars of the Reserve provide a buffer for the beavers' wetland activities and for the young recovering forest within the north portion, which was logged in 1984.

The Reserve has significant ecological and recreational value. Most of the forest within the Reserve is classified as grand fir / three-leaved foamflower (*Abies grandis* / *Tiarella trifoliata*) CDFmm/06, a rare ecological community in the coastal Douglas-fir moist maritime biogeoclimatic zone. The rest is in a drier ecological community classified as Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii / Berberis nervosa*), which is also rare. Most of the extensive wetland area is in a rare wetland classification, western redcedar / sword fern - skunk cabbage (*Thuja plicata / Polystichum munitum - Lysichiton americanus)* CDFmm/Ws53. Three rare species are confirmed within the Reserve and an additional 11 would be expected in this habitat. Visitors to the Reserve use a pleasant

[1] First Nations/reconciliation content written by Lisa Wilcox, Islands Trust

walking trail on the east side of Pickles Marsh to link up with other forested trails crossing Denman.

The three major management issues for the Reserve focus on helping to sustain a healthy beaver population, maintaining the trail, and protecting against fire hazards, especially in the context of climate changes that may alter temperature and hydrological regimes. Beavers are essential for the integrity of the marsh, and therefore merit a high level of protection. More woody debris will accumulate as the seral western hemlocks age and die in the centre of the north portion, potentially blocking the trail and contributing to the fire risk. Douglas-fir, grand fir and western redcedar trees in the north portion will continue to gradually replace the western hemlocks, although with a warmer, drier climate the climax species composition may change.

Tables and Lists

Table of Contents

Executive Summary i
Acknowledgements vii
1 Introduction 1
1.1 Islands Trust Conservancy 2
1.2 Purpose of Islands Trust Conservancy Management Plans 3
1.3 The Scope of Islands Trust Conservancy Management Plans 3
1.4 Protected Area Purpose 4
1.5 Protected Area Objectives 4
2 Property Information 5
2.1 Location 5
2.2 Legal Description 5
2.3 Legal Access 5
2.4 Landscape Context 5
2.5 Site History 11
2.6 Anthropogenic Features 14
2.7 Undersurface Rights 20
2.8 Notations, Charges, Liens and Interests 20
2.9 Local Planning Designations 20
2.10 Existing Public and Other Use 21
3 Ecological Inventory 22
3.1 Ecological Significance 23
3.2 Climate 24
3.3 Geology and Physiography 25
3.4 Hydrology 26
3.5 Soils 31
3.6 Ecological Classifications 33
3.8 Wildlife Species 40
3.9 Expected Change Over Time 44
4 Threats 45
4.1 Expected Change to Threats Over Time 47
5 Stakeholder Consultation 48
5.1 Adjacent Land holders 48
5.2 First Nations 48
5.3 Conservation Partners and Community Members 49
5.4 Consultation Results 49
6 Management Plan Recommendations 50
6.1 Management Roles 51
6.2. Permitted and Prohibited Uses 51
6.3 Proposed Monitoring Program 52
6.4 Public Access 53
6.5 Signage 53
6.6 Trail Use, Maintenance and Development 54

6.7 Protection Initiatives for Sensitive Ecosystems and Species and Ecosystems at Risk 54
6.8 Ecological Restoration Options 54
6.9 Scientific Research/Education Opportunities 55
6.10 Exotic and Invasive Species Management 55
6.11 Wildfire Risk Management 56
6.12 Climate Change Impacts and Management 56
7 Action Items 57
7.1 Immediate Actions (1–2 years) 57
7.2 Short term Actions (3–5 years) 58
Long term Actions (5+ years) 58
7.4 Ongoing or Annual Action Items 59
8 Conclusions 59
9 References 60
10 Appendices 62
Appendix 1. Photographic Documentation 62
Appendix 2. Species Status Rank Explanations 66
Appendix 3. Wildlife Species 67
Appendix 4. Ecological Community Polygon Description 72

List of Figures

Figure 1. Major features in the Inner Island Nature Reserve. 7
Figure 2. Location of the Inner Island Nature Reserve. 8
Figure 3. Protected Lands on northern Denman Island. 9
Figure 4. Land use zones of lands adjacent to Inner Island Nature Reserve. 10
Figure 5. Anthropogenic features and invasive species. 19
Figure 6. Temperature and precipitation averages for Comox Weather Station, located approximately 20 km north of the Reserve. 25
Figure 7. Hydrology of Inner Island Nature Reserve. 28
Figure 8. Extract covering the Inner Island Nature Reserve from Islands Trust soil map for Denman Island (Islands Trust 2012). 32
Figure 9. Provincial government soil mapping for Inner Island Nature Reserve. Soil types: 1. Bowser, 2. Hiller, 3. Royston (Province of British Columbia 2018). 32
Figure 10. Ecological communities and features in Inner Island Nature Reserve. 35
Figure A1- 1. Major photo site locations in Inner Island Nature Reserve. 62

List of Tables

Table 1. Management Plan Contributors vii
Table 2. Anthropogenic Features 16
Table 3. Rare species identified in Inner Island Nature Reserve, February–June 2019 23
Table 4. Rare ecological communities in Inner Island Nature Reserve, February –June 2019 23
Table 5. Ecological communities in Inner Island Nature Reserve 34

Table 6. Wildlife species identified in Inner Island Nature Reserve during March–June 2019 42
Table 7. Current Threats to the Inner Island Nature Reserve 46
Table 8. Inner Island Nature Reserve Management Partners 51
Table A1- 1. Documentation of photographs taken by J. Balke and used in this Management Plan 63

Table A3- 1. Rare species potentially using habitats possible in Inner Island Nature Reserve but not identified in this inventory 69

List of Photographs

Photo 1. Beaver dam at mouth of East and Beaver Pond creeks. 1
Photo 2. Entrance to Inner Island Nature Reserve walking trail. 8
Photo 3. Burnt springboard stump. 12
Photo 4. Possible railway logging mounds. 13
Photo 5. Trail in Inner Island Nature Reserve. 15
Photo 6. Conservation sign on Pickles Road. 16
Photo 7. Signs at entrances to Inner Island Nature Reserve. 17
Photo 8. Various signs around the borders of Inner Island Nature Reserve. 18
Photo 9. Historic well hole on creek-side bench in the south portion. 20
Photo 10. Deer trail in the south portion. 22
Photo 11. Illegal cannabis plantation in Pickles Marsh edge 22
Photo 12. East Creek wetlands. 27
Photo 13. Beaver Pond Creek wetlands. 28
Photo 14. Beaver Pond on Beaver Pond Creek. 29
Photo 15. Road-side ditch on Beaver Pond Creek. 30
Photo 16. Third Creek wetland. 30
Photo 17. Kennedy Creek wetland. 30
Photo 18. Pickles Marsh in the Reserve. 31
Photo 19. Mature lowland forest south portion. 36
Photo 20. Old growth Douglas-fir south portion. 36
Photo 21. Large dead snag south portion. 36
Photo 22. Mature lowland forest north portion. 36
Photo 23. Young lowland forest, north portion. 37
Photo 24. Dying Western hemlocks in young lowland forest. 37
Photo 25. Logging road clearing, south portion. Photos a through d go from near Pickles Road to near Kennedy Creek. 38
Photo 26. Dry forest, south portion. 38
Photo 27. Plants in the unclassified shallow waters of Pickles Marsh. 39
Photo 28. Creek-side bench, south portion. 40
Photo 29. Evidence of beaver activity in Pickles 41
Photo 30. Dead western hemlocks create standing dead woody debris in young lowland forest. 45

Photo A3- 1. Rough-skinned newt on beaver dam. 67
Photo A3- 2. Northern red-legged frog. 67
Photo A3- 3. Various invertebrates seen in Inner Island Nature Reserve. 68
Photo A3- 4. Red squirrel midden. 69
Photo A4- 1. Small wetland areas along Kennedy Creek. 82

Acknowledgements

The Inner Island Nature Reserve was both Denman Island's and the Islands Trust Conservancy's first nature reserve. Since 1992, the property has been protected, managed, and monitored by many individuals and organizations. In particular, the author acknowledges the Denman community members who, starting in 1977 and through the early 1980s, resisted the logging of the forests on the land and supported conservation efforts. Thanks also to the Nature Conservancy of Canada and their various covenant monitors, the Vancouver Foundation, Raven Forest Products, the Islands Trust Conservancy Board, and the Denman Conservancy Association's directors and members. Sandy and Des Kennedy are noted for spearheading the early negotiations for acquisition and protection of the Reserve.

This revision of the management plan benefited from the work completed for the 1994 management plan by J. Ussery, the 2003 baseline report by R. Durand, and the 2005 management plan revision by DCA. Special thanks to the neighbours and community members who reviewed this 2020 revision. As always, my sincere appreciation and apologies to the varied plant and animal occupants of the Reserve for my trampling and voyeurism.

Table 1. Management Plan Contributors

Name	Position/Affiliation	Professional Accreditation or subject expertise	Contribution
Jennifer Balke	Principal, Ecofocus Environmental Consultants	Registered Professional Biologist	Ecological inventory, Trimble and Garmin data collection, GPS mapping, historic data, document additions and review
Don Chamberlain	Biologist, Puntledge River Hatchery	Certified GPS Data Processor/Project Manager	Trimble GPS set up, Trimble data-handling, and post-processing
Louise Bell	Self employed	Editor	Information research and compilation, document assembly and editing
Erika Bland	Land Manager, Denman Conservancy Assoc.	M.A. Environmental Studies (Political Ecology)	Facilitation and write-up of the community consultation, and document review
Jemma Green & Nuala Murphy	Property Management Specialists, Islands Trust Conservancy	M.Sc. Environmental Studies (Restoration Ecology) (J. Green)	Contract supervision and document review
Jackie O'Neil	GIS Technician, Islands Trust		Islands Trust GIS data support
Lisa Wilcox	Senior Intergovernmental Policy Advisor	B.A. Psychology Indigenous Knowledge Holder	Reconciliation/Indigenous Knowledge Holder and editing

Denman Conservancy Association	DCA Lands Committee, DCA Board, neighbours and members of the Denman Island Community	Varied	Contribution to information gathering and document review (DCA Lands Committee and Board)

1 Introduction

The Inner Island Nature Reserve's 9.4 hectares (23.2 acres) are located in the interior of north-central Denman Island, south of Chickadee Lake. The two portions of the Reserve (north and south) are separated by a long, narrow property containing a wetland, which is held by BC Parks. This wetland, known as Pickles Marsh, is nearly 25 hectares (61.8 acres) in size and is maintained by beaver dams (Photo 1) in and immediately adjacent to the Reserve. A portion of Pickles Marsh, three creeks connected to the marsh, and a number of associated wetlands all lie within the Reserve. The Reserve protects mature and regenerating coastal Douglas-fir forests as well as this complex of creek and wetland habitat. The property is a central link connecting the surrounding network of 640 ha of protected lands, which includes the Denman Conservancy Association's 62-hectare Settlement Lands and the Denman Island Park and Protected Area established by BC Parks in 2013.



Photo 1. Beaver dam at mouth of East and Beaver Pond creeks.

(1a) Beaver dam taken March 16, 2019



(1b) Beaver dam taken September 14, 2019

Sla-dai-aich/Ihaytayich (Denman Island) is situated within the traditional and treaty territories of the Coast Salish Peoples, who share a rich history of stewardship in the lands and waters of the Islands Trust Area that inspires the work of Islands Trust Conservancy and its partners. Protection of the biodiversity and the integrity of the forest and freshwater systems in Inner Island Nature Reserve has long been important to Denman Islanders and now involves a variety of partners. In the 1970's, the Vancouver Foundation sold the land comprising the Reserve to Raven Forest Products, while they donated the portion containing Pickles Marsh and a 200 foot buffer to the Province. The vision of Denman Island Ratepayers and Residents Association and the Islands Trust was that the entire 87 acre property would become a Nature Reserve. In 1992, the Denman Conservancy Association (DCA) purchased the Reserve land with the help of the Vancouver Foundation and then donated it to the Islands Trust Fund (now the Islands Trust Conservancy (ITC)). DCA and ITC were soon joined by the Nature Conservancy of Canada, which, in 1995, agreed to hold a conservation covenant on the Reserve.

The broad conservation view for the area was captured in the Reserve's first Management Plan, dated 1994, which covered not only the Reserve but also the adjacent parcels of marsh and provincially managed land. The first revision, dated 2005, applied to the same area. Since the creation of the Denman Island Park and Protected Area, however, the need to include the adjoining lands is alleviated, and so this document, representing the second revision of the Management Plan, covers only the 9.4 hectares of the Reserve.

1.1 Islands Trust Conservancy

Since time immemorial, the lands and waters between Vancouver Island and mainland British Columbia have been home to the Coast Salish People, whose ecological, cultural, and spiritual connections to this place continue to this day. In 1974, the Province of British Columbia recognized this region as a special place within the province where the unique beauty, cultural heritage, 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 2019a)

In 1990, through the enactment of a section of the *Islands Trust Act*, the Province established the Islands Trust Fund, now called the Islands Trust Conservancy (ITC), 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 Islands Trust Conservancy. The Board of the ITC is one of the corporate entities[2] charged to uphold the Object of the Islands Trust. Since 1990, the ITC has protected over 1,300 hectares (3,220 acres) of land as nature reserves and conservation covenants.

The vision of the ITC is that the islands and waters of the Salish Sea will be a vibrant place 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 preserves 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 ITC is to protect special places by encouraging, undertaking, and assisting in voluntary conservation initiatives within the Islands Trust Area. ITC nature reserves are managed to maintain, preserve, and protect the natural features and values of ecosystems.

1.2 Purpose of Islands Trust Conservancy Management Plans

ITC management plans provide background information and set out the direction of property management by:

- providing general and descriptive information on the property, including location, history, and land use;
- setting out the conservation goals and objectives for the property;
- identifying the ecological and/or cultural values and features of the property;
- describing the management issues associated with the property; and
- providing 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 completed, the ITC works 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 ITC revises the Management Plan every ten years.

1.3 The Scope of Islands Trust Conservancy Management Plans

Consistent with the Islands Trust Reconciliation Declaration (Islands Trust 2019b), the ITC recognizes that nature reserves may be places of great cultural and spiritual significance to First Nations. Cooperative management of these protected places will

[2]The corporate entities charged to uphold the Object of the Islands Trust are the Trust Council, the Executive Committee, twelve local trust committees, one island municipality, and the Islands Trust Conservancy Board.

provide opportunities to establish and maintain mutually respectful relationships between the Islands Trust Conservancy and First Nations, as well as upholding the guiding principles of United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)[3] and the Truth and Reconciliation (TRC) Calls to Action. Relationship-building, knowledge-sharing, healing, and establishment of trust take time. Islands Trust Conservancy is committed to developing a parallel *Management Plan for Areas of Cultural Heritage and Sacred Significance*. This parallel Management Plan sets out guiding principles for cooperative collaboration between ITC and First Nations with traditional and treaty territories and cultural interests in the area defined by one or more nature reserve. Moreover, the Management Plan defines the common vision, objectives, policies, and best management practices for the nature reserve(s) to ensure that its natural values and cultural heritage and sacred significance are maintained for future generations.

1.4 Protected Area Purpose

The purpose of Inner Island Nature Reserve is to preserve, in perpetuity, the mature Douglas-fir forest, marsh, creeks, and other natural values of Reserve and to maintain the biodiversity of the site for the benefit of the flora and fauna of the reserve, the residents of the island, First Nations, and the province generally. The property will be protected as a nature reserve in accordance with the objectives of the Islands Trust and the ITC.

1.5 Protected Area Objectives

The objectives for the Inner Island Nature Reserve are to:

1. Preserve and protect the ecological communities, biological diversity, species at risk and natural values of the Reserve;
2. Restore plant and animal communities and ecological process where necessary;
3. Allow for low-impact pedestrian access and nature enjoyment of the site in areas where such uses are appropriate and compatible with protection of ecological values and in compliance with the conservation covenant held by Nature Conservancy of Canada;
4. Support and protect continued use of areas of sacred and cultural significance by First Nations as per Section 35 of the Constitution Act[4] and UNDRIP;
5. Support ongoing inventory, mapping and monitoring to guide management actions, provided these human activities do not negatively impact native species or the natural ecological functioning of the Reserve;

[3] The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) is an international instrument adopted by the United Nations on September 13, 2007, to enshrine (according to Article 43) the rights that "constitute the minimum standards for the survival, dignity and well-being of the indigenous peoples of the world." The UNDRIP protects collective rights that may not be addressed in other human rights charters that emphasize individual rights, and it also safeguards the individual rights of Indigenous people. Canada signed in 2010.

[4] Section 35 of the *Constitution Act, 1982* recognizes and affirms the existing aboriginal and treaty rights of the aboriginal peoples of Canada and the courts have stated that aboriginal rights include aboriginal title.

6. Allow the natural ecological processes and functions of the site to proceed unimpeded, except in the case of wildfire or other exceptional situations where remediation is considered imperative; and
7. Remove invasive species throughout the reserve where they compromise natural values.

2 Property Information

Inner Island Nature Reserve is a 9.4-hectare (23.2-acre) property situated in north-central Denman Island (Figure 1). The Reserve is made up of two separate pieces of land that lie on either side of an irregularly-shaped wetland called Pickles Marsh, which is now part of the Denman Island Park and Protected Area. The north portion is approximately 6.5 hectares (16.1 acres) in size and lies on the east side of the marsh. Pickles Road cuts through the north portion and continues southwest to cross the marsh at Pickles Road bridge. The south portion is approximately 2.9 hectares (7.2 acres) in size and forms a triangle near the west side of the marsh, with Pickles Road arching along its western boundary.

2.1 Location

To access the Reserve from the BC Ferries Terminal at Denman West, go up the hill travelling east for 0.4 km on Denman Road. At the intersection at the top of the hill, bear right and travel 0.5 km on Denman Road to the fork at Lacon Road. Bear left and continue east on Denman Road for 1.0 km, travelling up “the big hill.” At the top, turn left (north) on Pickles Road and travel 1.0 km to cross the Pickles Road bridge. The entrance to the Reserve and to the trail in the north portion (Photo 2) is on Pickles Road, about 125 m east of the bridge.

2.2 Legal Description

The north and south portions of the Reserve constitute one parcel, PID 018-012-256. The Inner Island Nature Reserve is legally described as Lot A, Section 21, Denman Island, Nanaimo District, Plan VIP55499. A conservation covenant held by the Nature Conservancy of Canada covers the entire property.

2.3 Legal Access

Legal access to the property is through the entrance to the trail, which is off Pickles Road, approximately 125 m east of the bridge over Pickles Marsh.

2.4 Landscape Context

Denman Island is situated in the Strait of Georgia, just over one kilometre from the east coast of Vancouver Island. The northern tip of Denman is approximately eight kilometres south of the shore of the city of Comox, in the Comox Valley on Vancouver Island (Figure 2). The Reserve is situated in the middle of Denman Island, just north of Denman Road, which spans the width of the island near its centre.

Denman Island is within the traditional and treaty territories of Cowichan, Halalt, Homalco, K'ómoks, Klahoose, Lyackson, Penelakut, Qualicum, Shíshálh (Sechelt), Snaw-naw-as (Nanoose), Snuneymuxw (Nanaimo), Tla'amin, We Wai Kai (Cape Mudge), Wei Wai Kum (Campbell River).

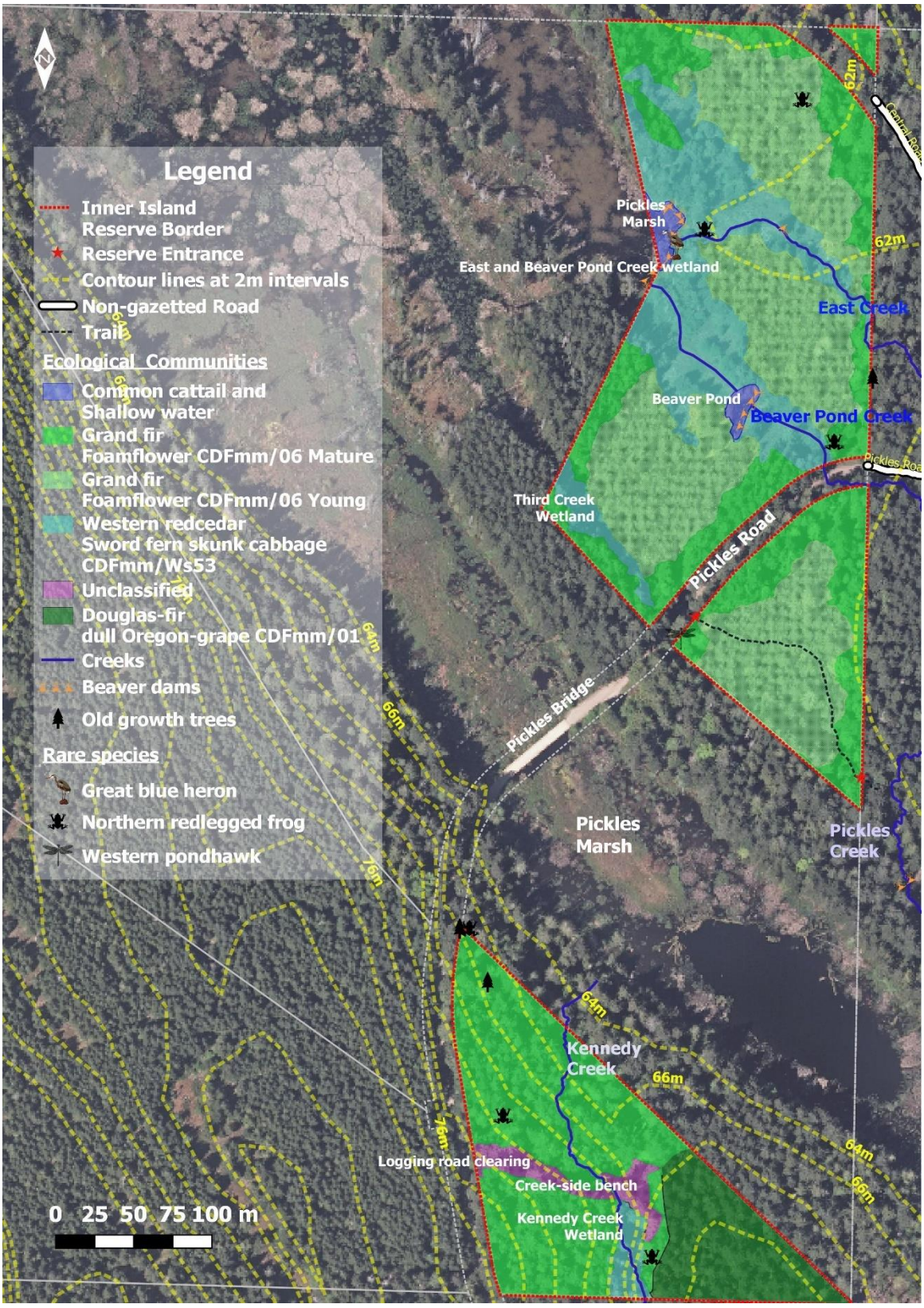

Figure 1. Major features in the Inner Island Nature Reserve.



Photo 2. Entrance to Inner Island Nature Reserve walking trail.



Figure 2. Location of the Inner Island Nature Reserve.

The Reserve contributes to 640 hectares (1580 acres) of contiguous protected lands on Denman Island (Figure 3). The Settlement Lands property, held by DCA, neighbours the northern boundary of the north portion of the Reserve. The rest of the north portion is surrounded by the Denman Island Park and Protected Area held by BC Parks, except for the northeast corner, which abuts an 8-hectare (20-acre) farm in the Agricultural Land Reserve. The south portion is bordered by a variety of lands. To the west of Pickles Road are two 16-hectare (40-acre) properties zoned 'Forestry'; at the southwest corner is a 16-hectare (40-acre) property zoned 'Rural Residential'; to the south is a 4-hectare (10-acre) property zoned 'Rural Residential'; on the southeast corner is a 44-hectare (108-acre) property in the Agricultural Land Reserve; and on the diagonal northeast border is the Denman Island Park and Protected Area. The land use zoning of lands adjacent to the Reserve is shown in Figure 4.

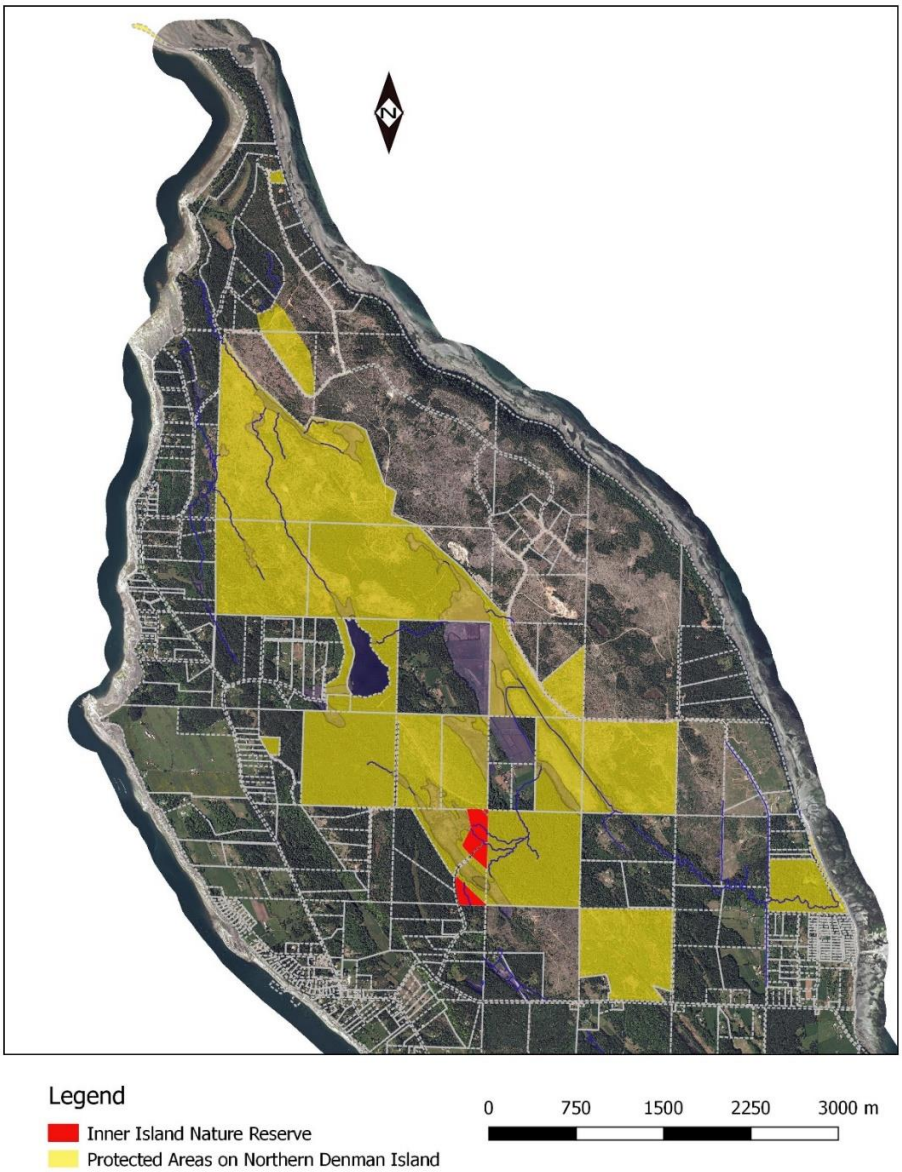

Figure 3. Protected Lands on northern Denman Island.

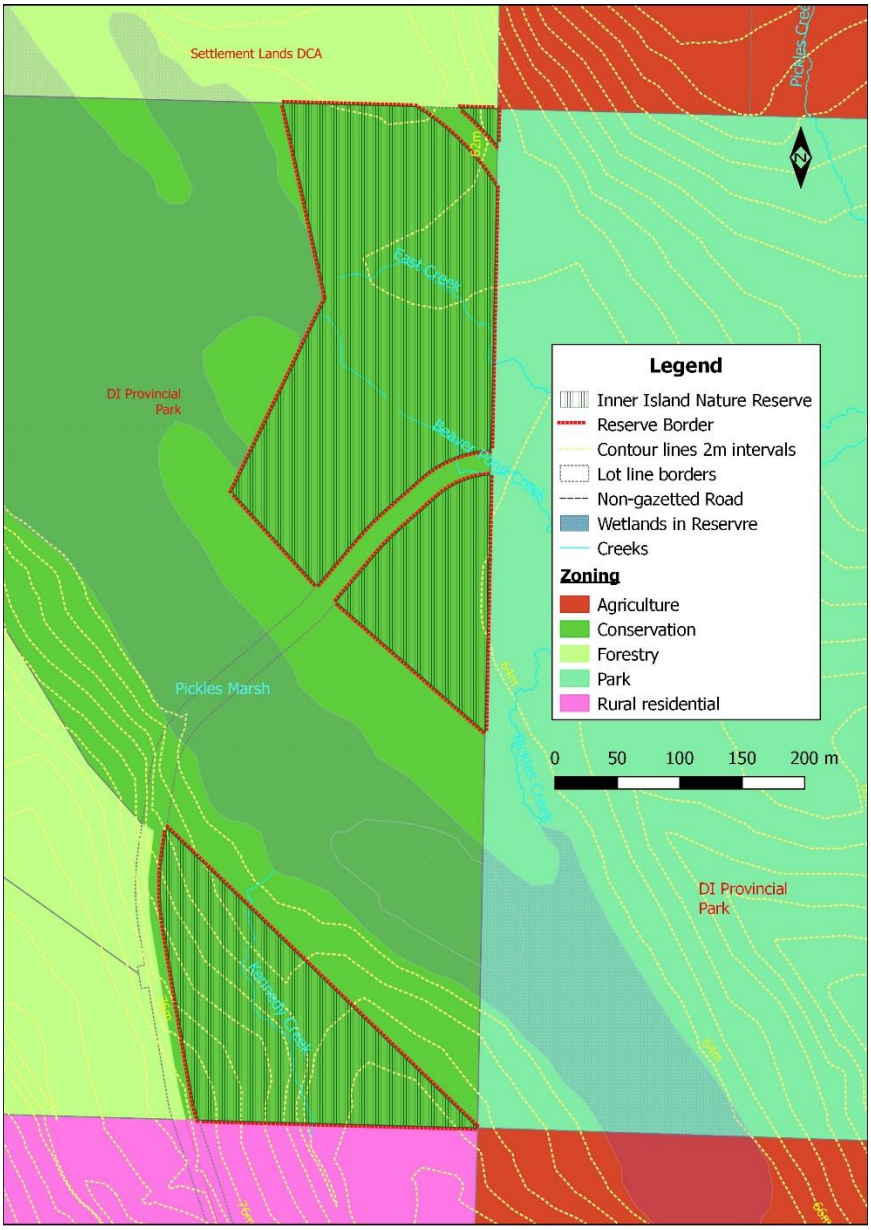

Figure 4. Land use zones of lands adjacent to Inner Island Nature Reserve.

The Reserve is part of a beaver-created wetland complex that contributes significantly to the major, salmon-bearing Beadnell Creek system. On the north side of the north portion of the Reserve, one lobe of Pickles Marsh curves for approximately 60 m into the Reserve, where a beaver dam (Photo 1[5]) crosses the mouths of East Creek and Beaver Pond Creek. Otherwise, a narrow buffer of forest or creek-side wetland separates the marsh from the Reserve. Another beaver dam, beyond the southeast corner of the north portion, drains into Pickles Creek. East Creek and Beaver Pond Creek flow from the east side of Pickles Marsh through the north portion of the Reserve into Pickles Creek, which joins Beadnell Creek, flowing to the sea. Kennedy Creek drains

[5] Documentation for all photographs is included in Appendix 1.

through the south portion of the Reserve and into the west side of Pickles Marsh. In total, over 500 m of creeks flow through the Reserve; the land is flat, so flooded wetlands surround these creeks for most of the year.

The property also links to Pickles Road Trail, a two-kilometre walking trail from the Denman Island Old School Centre on Denman Road to Pickles Road. The trail goes through Central Park, a conservation and recreation parcel in the middle of the island held by DCA, to the Reserve border. Walkers may use the approximately 150-m trail through the Reserve and then cross the DCA Settlement Lands, circle the east side of Chickadee Lake, and continue farther north in the Denman Island Park and Protected Area.

2.5 Site History

Denman Island is located within the treaty and traditional territories of the Coast Salish People and the Kwakwaka'wakw. The island has since time immemorial been the homeland and gathering place for First Peoples including the Cowichan, Halalt, Homalco, K'ómoks, Klahoose, Lyackson, Penelakut, Qualicum, Shíshálh (Sechelt), Snaw-naw-as (Nanoose), Snuneymuxw (Nanaimo), Tla'amin, We Wai Kai (Cape Mudge), Wei Wai Kum (Campbell River); this rich history and cultural heritage continues to this day.

tuwa akʷs χoχoɬ ʔa xʷ yiχmɛtɛt (ʔa) kʷʊms hɛhaw tʊms gʊ̓jɛ
"Care takers of the 'land of plenty' since time immemorial"

For thousands of years Indigenous People occupied the shoreline of eastern Vancouver Island in a place referred to as, "the land of plenty". This Land of Plenty stretched from what is known today as Kelsey Bay south to Hornby and Denman Island and included the watershed and estuary of the Puntledge River.

The K'ómoks First Nation is located in the heart of the Comox Valley on Vancouver Island. Membership is currently 336 members within four clans: Sathloot, Sasitla, leeksun or Eiksan and Puntledge. Two cultures are identified in their community: Coast Salish (Island-Comox speaking peoples and Pentlatch-speaking peoples) and Kwakwaka'wakw (Kwak̓wala speaking peoples). K'ómoks people originally occupied sites in Kelsey Bay, Quinsam, Campbell River, Quadra Island, while Pentlatch people occupied sites around Comox Harbour, Baynes Sound and Hornby and Denman islands (source: K'ómoks First Nation).

Oral history and archaeology describe a rich and bountiful relationship between the K'ómoks and Land of Plenty. Salmon, seal, octopus, herring, cod, deer, ducks, shellfish and a plethora of berries filled the tummies of the young and old alike. The technologies that were applied in harvest, preparation and cultivation of local resources were appropriate to the environment, resource and spiritual beliefs. Fish weirs, duck nets, berry picking techniques and clothing design met the needs of the K'ómoks and for generations provided variety, utility and sense of cultural uniqueness. Mask dances and

rhythmic songs filled the winter nights and season. Property was distributed to guests in potlatches and elaborate naming ceremonies honoured the youth, leaders and elders of the communities.

Following contact with Europeans northern groups started a southerly move into K'ómoks territory. A period of conflict displaced the K'ómoks southward to their relatives the Puntledge. Followed by a period of colonial policy and practices, the K'ómoks families have endured hardship and loss of land, resources and cultural connection. Modern leaders are striving to reclaim cultural expression and relationship to the "the land of plenty". According to Island Comox cultural traditions, the origin of the people began at the meeting of the Quinsam (kwaniwsam) and Campbell Rivers. Mary Clifton, the last speaker of the Island Comox dialect, has conveyed the origin story of a man named Shalhk'em and woman named Tisitl'a that "dropped down from the sky" at kwaniwsam (Quinsam) in present-day Campbell River. With them, they brought the mask and garments of the Xwayxway and together became the first ancestors of the Island Comox people. For the descendants of the Shalhk'em and Tisitl'a, kwaniwsam remains the central location in which Island Comox territory moves outward to Salmon River in the north, Cape Lazo in the south, and the islands in the Salish Sea (formally the Strait of Georgia) (K'ómok Nation webpage).

At this time no archeological impact assessment or cultural knowledge inventory has been conducted within the Reserve.

There is no record of post-colonization settlement on the Reserve land. Nor are there any structures on the land. The logging history includes early high-grade logging of first-growth Douglas-fir, grand fir, and western redcedar prior to the 1930s. Springboard-notched stumps from this logging are still visible throughout the Reserve (Photo 3). An active sawmill was located to the east of the Reserve, and the remains of parallel mounds from the early logging, using a 'humdergen' railroad system (Isbister 1976), can be seen outside the northwest border of the Reserve. Remnants of what appear to be other railway mounds were observed in the south portion of the Reserve during the ecological inventory (Photo 4). Two parallel mounds are visible for at least 10 m-long on either side of Kennedy Creek. Unfortunately, much of mound area is very overgrown. Also, a small flat non-treed area along Kennedy Creek, referred to in this plan as the 'creek-side bench', was described as being tree-less in 1971 and having, at that time, the current shallow well and both a small garbage dump and a wooden structure consisting of a high cross beam supported by cedar posts (personal communication, D. Kennedy).



Photo 3. Burnt springboard stump.



Photo 3. Possible railway logging mounds.

The ecological values of this area of Denman Island were documented over forty years ago (Kennedy and Roberts 1977), and then again in 1988 (Kennedy and Willis 1988). Later, Kennedy (1993) reviewed the original land tenure and history of the area, which follows.

The SE ¼ of Section 21, which contains what became the Reserve portions, was originally part of Comox Logging's privately-owned tree farm holdings on Denman Island. These holdings were included in the will of R. J. Filberg and were donated as part of his 10,000-acre bequest to the Vancouver Foundation (Vancouver Foundation 1977). Later, in the 1970s, at the request of the Islands Trust and the Denman Island Ratepayers and Residents Association, the Vancouver Foundation gave Pickles Marsh, plus a 200-foot buffer of 25.6 hectares (56.4 acres) known as "Lot 1," to the Province, with the understanding that the title to the property would be passed to the Islands Trust. The Province placed Lot 1 under map reserve to the then Ministry of Environment. The remainder of land in SE ¼ of Section 21 was sold to Raven Forest Products, along with other Denman lands in the original tree farm.

In 1984, Raven Forest Products (RFP) logged parts of the north portion of the future Reserve. Strips of mature trees were left along both sides of Pickles Road and along part of the northwest boundary of the Reserve near Pickles Marsh. A few second-growth cedars were also left within the logged area. Then, in 1990, a contractor for Raven Forest Products began constructing a logging road in the south portion of the future

Reserve. This renewed the concerns held by the Denman community and re-started discussions regarding the possible purchase and protection of the land.

After negotiations with the Denman Island Ratepayers and Residents Association and the DCA, RFP agreed to make Lot A, the future Reserve, available for purchase. The Agricultural Land Commission allowed the separation of these pieces from the rest of the RFP land around Pickles Marsh, which was in the Agricultural Land Reserve, on the condition that Lot A and Lot 1 would be consolidated by the Ministry of Environment and the Islands Trust. In December 1992, with help from the Vancouver Foundation, DCA purchased the 9.4-hectare Lot A, which was then donated to the ITC as a nature reserve, becoming the first property owned by the ITC. Throughout the 1990s, the ITC and the DCA applied multiple times for title to Lot 1 and to the SW1/4 of Section 22 in order to complete the agreement with the ALC. Finally, in 2013, the protection of Lot 1 in the Denman Island Provincial Park and Protected Area achieved this goal.

Evidence of the more recent logging of the Reserve by RFP is still visible. In the northern portion, low-cut stumps are present from the 1984 logging, and the tracks used by the logging equipment are becoming more evident as the 35-year-old young forest matures and the canopy begins to open. In 1990, contractors for RFP constructed a timber bridge (no signs remain) across Kennedy creek at the site of the creek-side bench; presumably the bench was to be used as a log landing. The logging road, constructed to reach this bridge, is now a partially-recovering, young seral-stage forest and is referred to in this plan as the 'logging road clearing.'

2.6 Anthropogenic Features

There are no buildings, structures, or other current modifications in the Reserve other than the walking trail (Photo 5), signage (Photos 6, 7 and 8), and an old well hole on the bench beside Kennedy Creek in the south portion of the Reserve (Photo 9). There are no known archaeological sites. Possible remnants of early 1900s logging-railway mounds or ditching are grown over and barely visible (Photo 4), but springboard stumps from early logging can be seen from Pickles Road; many of these trees are heavily fire-scarred (Photo 3). Anthropogenic features are described in Table 2 and shown in Figure 5.



Photo 4. Trail in Inner Island Nature Reserve.

(5a) Trail near Pickles Road entrance.



(5b) Trail at entrance on southern border.



Photo 5. Conservation sign on Pickles Road.

Table 2. Anthropogenic Features

Feature	Description	Condition / Location	Photo Number
Trail	Public walking trail	Hard-pack, earthen, pebble trail, ~40 cm-wide worn surface	Photos 5a and b
Signs	Identification at entrances	In good repair; at trail entrances: Pickles Road and southern border of the north portion	Photo 6
Sign	Information about Reserve. Sign has the allowed uses. Note: An information kiosk could be considered for the entrance off Pickles Road.	In good repair; on post near trail entrance from Pickles Road	Photo 7
Signs	No fires, No tree cutting, No hunting	In good repair; at various locations along property boundaries	Photo 8
Old well	2 x 2 m across, ~ 1 m deep	Dug into dirt at edge of creek, south end of polygon 7 creek-side bench	Photo 9



7a. Sign at entrance off Pickles Road.



7b. Sign at entrance at south end of trail.

Photo 6. Signs at entrances to Inner Island Nature Reserve.

Photo 7. Various signs around the borders of Inner Island Nature Reserve.



Sign	Location UTM Zone 10 Coordinates
No tree cutting	369834 5489980
No hunting	369700 5489674
No hunting	369786 5489758
No hunting	369691 5489687
No smoking No fires	369700 5489674

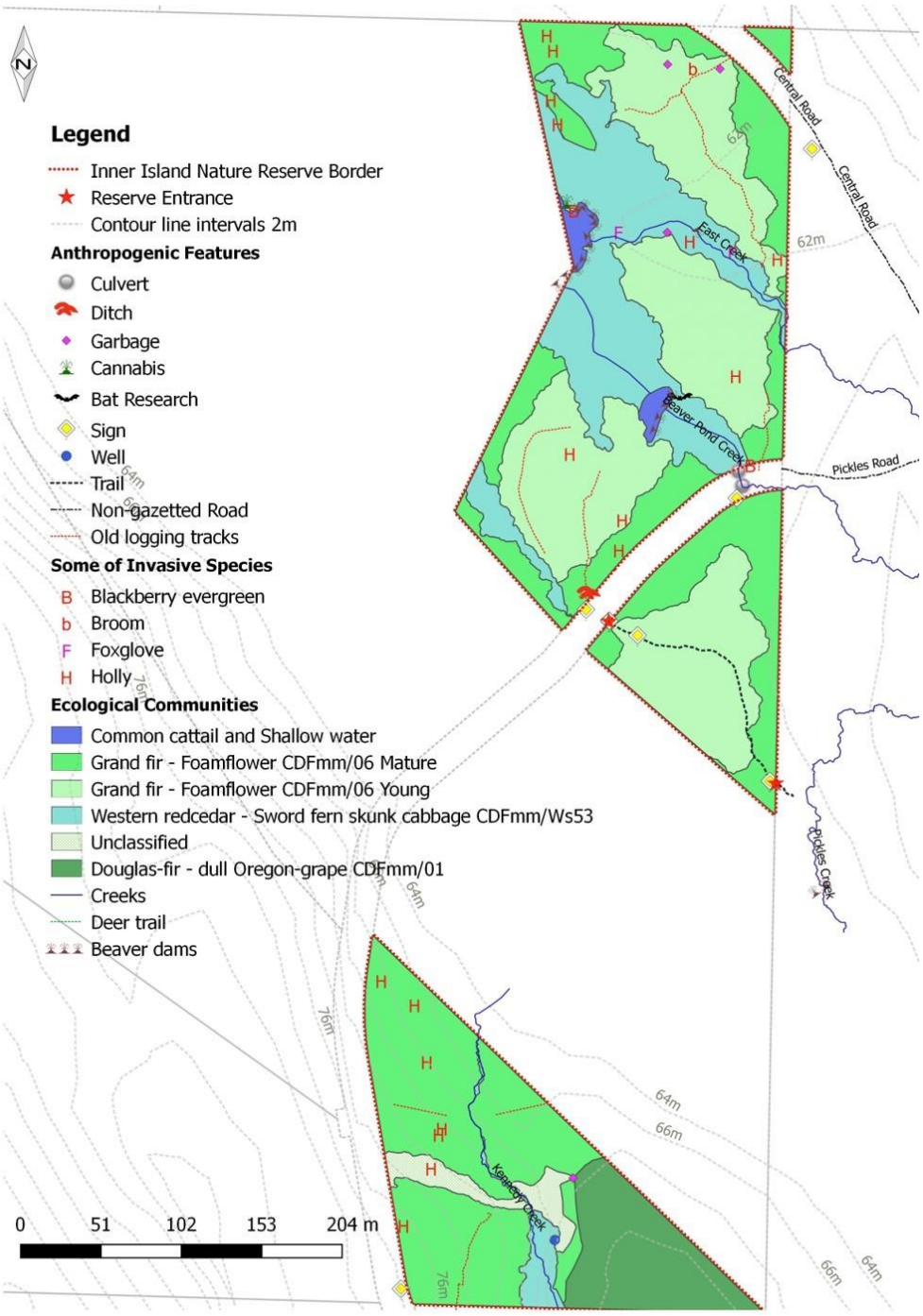

Figure 5. Anthropogenic features and invasive species.



Photo 8. Historic well hole on creek-side bench in the south portion.

2.7 Undersurface Rights

The undersurface rights for Inner Island Nature Reserve are owned by the Province of British Columbia (M76301 and S13080).

2.8 Notations, Charges, Liens and Interests

A Section 215 Covenant (EJ39538) from the Land Title Act was registered in 1995 in favour of Nature Conservancy of Canada. The covenant requires that the land be protected in its natural state in perpetuity, in accordance with a management plan that is to be renewed from time to time. Specifically, the covenant prohibits any disturbance or alteration of the land including, but not limited to: soil disturbance, mineral exploration, tree pruning and removal or other damage to native vegetation, use of biocides, interference with wetlands or water courses, placement of buildings or structures on the land, trail expansion, hunting and fishing, and all such forms of human interference; with the exception of Section 35 rights held collectively by Indigenous Peoples with traditional and treaty territories within the area.

There is also a Section 215 Covenant (EF156078) registered in 1992 in favour of the then Minister of Environment, Lands and Parks and Regional District of Comox Strathcona which restricts buildings or structures.

2.9 Local Planning Designations

The north portion of the Reserve falls within the provincial Agricultural Land Reserve.

The Denman Island Land Use Bylaw (Islands Trust 2017b) zones the Reserve as 'Conservation' (CN). The Denman Island Official Community Plan (Islands Trust 2017a) designates the land use for the property as 'Conservation/Recreation.' The primary objectives of this designation is to protect to conserve Denman's biodiversity by

protecting sustainable populations of all species native to Denman Island's Coastal Douglas Fir Biogeoclimatic Zone and their natural habitats.

A Development Permit Area for Riparian Area Regulation (RAR) Streams, Lakes and Wetlands covers about one quarter of the north portion of the Reserve, and almost all of nearby Lot 1. The primary objectives of this designation is to protect the biological diversity and habitat values of riparian and aquatic ecosystems; to protect the natural environment necessary to conserve productive fish habitat, including both streams and the adjacent land and vegetation; to prevent the degradation of existing and future water supplies on Denman Island; to minimize adverse impacts of land use practices on wildlife habitats and plant habitats in riparian areas; and to prevent water pollution.

2.10 Existing Public and Other Use

Inner Island Nature Reserve falls within the territory of multiple First Nations, and as such has been a site of cultural activity for thousands of years. There is knowledge and oral history relating to this site that may or may not be shared outside of the membership of a First Nation. As a first step toward strengthening cultural connections to the land that were negatively impacted by European settlement, ITC is exploring the potential of a Management Plan for *Areas of Cultural Heritage and Sacred Significance* that will support and enhance the continued use of the site by First Nations.

Most public use of the Reserve takes place on the Reserve's single trail (Figure 5), which is in the north portion south of Pickles Road, and focuses on hiking and quiet appreciation of nature. The trail begins at Pickles Road, approximately 125 metres northeast of the bridge over the marsh, and travels south to meet the Pickles Road Trail. A trail network then connects the Pickles Road Trail to the main entrance into Central Park on Denman Road, opposite the Marcus Isbister Old School Centre. This scenic forested trail network is popular with hikers seeking a relatively long walk.

The Reserve trail used to be the only route linking the Pickles Road Trail to Pickles Road. Earlier, horseback riders occasionally used the Reserve trail to make this connection, but this use was stopped about 10 years ago when a trail suitable for horses was constructed around the Reserve land, providing a second link to Pickles Road.

Other than walking on the Reserve trail, there is little public use of the Reserve. Old tracks from logging activities are barely visible and are mainly used by deer. In the south portion, a prominent deer trail leads across the Reserve to Pickles Marsh (Photo 10). Occasional illegal uses have included logging along the reserve edge and cannabis growing adjacent to the marsh (Photo 11). Signage at the trail entrance in the north portion of the Reserve directs visitors to keep dogs on leash, refrain from horseback riding, and forbids hunting.



Photo 9. Deer trail in the south portion.



Photo 10. Illegal cannabis plantation in Pickles Marsh edge

Parking space on Pickles Road is limited, as this road was designated as a Heritage Road in a 1992 agreement between the Islands Trust and the then Ministry of Highways. A small pull-off area immediately northeast of the Pickles Road bridge accommodates three vehicles at most. Additional vehicles must park along the side of the road.

3 Ecological Inventory

ITC acknowledges that there is a wealth of Traditional Ecological Knowledge and a long history of ecosystem stewardship among the First Nations whose territory encompasses Inner Island Nature Reserve. ITC will strive to work with First Nations knowledge holders to deepen its understanding, improve its stewardship practices, and, ultimately, support the transfer of Traditional Ecological Knowledge to younger generations within First

Nations communities to ensure that it is not lost. At this time, the ecological information presented in this management plan was formed using systems that are based in foundations of Western science.

3.1 Ecological Significance

The two portions of the Inner Island Nature Reserve provide a critical forest buffer on either side of Pickles Marsh, which drains through the Reserve and supplies Denman's major salmon-bearing system. The forests offer diverse structural elements and plant species, with large, approximately 100-year-old Douglas-fir forests (*Pseudotsuga menziesii*), at least one massive veteran tree that is 300+ years old, and late seral pole-sapling/early young forests. The three creeks and adjacent wetlands within the Reserve add to the diversity. These wet and edge habitats include a variety of fruiting shrubs that benefit many bird and insect species. Large coarse woody debris (CWD), huge snags, and dead and dying seral red alder (*Alnus rubra*) and western hemlock (*Tsuga heterophylla*) trees provide habitat for cavity nesters, the amphibian community, and a host of invertebrates and their predators. Together, these forests form a significant part of the 'interior forest' habitat that exists within the surrounding protected area network.

Three rare species and three rare ecosystems were identified in the Reserve during the ecological inventory (Tables 3 and 4) and an additional 11 rare species may be present in the Reserve based on previous sightings or their known presence in similar habitats nearby (see Appendix 2).

Table 3. Rare species identified in Inner Island Nature Reserve, February–June 2019

Species Name		Status				
Common	**Scientific**	**Provincial***	**BC List****	**Global^**	**COSEWIC^^**	**SARA~**
Northern Red-legged Frog	*Rana aurora*	S3 (2016)	Blue	G4 (2015)	SC (2015)	1-SC (2005)
Western Pondhawk Dragonfly	*Erthemus collocata*	S3S4 (2015)	Blue	G5 (2016)		
Great Blue Heron, *fannini* subspecies	*Ardea herodias fannini*	S2S3B,S4N (2018)	Blue	G5T4 (2016)	SC (2008)	1-SC (2010)

*, **, ^, ^^, ~ Species status rankings are explained in Appendix 2.

Table 4. Rare ecological communities in Inner Island Nature Reserve, February –June 2019

Ecological Community Name		Status		
Common	**Scientific**	**Provincial***	**BC List****	**Global^**
Douglas-fir / dull Oregon-grape (CDFmm/01)	*Pseudotsuga menziesii / Berberis nervosa*	S1 (2018)	Red	G2

Grand fir / three-leaved foamflower (CDFmm/06)	*Abies grandis / Tiarella trifoliata*	S1 (2013)	Red	G1
Western redcedar / sword fern - skunk cabbage (CDFmm 11/Ws53)	*Thuja plicata / Polystichum munitum - Lysichiton americanus*	S3? (2012)	Blue	GNR

*, **, ^ Species status rankings are explained in Appendix 2.

3.2 Climate

The climate on Denman follows a pattern of warm, dry summers and mild, wet winters. Denman is in the rainshadow of the Vancouver Island mountains, and the moisture deficit is most pronounced in the summer months. Temperatures are moderated by the maritime influence; consequently, the climate in the Strait of Georgia region is generally the mildest in Canada. Being centrally located on Denman, the Reserve is fairly sheltered from both the sea's moderating influence and marine storms. Nevertheless, the large amount of surface water within and around the Reserve moderates the local micro-climate.

Data on the average climatic conditions within the Reserve were obtained from the 1981–2010 Canadian Climate Normals for the Comox weather station, which is located approximately 20 km north of the Reserve. Precipitation averages approximately 1.1 m annually, most falling from October through March and nearly all falling as rain (Figure 6) (Environment and Climate Change Canada 2019). The warmest period is July and August, with long-term normal maximums of less than 23°C. Long-term minimums from December through February are above 0.5°C. A warming, drying climate will probably have less immediate impacts on the low lying, moist forests of the Reserve compared to upland areas.

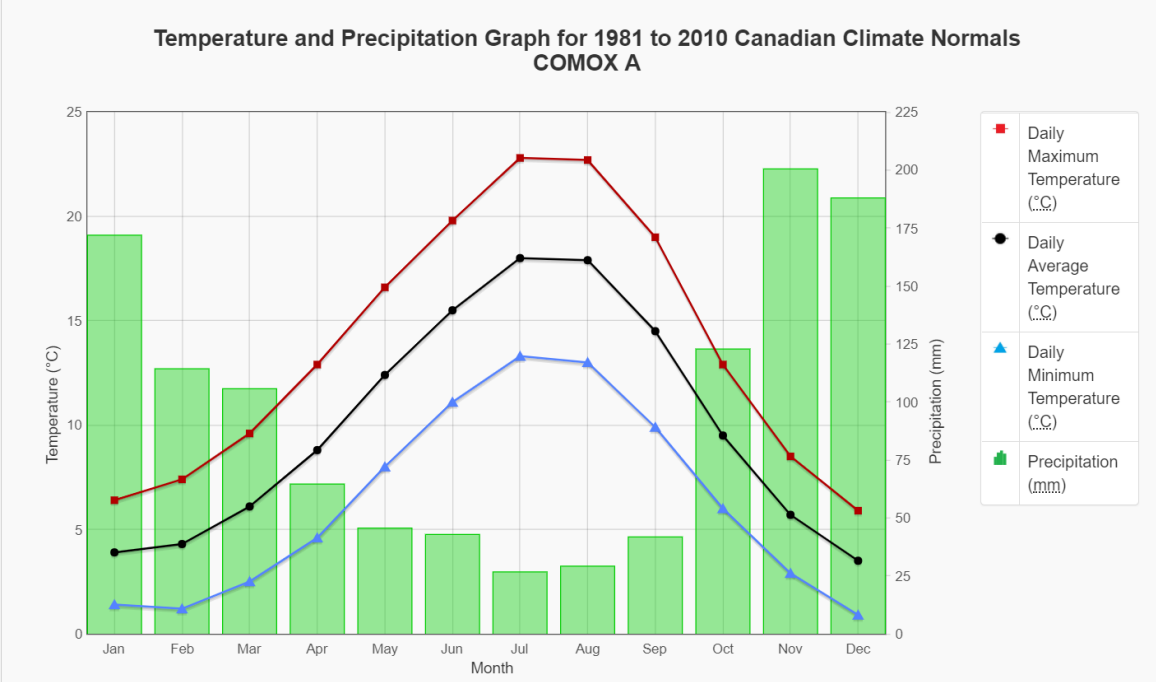

Figure 6. Temperature and precipitation averages for Comox Weather Station, located approximately 20 km north of the Reserve.

3.3 Geology and Physiography

Sediments of the Nanaimo Group underlie all of Denman Island. They are considered to have been deposited as submarine fan complexes deep in the early marine environment some 55 and 87 million years ago (Mustard et al. 1999). The Reserve is mapped as sitting over the De Courcy sediment formation, right near the junction with the overlying Northumberland formation (Katnick and Mustard 2002). The De Courcy formation is made up of thick alternating beds of sandstone and conglomerate, while the Northumberland formation consists of mudstone interbedded with siltstone and sandstone.

The north portion of the Reserve is essentially flat. There are hummocks periodically throughout, probably due to uprooted, long-dead trees, and the land has an almost imperceptible slope of approximately 1–2% along the creeks. The north portion lies between 62 and 64 m above sea level. The south portion of the Reserve has steeper slopes in several directions. The land has an overall slope down, towards the north, of approximately 8% from the highest point at 77 m to the lowest at 65 m. The land also slopes down on either side of Kennedy Creek, 16% from the west side and up to 37% from the east side. The southeast portion slopes about 10% in a bowl towards the northeast (60°). In the south portion of the Reserve there is a broad-flat area, about 25-metre wide, that starts at a bench along the east side of Kennedy Creek and runs to Pickles Marsh.

3.4 Hydrology

The Reserve includes a complicated network of creeks, beaver dams, and impounded wetlands (Figure 7). There are three active creeks and one marsh/swamp (a former creek) in the Reserve. East Creek (Photo 12) flows on the east side of the north portion of the Reserve for about 180 m. The creek begins at the 60-m-long beaver dam on Pickles Marsh (Photo 1), flows through flat wetlands where there is at least one old beaver dam, and then flows into the provincial park. Beaver Pond Creek (Photo 13) also starts at the beaver dam on Pickles Marsh, but the mouth is situated outside the Reserve in the provincial park. This creek flows for 161 m through flat wetlands in the Reserve, is impounded by a beaver dam at Beaver Dam pond (Photo 14), and then runs through another flat wetland. It flows out of the Reserve through a culvert under Pickles Road, where it forms a pond in a road-side ditch (Photo 15). The creek continues into the nearby provincial park, the Denman Island Park and Protected Area, where it later joins Pickles Creek, which flows into the Beadnell salmon-stream system. In the early 1990s, a further creek (Third Creek) was identified to the east of Beaver Pond Creek, beginning at an adjacent inlet in Pickles Marsh and flowing 100 m through the Reserve to Pickles Road. Today, this drainage is a sedge swamp (Photo 16), with no surface-water outlet at the road. In the south portion of the Reserve, Kennedy Creek flows out of a wetland on the southern border of the Reserve, travels 173 m through the Reserve, and empties into Pickles Marsh (Photo 17).

The beaver-impounded Pickles Marsh is a multi-lobed flooded area in the centre of a low elevation basin. A 0.06-hectare portion of Pickles Marsh lies within the Reserve (Photo 18), adjacent to a beaver dam just inside the Reserve's north border (Photo 1). The water from Pickles Marsh drains through this beaver dam at the northern border of the Reserve into the Reserve's two creeks, East Creek and Beaver Pond Creek. Also, just outside, beyond the southern border of the north portion of the Reserve, Pickles Marsh flows through another beaver dam into Pickles Creek. Two other beaver dams in the Reserve are a small dam on East Creek and a larger dam that creates the pond on Beaver Pond Creek. The flatness of the terrain, together with beaver activities, has resulted in about 1.4 hectares (3.5 acres) of wetland/swamp habitat surrounding the creeks in the Reserve's north portion. In the south portion, the narrow valley along Kennedy Creek has another 0.07 hectares (1.7 acres) of wetland habitat.



12a. Old channel at edge of wetland.



12b. Central channel.



12c. Channel at edge of young forest.



12d. Channel entering mature forest.

Photo 11. East Creek wetlands.

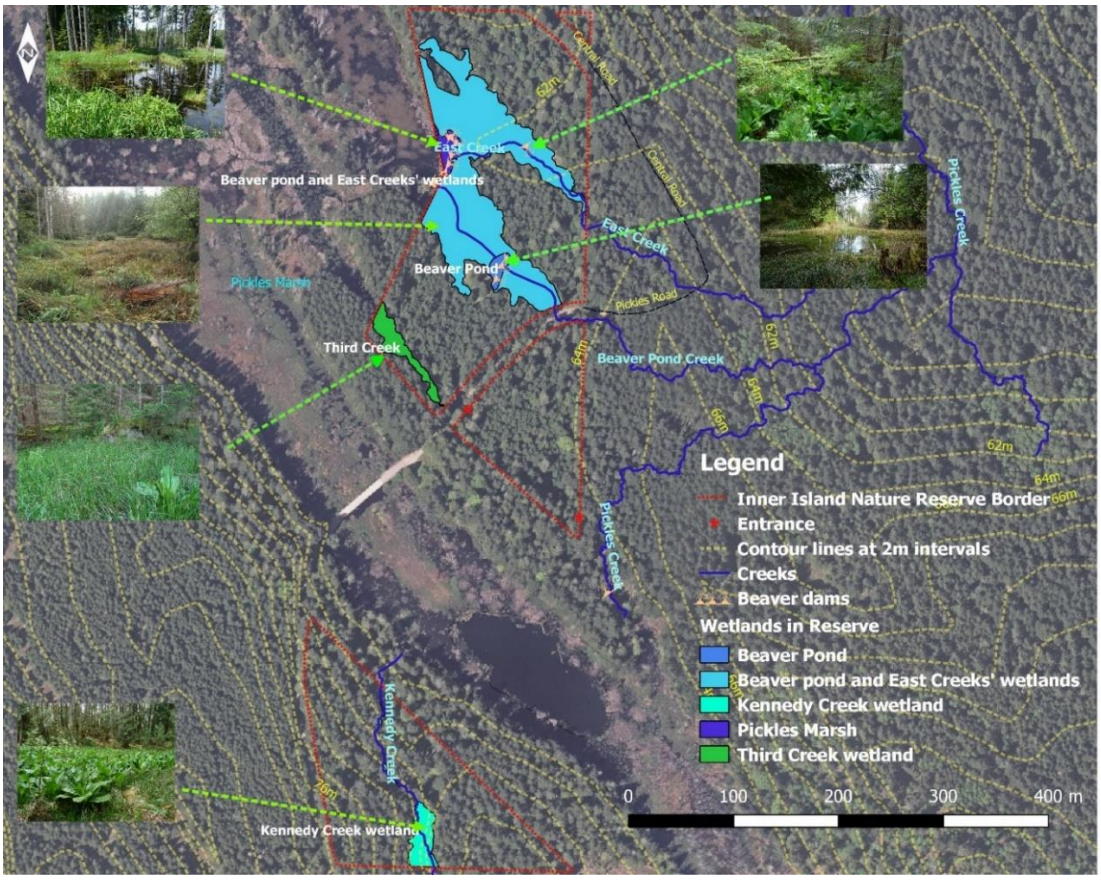

Figure 7. Hydrology of Inner Island Nature Reserve.



13a. Wetlands before pond.



13b. Wetlands after pond.



13c. Reed canary grass area, possible old logging track.

Photo 12. Beaver Pond Creek wetlands.



14a. March 16 taken from northwest.



14b. April 25 taken from south.



14c. May 17 taken from south.



14d. June 9 taken from east side.



14e. June 27 taken from east side.

Photo 13. Beaver Pond on Beaver Pond Creek.



Photo 14. Road-side ditch on Beaver Pond Creek.



Photo 15. Third Creek wetland.



Photo 16. Kennedy Creek wetland.



18a. May 17 taken from east side.



18b. June 9 taken from east side.



18c. September 14 taken from east side.



18d. Pickles Marsh from dam at south end.

Photo 17. Pickles Marsh in the Reserve.

3.5 Soils

The north portion of the Reserve is flat and lies at the bottom of a broad basin that likely collected eroded soil and nutrients, as it has rich soils that provide good growing conditions for trees. The soil in the north portion is shown as 'best soils' in the large-scale Denman Farm Plan map (Figure 8; Islands Trust 2012). As this basin surrounds Pickles Marsh, the soils of most of the south portion of the Reserve are likely 'best' soil type as well, although the Denman Farm Plan map places the line dividing 'best' and 'poor' right at the marsh. The poorer soils of the Reserve occur in the southeast corner of the south portion.

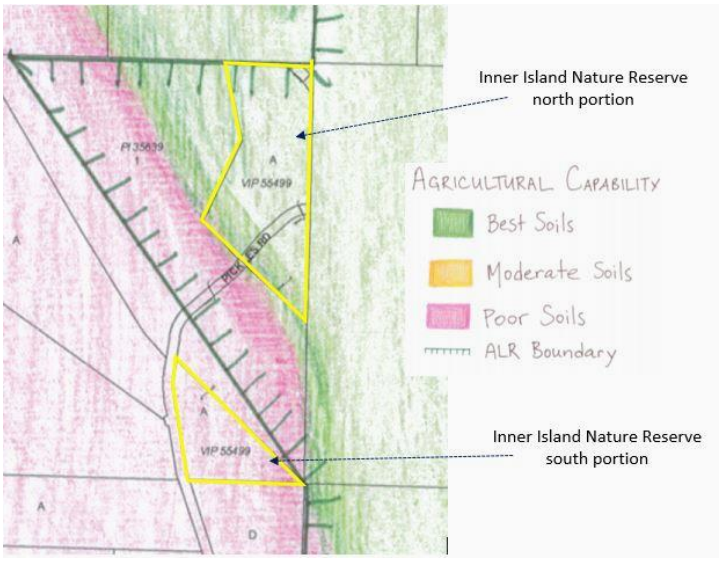

Figure 8. Extract covering the Inner Island Nature Reserve from Islands Trust soil map for Denman Island (Islands Trust 2012).

The provincial government's soil classification map (Figure 9) indicates three soil types under the Reserve (Province of British Columbia 2018). Again, the lines appear somewhat arbitrary. The north portion of the Reserve is mapped as a Bowser soil type, an imperfectly drained sandy loam. The south portion is likely also Bowser in the lower slope and may become Hiller further up the slope. Hiller is also a sandy loam but more rapidly drained. The 'poorest' soil is found on the southeast ridge and is mapped as Royston, an imperfectly drained loam with rock fragments.

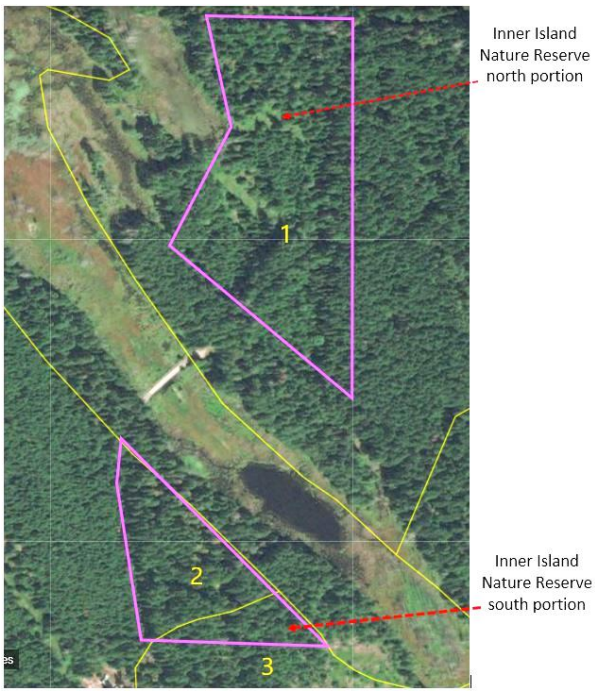

Figure 9. Provincial government soil mapping for Inner Island Nature Reserve. Soil types: 1. Bowser, 2. Hiller, 3. Royston (Province of British Columbia 2018).

3.6 Ecological Classifications

The Reserve is within the national Pacific Maritime Zone and the provincial Georgia Depression Ecoprovince, Georgia Puget Basin Ecoregion, and Georgia Strait Ecosection. The biogeoclimatic zone is Coastal Douglas-fir and the subzone is moist maritime (CDFmm) (Green and Klinka 1984).

The ecological inventory for this management plan was conducted by the author over ten days between late April and July 2019. However, the author has visited this property frequently since 1992. These recent and historic observations build on the documentation in the first management plan (Ussery 1994) used for the original 1995 covenant and the baseline report (Durrand 2003) to update information on the major ecological communities in the Reserve.

Seven ecological communities were mapped (Table 5 and Figure 10): two forest communities, one of which was present at two different structural stages; one distinct wetland community; one mixed wetland community; and two unclassified, recovering, future forest communities. Details of the vegetation in each polygon are provided in Appendix 4.

Most of the Reserve is in Polygon 1 - Mature lowland forest, and is classified as the nutrient-rich, moist grand fir / three-leaved foamflower (*Abies grandis* / *Tiarella trifoliata)* community (CDFmm/06). The south portion of the Reserve comprises mature second-growth forests of this community (Photo 19); a large veteran Douglas-fir (*Pseudotsuga menziesii*) (Photo 20) and several large snags (Photo 21) are all that remain of the original forest. In the north portion, most of this community was logged in 1984 and only a strip of mature forest remains around the border (Photo 22).

The forest in Polygon 2 - Young lowland forest is in a maturing seral stage, with many suppressed and dying western hemlocks (*Tsuga heterophylla*) (Photos 23 and 24). This young forest includes Douglas-fir, grand fir, and western redcedar (*Thuja plicata*) trees that will gradually dominate the canopy. A few larger western redcedars were left during the 1984 logging. The understory of the young forest is poorly developed.

Table 5. Ecological communities in Inner Island Nature Reserve

Polygon Name	#	Ecological Community	Classification	Structural Stage	Provincial Status	Photo #'s
Mature lowland forest	**1**	Grand fir / three-leaved foamflower (*Abies grandis / Tiarella trifoliata)*	CDFmm/06	Mature	Red	4, 19, 20, 21, 22
Young lowland forest	**2**	Grand fir / three-leaved foamflower (*Abies grandis / Tiarella trifoliata)*	CDFmm/06	Maturing seral	Red	5, 23a, 23b, 33
Dry forest	**3**	Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii / Berberis nervosa*)	CDFmm/01	Mature	Red	10, 25
Creeks and associated wetlands	**4**	Western redcedar / swordfern - skunk cabbage (*Thuja plicata / Polystichum munitum - Lysichiton americanus) and Mixed marsh communities*	CDFmm/Ws53	Mature & maturing seral	Blue	12, 13, 15, 16 18, 26 27, 28
Shallow water: a. Pickles Marsh b. Beaver Pond	**5**	Combination of common cattail marsh and shallow water communities (yellow pond-lily and common pondweed)*	CDFmm/ Wm05 and unclassified shallow waters	N/A	Blue and N/A	1, 17a, 17b, 29, 30a, 30b, 30c, 30d
Logging road clearing	**6**	Unclassified [Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii / Berberis nervosa*)]^	CDFmm/01^	Young seral	Red^	24
Creek-side bench	**7**	Unclassified [grand fir / three-leaved foamflower (*Abies grandis / Tiarella trifoliata*)]^	CDFmm/06^	Disclimax	Red^	9, 31

* common cattail (*Typha latifolia*), yellow pond-lily (*Nuphar lutea ssp polysepala*), common pondweed (*Potamogeton natans*)

^ Predicted future community

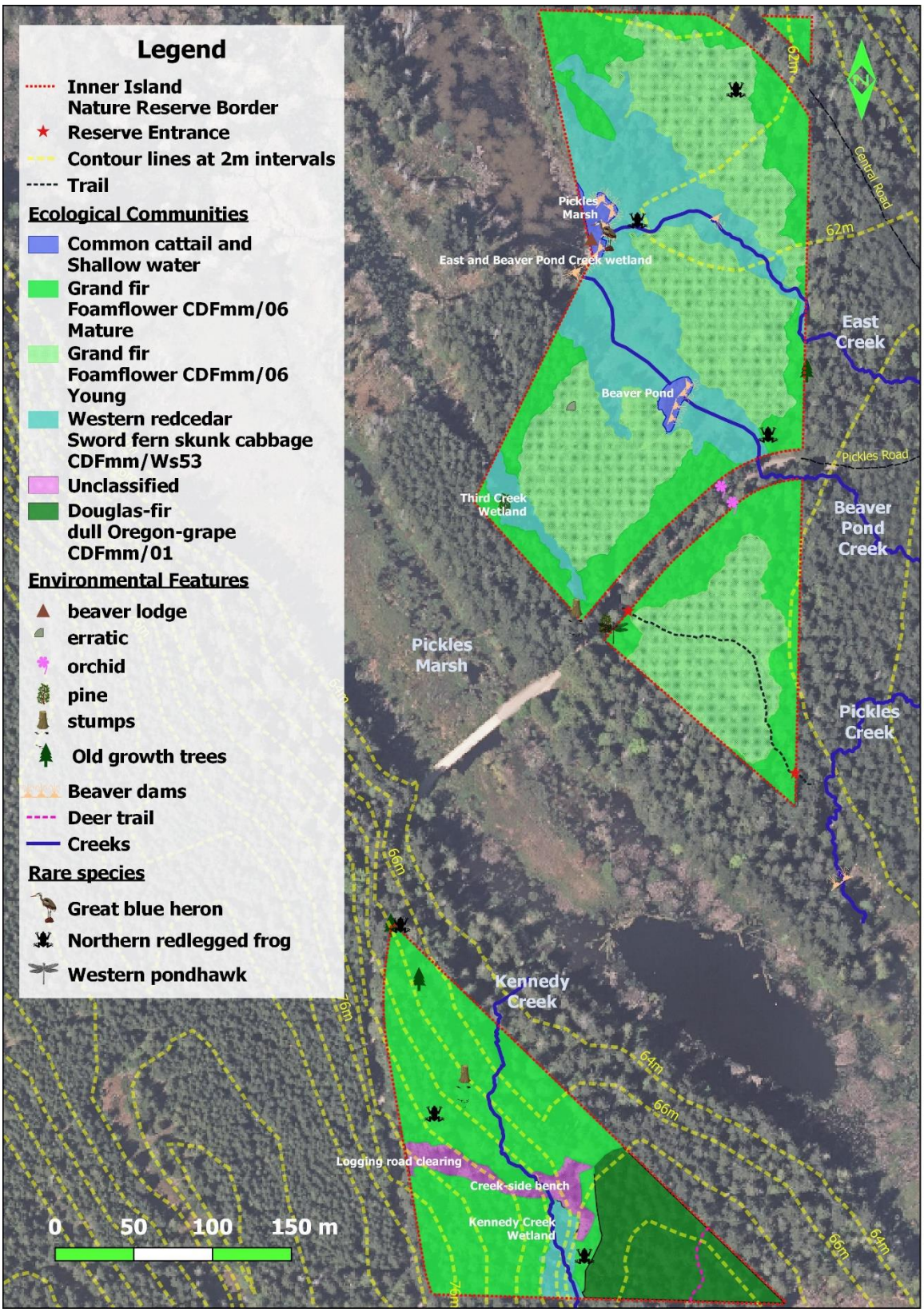

Figure 10. Ecological communities and features in Inner Island Nature Reserve.



19a. Mature forest on slope.



19b. Mature forest near west side of Pickles Marsh.

Photo 18. Mature lowland forest south portion.



Photo 19. Old growth Douglas-fir south portion.

Photo 20. Large dead snag south portion.

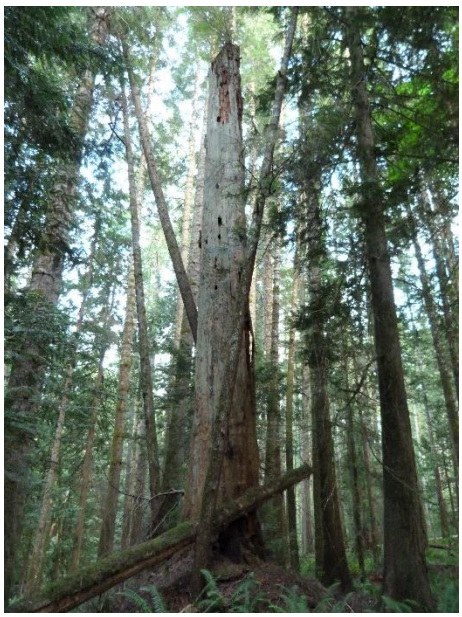

Photo 21. Mature lowland forest north portion.





Photo 22. Young lowland forest, north portion.



Photo 23. Dying Western hemlocks in young lowland forest.

Polygon 6 - Logging road clearing, in the south portion of the Reserve, is a narrow 20-25 m linear corridor within Polygon 1 (Photo 25). Polygon 6 was logged in 1990 to create an access road for further logging. This forest is also in an early seral stage of recovery. Development is limited by the tall surrounding forest and by the damage caused by logging equipment. Impermeable soil, the result of compaction and of the position near the toe of the slope, is likely responsible for the preponderance of moisture-loving species such as lady fern (*Athyrium filix-femina*), deer fern (*Blechnum spicant*), and salmonberry (*Rubus spectabilis*). This corridor will likely develop into the forest community typical of Polygon 1, but at this stage it is unclassified.

Polygon 3 - Dry forest is in the southeast corner of the south portion of the Reserve, where the terrain is elevated on the crest of the eastern slope, and is not in the nutrient-receiving position common to the rest of the Reserve. The forest in this polygon is the drier, medium-to-poor nutrient-level Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii* / *Berberis nervosa*) ecological community (Photo 26). Maturing Douglas-firs,

close to 100 years old, dominate the canopy and salal (*Gaultheria shallon*) is the dominant shrub.



25a. Near Pickles Road.



25b. About halfway to Kennedy Creek.



25c. Nearing the creek on the north side.



25d. From adjacent to Kennedy Creek.

Photo 24. Logging road clearing, south portion. Photos a through d go from near Pickles Road to near Kennedy Creek.



Photo 25. Dry forest, south portion.

Included in Polygon 4 are the Reserve's creeks and associated wetlands (Photos 12-17). In the north portion of the Reserve, some areas are at a maturing seral stage due to damage caused by the passage of logging equipment in 1984. They may also have undergone similar damage in the early 1900s. The wetlands are dominated by sedge, primarily slough sedge (*Carex obnupta*), with skunk cabbage (*Lysichiton americanus*) patches. Portions of these wetlands have disclimax areas invaded by reed canary grass (*Phalaris arundinacea*) (Photo 13c). Beavers eat herbaceous plants, remove trees and shrubs, dig channels, and build dams that create ponds and flooding. These activities will continue to alter the vegetative composition and structure of the wetlands in the north portion of the Reserve.

Polygon 4, in the south portion of the Reserve, comprises the wetlands along Kennedy Creek that have matured without disturbance since the early historic logging (Photo 17). These wetlands are classified as western redcedar / swordfern - skunk cabbage (*Thuja plicata / Polystichum munitum - Lysichiton americanus*) communities.

Polygon 5a - Shallow waters is a small portion of Pickles Marsh, about 0.06 hectares, (Photo 18). This polygon is backed by a large beaver dam and has a narrow rim of common cattail (*Typha latifolia*) (Photo 1); it could therefore be classified separately as a tiny cattail marsh, CDFmm/Wm05. This polygon is next to an unclassified shallow-water area that contains a cluster of yellow pond-lily (*Nuphar lutea ssp polysepala*) and is 85% covered by common pondweed (*Potamogeton natans*) (Photos 27). Beavers travelling and foraging through this area, as observed in March, likely continually change both the physical and the vegetative communities in the area. The dam is close to a beaver lodge, which is within the provincial park boundary.



a. Yellow pond-lily. **b.** Common pondweed.

Photo 26. Plants in the unclassified shallow waters of Pickles Marsh.

Polygon 5b - Beaver Pond is the second shallow-water polygon (Photo 14). This beaver pond is approximately 30 metres in diameter, but varies in size depending on the season and amount of surface water. The pond contains a mix of vegetation, with predominantly yellow pond-lily and several sedges, including slough sedge found around the perimeter.

Polygon 7 - Creek-side bench is a 0.06-hectare (0.15-acre), flat herbaceous community (Photo 28) on the east side of Kennedy Creek in the southeast corner of the Reserve. A logging road was constructed across the creek in 1990 and may have ended within this bench. No subsequent tree growth has occurred. The predominant cover in this polygon is sword fern (*Polystichum munitum*). A square well hole (Photo 9) is located at the south end of this bench. Neighbouring property-holders noted that in the early 1970's remains of an old logging camp were present on this bench. It is likely that the well-hole was dug to serve the camp and the soil compaction and use of the site has retarded the regrowth of forest vegetation.



28a. Bench from the south side.



28b. At the north end of the bench.

Photo 27. Creek-side bench, south portion.

3.8 Wildlife Species

The Reserve provides forest, creek, and wetland habitat for wildlife. The older trees have extensive canopies and large branches suitable for perching, sheltering, nesting, and foraging birds, while the open understory provides a valuable travel corridor for animals, deer browse of understory vegetation may be limiting the growth of certain species. The young forest canopy is just opening up, becoming available to wildlife and allowing understory plant growth, while the dead and dying trees provide important sources of foraging and nesting sites. The marsh edge, three creeks, and extensive, adjacent wetlands are a focus for frogs, aquatic-breeding salamanders, and aquatic insects such as dragonflies and damselflies. The extensive edge of these wet areas is a rich flowering shrub habitat for many species. Pickles Marsh provides a critical reliable drinking water source for wildlife during the summer, and the Reserve shelters wildlife moving to and from the marsh.

Beaver are responsible for the creation and maintenance of the high water levels in Pickles Marsh, and, as a consequence, are essential for maintenance of the downstream wetland habitats. As noted in section 3.4, one of the three major beaver dams holding back the Pickles Marsh water crosses East and Beaver Pond Creeks in the northeast corner of the Reserve. A second dam is just to the west in the provincial park, and the third is on Pickles Creek, immediately adjacent to the southwest corner of the north portion. Beaver have been seen by the author many times in Pickles Marsh (Photo 29a), and were seen foraging around the cattail roots during mapping activities in March 2019.



29a. Beaver in marsh to south of Reserve.



29b. Beaver print in Reserve at edge of Pickles Marsh.

Photo 28. Evidence of beaver activity in Pickles Marsh.

During the inventory, 58 wildlife species were identified in the Reserve: four mammals, 35 birds, three amphibians, and 16 invertebrates (Table 6). Many other species have

been seen in the Reserve at other times, particularly species that are present during other seasons, such as the over-wintering and migrating waterfowl. Trumpeter Swans visit the pond over winter, Barred Owls use the southern portion during mating/nesting season and Belted Kingfishers are regularly seen throughout the summer.

Table 6. Wildlife species identified in Inner Island Nature Reserve during March–June 2019

Common Name	***Scientific Name*** Genus species subspecies	**Type of Record**	**Main Habitat Type**
Mammals			
Black-tailed deer	*Odocoileus hemionus columbianus*	Seen, scat, track	All
Beaver	*Castor canadensis*	Seen, dam	Marsh, creeks
Raccoon	*Procyon lotor*	Track, scat	All, esp. wetland, shore
Red squirrel	*Tamiasciurus hudsonicus*	Seen, midden	All forest
Birds			
American Robin	*Turdus migratorius*	Seen	All
Bald Eagle	*Haliaeetus leucocephalus*	Seen	Forest esp. older, shore
Black-throated Gray Warbler	*Dendroica nigrescens*	Heard	Forest
Brown Creeper	*Certhia americana*	Seen	Forest, bark, snags, cavities
Canada Goose	*Branta canadensis*	Seen	Marsh
Cassin's Vireo	*Vireo cassinii*	Heard	Forest
Chestnut-backed Chickadee	*Parus rufescens*	Seen	Forest
Common Raven	*Corvus corax*	Seen	Forest, esp. older
Common Yellowthroat	*Geothlypis trichas*	Heard	Wetland shrubs
Dark-eyed Junco	*Junco hyemalis*	Seen	Fields, edge, open forest
European Starling	*Sturnus vulgaris*	Egg seen	All, snag nesting
Golden-crowned Kinglet	*Regulus satrapa*	Heard	Forest
Great Blue Heron*	*Ardea herodias*	Seen	Marsh
Hairy Woodpecker	*Picoides villosus*	Seen	Forest
Hammond's Flycatcher	*Empidonax hammondii*	Heard	Forest
Hooded Merganser	*Lophodytes cucullatus*	Seen	Marsh
Hutton's Vireo	*Vireo huttoni*	Heard	Forest
Marsh Wren	*Cistothorus palustris*	Seen	Marsh

Northern Flicker	*Colaptes auratus*	Seen	Forest
Pacific-slope Flycatcher	*Empidonax difficilis*	Heard	Forest
Pine Siskin	*Carduelis pinus*	Heard	Forest
Red-breasted Nuthatch	*Sitta canadensis*	Heard	Forest, snags, cavities
Red-breasted Sapsucker	*Sphyrapicus ruber*	Seen	Forest, snags, cavities, CWD^
Red-tailed Hawk	*Buteo jamaicensis*	Seen	Forest, wetlands
Red-winged Blackbird	*Agelaius phoeniceus*	Seen	Marsh
Ring-necked Duck	*Aythya collaris*	Seen	Marsh
Rufous Hummingbird	*Selasphorus rufus*	Seen	All
Song Sparrow	*Melospiza melodia*	Seen	All
Spotted Towhee	*Pipilo erythrophthalmus*	Seen	All
Swainson's Thrush	*Catharus ustulatus*	Seen	Shrub edge forest
Townsend's Warbler	*Dendroica townsendi*	Heard	Forest
Turkey Vulture	*Cathartes aura*	Seen	Overhead
Varied Thrush	*Ixoreus naevius*	Heard	Forest
Western Tanager	*Piranga ludoviciana*	Heard	Forest
Yellow-rumped Warbler	*Dendroica coronata*	Heard	Forest
Pacific chorus frog	*Pseudacris regilla*	Seen	All
Amphibians			
Northern Red-legged frog*	*Rana aurora*	Seen	Wetland, forest esp. CWD
Rough-skinned newt	*Taricha granulosa*	Seen	All, esp. near water or CWD
Invertebrates			
Anise swallowtail butterfly	*Papilio zelicaon*	Seen	Wetland, creeks
Ant species		Seen	Forest, mounds
Banana slug	*Ariolimax columbianus*	Seen	All, forest
Bluet species damselfly	*Enallagmsa sp.*	Seen	Wetland, creeks, open forest
Cardinal meadowhawk dragonfly	*Sympetrum illotum*	Seen	Wetland, creeks
Chalk-fronted skimmer	*Ladona julia*	Seen	Wetland, creeks, open forest
Common whitetail dragonfly	*Plathemis lydia*	Seen	Wetland, creeks, open forest
Darner (blue-yellow face) dragonfly	*Aeshna sp.*	Seen	Wetland, creeks
Dot-tailed whiteface dragonfly	*Leucorrhinia intacta*	Seen	Wetland, creeks
Four-spotted skimmer dragonfly	*Libellula quadrimaculata*	Seen	Wetland, creeks

Hudsonian whiteface dragonfly	*Leucorrhinia hudsonica*	Seen	Wetland, creeks
Pacific forktail damselfly	*Ischnura cervula*	Seen	Wetland, creeks
Pale tiger swallowtail butterfly	*Papilio eurymedon*	Seen	Wetland, creeks
Robust lancetooth snail	*Haplotrema vancouvernse*	Seen	Forest
Swift forktail damselfly	*Ischnura erratica*	Seen	Wetland, creeks
Western pondhawk dragonfly*	*Erythemis collocata*	Seen	Wetland, creeks, open forest

*Species at risk

^ CWD=coarse woody debris (e.g., fallen trees or branches)

3.9 Expected Change Over Time

As long as beaver are active in the area, marsh water levels and wetland habitats will be sustained. Although organic material accumulates in wetlands, and marshes often fill in over time, beavers tend to disrupt these processes by digging channels, pulling up vegetation, and raising water levels. On the other hand, beaver are vulnerable to disturbance, caused mainly by humans and free-ranging dogs, and beaver dams become weak and change over time. Over the last 30 years, one inlet and creek flowing from Pickles Marsh has diminished in size, but the other creeks and wetlands appear to have been maintained or even enhanced. The current dam at the mouth of East Creek appears to be adjacent to an earlier dam, and remnants of small dams on East Creek suggest that there may have been other beaver ponds. Despite minor changes that are expected to occur in the dams, ponds, and sites with wetland incursion, the area is likely to remain much the same for some time.

The species composition and the amount of forest and wetlands will fluctuate over time. Exotic, invasive reed canary grass has grown up in some of the sunny areas within the wetlands, particularly where logging damage may have occurred. It is possible that this species may be shaded out by tree growth if the beavers allow some wetland trees to grow on the existing hummocks and new mounds created by downed-trees; however, open, sunny, wet areas remain vulnerable to invasion. Other invasive species may increase in number in the forest communities. Although English holly (*Ilex aquifolium*) occurs minimally in the Reserve at this time, holly is spreading across Denman's forests.

The young forest will continue to lose western hemlock (*Tsuga heterphylla*) trees as Douglas-fir (*Pseudotsuga menziesii*), grand fir (*Abies grandis*), and western redcedar (*Thuja plicata*) become the dominant canopy species, resulting in an accumulation of dead wood debris (Photo 30). The understory of the young forest will develop a herbaceous layer dominated by sword fern (*Polystichum munitum*), vanilla leaf (*Achlys triphylla)*, and foamflower (*Tiarella trifoliata*). In the mature forest, the trees will age

and die, contributing to the forest's coarse woody debris and creating gaps for new trees.



Photo 29. Dead western hemlocks create standing dead woody debris in young lowland forest.

The warming and drying anticipated with changing climatic conditions could have profound effects on the wetland and forest habitats. Evaporation in summer and lower levels of annual rainfall may gradually dry out the edges of the wetlands. Because more trees, shrubs, and herbaceous plants will likely grow on the drier sites, the swamp-like, creek-side wetlands may gradually shrink in size, although the flatness of the land may slow the rate of this change. Accumulation of dead woody debris will increase the risk of wildfire, although once the wood is on the ground in this flat, wet terrain, it may retain considerable moisture and rot fairly quickly. The substantial amount of surrounding, intact forest should help to insulate the Reserve's diverse wildlife and plant communities against the threats that contribute to biodiversity loss.

4 Threats

Threats to various areas of the Reserve are presented in Table 7. Threats stemming from human activities may be somewhat alleviated through education and awareness-raising. These threats include trampling damage due to recreational use of the land, especially off-trail activities; wildlife disturbance, particularly of beaver, due to free-ranging dogs; pollution of surface waters draining into Pickles Marsh or Kennedy Creek; alteration of surface water flow patterns; and human-caused fires (e.g., from burning cigarette butts). Other threats, such as invasive species incursions, will require hands-on

management activities. The local threat to conservation lands posed by climate change is not fully understood as yet, and will require monitoring to assess changes and considerable cooperative planning to address these changes.

Table 7. Current Threats to the Inner Island Nature Reserve

Threats	Polygons			
	Mature Forests	Young forests	Creeks and wetlands	Overall Threat Rank*
Recreational Activities on Trails: Walking poses little threat of trampling or disturbance, as long as visitors stay on the trail. Most of the Reserve is without trails. Attention to accidental invasive species introductions along the trail is warranted.	Low	Low	N/A	Low
Recreation Off Trail: Potential problems with off-trail use include soil compaction (the greatest threat to root health), spread of fungal disease, dispersal of seeds of invasive species, and wildlife disturbance. To date, off-trail activities have not been a major problem in the Reserve.	Low	Low	Low	Low
Free-ranging Dogs: Off-leash, free-ranging dogs are a major disturbance and can be a serious threat to wildlife. Few walkers with dogs use the trail through the Reserve, and although unleashed dogs are taken along the road through the Reserve, they are not a significant problem at this time.	Low	Low	Low	Low
Freshwater Drainage: Contamination of the water and/or reduction of inflow into Pickles Marsh represent threats stemming from activities on private land to the south and west of Pickles Marsh, and from the lots along Kennedy Creek. The lots to the west are undeveloped and those to the south are not a threat at this time. Still, education is warranted for residents living near Kennedy Creek. The provincial park land directly upstream from the Reserve is unlikely to cause drainage changes or contamination, but the threat justifies reminding BC Parks	N/A	N/A	Low	Low

staff of the importance of the integrity of the marsh.				
Fire: Fires could be caused by lightning or by human activity. Wildfire would transform the current ecosystems. Considerable fuel (primarily dead, seral western hemlock) is continuing to accumulate, making high-intensity fires possible. Fire scarring on the old springboard stumps is a reminder of this possibility.	Medium	High	Low	Medium
Invasive Non-native Species: English holly is present as tall plants in the south portion of the Reserve and in a few sites in the north portion. Reed canary grass occurs in some open wetlands. A few small Scotch broom (*Cytisus scoparius*) are present on an old logging road near the Settlement Lands.	Low	Low	Medium	Low
Problematic Native Species: Abundant Black-tailed Deer (Odocoileus hemionus) can be problematic, limiting natural regeneration, dramatically altering understory vegetation structure and composition, and adversely affecting songbird populations (Martin et al. 2011).	Medium	Medium	Low	Medium
Climate Change: Threats from climate change include increased summer temperatures, drought, and more frequent and higher-intensity wind and electrical storms and resulting windthrow and fire impacts.	Medium	Medium	Medium	Medium
Overall Threat Status for Protected Area*	Medium-low	Medium	Medium-low	

*High: The threat is likely to seriously degrade the biodiversity target.
Medium: The threat is likely to moderately degrade the biodiversity target.
Low: The threat is likely to only slightly impair the biodiversity target.

4.1 Expected Change to Threats Over Time

As more people use the Reserve, threats from human activities are likely to increase. Problems relating to dogs are increasing at this time and will become a serious ecological threat if dogs are allowed to affect the beaver activities that sustain Pickles Marsh. In fact, the presence of most of the surface water on Denman Island is due to

beaver dams, and so the control of free-ranging dogs is an important issue island-wide. The threat of fire from discarded, burning cigarette butts is also on the rise, partly because forests have been stressed by increasing temperatures and decreasing annual rainfall. Additional development activities, with the associated disturbance of soils and native vegetation, has increased the number and rate of spread of invasive species. Many of these species are increasingly present along roadways and trails, where humans and wildlife act as unintentional dispersal agents.

The threat of wildfire will intensify with the increasing accumulation of dead and dying trees as the seral western hemlock is replaced by the climax Douglas-fir forest. Depending on the rate of climate change the warming and drying of the wetlands may also become a threat to the survival of the species that rely on aquatic habitats for all or part of their life cycle.

5 Community Engagement

5.1 Adjacent Land holders

In preparation for the development of the Management Plan, letters were sent to all landholders and neighbours within a 100 m radius of the reserve. A total of nine letters were mailed on August 21, 2019 (Appendix 4). The letters contained information about Inner Island Nature Reserve, an invitation to a public meeting, and a questionnaire which could be filled in online with SurveyMonkey or on paper and mailed in (see Appendix 5).

Denman Conservancy Association on behalf of Islands Trust Conservancy solicited feedback from neighbouring landholders who volunteered to provide detailed comments on this plan.

5.2 First Nations

Letters were mailed to the following First Nations on October 24, 2019 (Appendix 6):

- Homalco First Nation
- Stz'uminus (Chemainus) First Nation
- Lake Cowichan First Nation
- Halalt First Nation
- Lyackson First Nation
- Penelakut Tribe
- Tla'amin (Sliammon) First Nation
- Snaw-naw-as (Nanoose) First Nation
- K'ómoks (Comox) First Nation
- We Wai Kai (Cape Mudge) First Nation
- Qualicum First Nation
- Wei Wai Kum (Campbell River) First Nation
- Cowichan Tribes

This letter provided information about the Nature Reserve and outlined the proposed management plan.

5.3 Conservation Partners and Community Members

The Lands Committee of Denman Conservancy Association reviewed and provided detailed comments on this Management Plan at various stages of its development, and led the community consultation process. An online questionnaire was also made available from August – November, 2019 and was completed by 9 people.

5.4 Engagement Results

A Public Open House presenting the first draft of this Inner Island Management Plan revision was held at the Marcus Isbister Old School Centre, 5901 Denman Road, on Saturday, September 7th from 11-1pm. 49 people attended this Open House and many participants provided verbal feedback to DCA and ITC personnel about the management plan draft there presented. A computer was made available at the Open House for anyone wishing to fill out the online questionnaire. Refreshments were provided to attendees.

In addition to the Open House, DCA solicited further input from neighbours and others interested in the Reserve through an article in the DCA Newsletter and at our Annual General Meeting in February 2019. Interested parties were invited to contact DCA in order to obtain a copy of the draft plan for review, and answer the online questionnaire. DCA hosted a link to the ITC questionnaire on the Conservancy website, and shared a link to it on social media. The draft management plan was made available for review to three interested neighbours and community members whose written comments were submitted via email to the DCA Land Manager, and then compiled and sent to ITC staff for incorporation into the plan.

Community members were also invited to join DCA Lands Committee members on a site visit to Inner Island Nature Reserve to discuss management issues on the ground. DCA posted a full-page advertisement in the local Grapevine publication, and placed posters around the 'downtown' area. The site visit at Inner Island Nature Reserve on the afternoon of November 23, 2019 attracted 15 community members. Prior to this site visit, 18 people attended a slideshow presentation by Jenny Balke featuring maps and images from the draft management plan.

Questionnaire responses submitted by 9 residents of Denman (8 full-time and 1 part-time) provided useful information about Inner Island Nature Reserve, including ecological observations and historical information. The responses revealed that hiking/walking, wildlife viewing, and dog walking are common uses of IINR. The values chosen as most important for IINR by survey respondents were: Ecosystem Services; Conservation for the sake of the intrinsic value of nature; and Protection of habitat for species at risk. Other values selected by respondents included: Recreational

opportunities; Education/research opportunities; Aesthetic appeal. The responses generally validated the objectives outlined in the current management plan.

Respondents cited a number of activities that they feel are Incompatible with the natural features of this Nature Reserve. These included: Making more trails; encouraging increased human activity; road widening; motorized vehicles; (mountain) biking; tree cutting; dogs off leash; hunting; smoking; plant collecting; anything that challenges the integrity of the environment other than trails for walking; any resource extraction with exception of First Nations use. Respondents also described what they believe are the greatest threats to the Reserve: climate instability; encroaching development; invasive species; unauthorised camping; fire hazards; rogue tree cutting; roads and dust; and too much access.

Overall, public outreach and engagement about IINR and this management plan revealed that while they enjoy and value the Nature Reserve and its intrinsic natural diversity and amenities, islanders are also concerned about the impacts that encroachment on the natural values of the land from too much—or unauthorized—access of various types can cause on the Nature Reserve. In particular, off-leash dogs, increased trail development, tree cutting and fire risk were concerns mentioned by multiple respondents. It will be important going forward for DCA and ITC to solicit feedback about the ongoing use of the Reserve from community members.

6 Management Plan Recommendations

Inner Island Nature Reserve is a dynamic, well-developed, beaver-dependent wetland complex surrounded by mature and young Douglas-fir forests. Young forests in the Reserve have been recovering naturally, without intervention, since logging activity ceased in 1984 in north portion of the Reserve, and in the south portion since construction of the logging road ceased in 1990. The forest's canopy is now beginning to open, the climax forest species are establishing, and the understory is developing. Overall, the ecological communities of the Reserve appear to be in good condition and support active, diverse wildlife populations.

The management of the Reserve has followed the objectives stated in the early Inner Island Management Plan, namely, "to minimize interference with natural biological and hydrological processes; to minimize negative effects from surrounding land uses on the pond, marshes and adjacent forested areas; and to minimize the effects of human activities within the Inner Island Nature Reserve" (Denman Conservancy Association 2005). Thus, management initiatives have focused on monitoring, basic trail maintenance, responding to trespass incidents, and community education. An issue that has always received immediate intervention for both public safety and wildfire protection has been the management of dead trees falling across the trail. The recommendation is to cut young trees hanging up in the forest near the trail or roads to allow them to contact the moist forest floor, thereby speeding their decay and reducing

the fire risk. Illegal tree harvesting along the roads at the edges of the Reserve has been an issue in the past, requiring reporting and public education. Trespass concerns are still warranted, as evidenced by the cannabis-growing operation discovered next to the marsh in 2018.

Management recommendations for the Reserve range from increased, focused monitoring to envisioning altered ecosystems in response to climate change. A key recommendation is to establish a volunteer warden to assist with reserve management and help with the development and assessment of a routine monitoring program. In addition to a monitoring program, valuable ecological data about the features and changes within the Reserve could be gained by creating a system for accepting inventory data from visiting naturalists. The addition of an information kiosk could improve the community's awareness of the Reserve's ecology and about fire protection and prevention. Assistance and advice from the Denman Island Volunteer Fire Department is recommended to mitigate and prepare for wildfire. Also recommended is an overall invasive species strategy for along the trails, with an emphasis on English holly. Last, approaches for dealing with climate change could include examining ecosystem composition (species, conditions and growing sites) in protected areas in southwestern BC and the northern USA, predicting and observing the adaptations of local species to new climatic conditions, and focusing management on learning and adapting new strategies to deal with the new situations.

6.1 Management Roles

The Reserve is held by the Islands Trust Conservancy and is monitored annually by ITC, or its contractors, to determine any management concerns. Denman Conservancy Association (DCA) will help identify major management issues and carry out most of the management actions within the Reserve, in accordance with the management plan, through annually renewed service contracts with the landholder, Islands Trust Conservancy (Table 8). Annual monitoring to ensure compliance with terms of the conservation covenant are the responsibility of the covenant holder, Nature Conservancy of Canada.

Table 8. Inner Island Nature Reserve Management Partners

Partner	**Role**
Islands Trust Conservancy	Land Holder
Denman Conservancy Association	Management Partner
Nature Conservancy of Canada	Covenant Holder

6.2. Permitted and Prohibited Uses

The Nature Reserve is open to the public for walking and nature appreciation. Any uses that could reasonably pose a threat to vegetation, wildlife or wildlife habitat are not permitted. Visitors are expected to keep their pets on leash and under control while in the Reserve.

In accordance with the covenant agreement:

- No component of the land, including soil, gravel, or rock, may be disturbed, explored for minerals, moved, or removed from the land;
- No living or dead tree, including bushes, shrubs, or other plant life, may be trimmed, pruned, cut down, damaged, destroyed, moved, harvested, or removed from the Reserve;
- No herbicides, insecticides, or pesticides may be applied or introduced on the land;
- There may be no alteration or interference with the hydrology of the land without the written approval of the covenant holder;
- The land must not be polluted or contaminated by any matter;
- There may be no interference with, or alteration of, any wetland or body of water in the Reserve;
- No fixtures or improvements, including buildings or other structures, may be built, affixed, or placed on the land;
- No road or trail, other than the existing road, may be laid out or constructed in the Reserve, without the written approval of the covenant holder;
- No fill, soil, rock, rubbish, ashes, garbage, waste, or other material foreign to the land may be deposited in or on the land;
- No hunting, fishing, commercial gathering, or grazing of domesticated animals may be carried out in the Reserve; and
- No other acts may be carried out in the Reserve that, in the opinion of the covenant holder, may have a detrimental impact on the land.

In addition, the following activities are also prohibited in the Reserve:

- Use of motorized vehicles
- Bicycling
- Horseback riding
- Camping
- Fires
- Hunting
- Smoking
- Trail development
- Tree cutting
- Collection or harm of plants, fungi or animals

6.3 Proposed Monitoring Program

ITC monitors annually looking for management concerns. The Nature Conservancy of Canada conducts annual compliance monitoring as covenant holder of the Reserve. DCA regularly visits the Reserve working as the local management partner. Further possible initiatives to augment the monitoring program for the Reserve are as follows:

1. Seek out and appoint a volunteer warden to report regularly (e.g., monthly) and form a ‘friends of’, if there is interest.

2. Invite the warden and any other interested volunteers to undertake specific monitoring tasks and participate in annual monitoring visits with all partners to discuss monitoring findings and management issues.
3. Establish specific photopoint stations to document important features that may change over time or need monitoring for protection.
4. Establish water quality monitoring sites in a) Pickles Marsh at the mouth of East Creek, and b) in the lowest reach of Kennedy Creek.

Possible monitoring tasks for ecological or other features could include:
1. Taking photos at all photopoint stations on an arranged schedule and assessing the changes.
2. Collecting water samples and conducting the water quality tests at the water monitoring sites.
3. Walking the trail to check on the condition, use, and any problems such as garbage dumping, invasive species' presence, fallen trees, etc..
4. Assisting the work bee program to conduct an annual assessment of the presence or spread of non-native invasive species, such as English holly.
5. Conducting specific counts or measurements of chosen species or species groups (e.g., resident birds throughout the year, neotropical migrant birds in summer, the growth of specific plants, monitoring evidence of beaver activity).

6.4 Public Access

The trail through the Reserve is available to the public and links into a trail network within DCA's Central Park and the Denman Provincial Park and Protected Area. Alternative access opportunities for First Nations may be established through a separate Management Plan for *Areas of Cultural Heritage and Sacred Significance*.

6.5 Signage

Signage is kept to a minimum in the Reserve (Figure 5). Recently, DCA installed a sign at the edge of Pickles Road adjacent to the south portion of the Reserve that makes drivers aware that they are passing through conservation land (Photo 6). Other identification signs (Photo7) include a small sign at the entrance to the Reserve trail off Pickles Road (Photo 7a), which provides basic information about the Reserve, and a sign on the trail at the southern boundary of the north portion. Additional 'No hunting' and 'No tree cutting' signs are located on the boundaries of the Reserve (Photo 8). As the trail through the Reserve is short and clear, trail markers are not essential, but would be beneficial. Boundary marker posts would also be beneficial for locating survey pins and for easy reference of the boundary lines.

Installation of an information/education kiosk at the trailhead of the Reserve, similar to other installations at protected areas on Denman, would help visitors appreciate the location and value of the Reserve. The importance of beavers to the marsh, the need to keep dogs on leash and under control, the hazards of fire, and a trail map could be

included in the messaging. The kiosk, as well as active monitoring, might help to discourage trespass activity.

6.6 Trail Use, Maintenance and Development

The Reserve trail is in good shape. Little maintenance is required, except for some exposed roots that may require covering to prevent tripping, and to remove seral western hemlock (*Tsuga heterophylla*) trees that may fall and hang over or block the trail. As noted earlier, trail markers and a kiosk with maps would be beneficial additions.

6.7 Protection Initiatives for Sensitive Ecosystems and Species and Ecosystems at Risk

The Reserve benefits from a large amount of surrounding protected land, as well as adjacent wetland complexes. With limited public access and the extensive available habitat, most of the rare species confirmed or possible within the Reserve are relatively safe from human disturbance. The persistence of northern red-legged frogs is dependent not only on the integrity of the marsh and wetlands, but also on the absence of bullfrogs in the habitat. Unfortunately, the identification and removal of Denman's first confirmed bullfrog was recorded a few kilometers north of the Reserve in 2018 and monitoring of the Pickles Marsh area for bullfrogs could be undertaken. While no large Great Blue Herons rookeries were known in the Reserve, the Reserve provides both foraging and sheltering habitat for herons. The future of Great Blue Herons on Denman is uncertain as Bald Eagles and ravens continue to exert high predation pressure on their once-productive heronries. These predators target heron chicks as prey, and few, if any, immature herons are seen. As a result, the species' long-term future in this area is bleak.

Protection of the rare ecological forest communities is relatively assured by the large protected area that surrounds the Reserve and acts as a buffer against human influence. The major problem facing these ecological communities will be the increasing temperatures and moisture deficits that are expected with the changing climate. Added protection for the marsh and wetland communities from water pollution or inflow issues could be gained by securing further protected lands along the inflowing waterways, particularly along an extensive marsh system to the west of Pickles Marsh and along Kennedy Creek.

While not an 'at risk' species, beaver are critical to protecting the marsh and wetland habitat that supports the aquatic species at risk. Thus, increased outreach to the community about the importance of beaver and their vulnerability to disturbance will continue to be important.

6.8 Ecological Restoration Options

The damaged forest community has been naturally regenerating well and restoration initiatives are not considered necessary at this time. Invasive species removal will continue. Mitigation activities may be possible through the lifetime of this plan to decrease deer overbrowsing and allow for understory and tree vegetation to regenerate and recapture lost biodiversity elements and structure.

6.9 Scientific Research/Education Opportunities

A bat acoustic call logger collected data about bat species using Beaver Pond in August 2019. Analysis of the calls will take place as part of the immediate actions of this plan and will give an indication of the species diversity. Subsequent acoustic inventories can be made at other times in future years.

Additional inventory and behavioural studies, particularly of species at risk but also of species strongly linked to the Reserve's ecological processes, such as beaver, could increase the overall understanding of the Reserve's ecology. Such studies need to be undertaken in a manner that does not disrupt the important habitats within the Reserve. For example, wandering salamanders (*Aneides vagrans*) are undoubtedly present in the Reserve, but incidental observations are highly unlikely. The most effective inventory method would involve using drift fences with pitfall traps and/or taking apart decaying coarse woody debris. However, the costs of disturbance and damage to habitat of such an inventory would need to be weighed against the value of the knowledge to be gained. Alternatively, it may be sufficient to search for these salamanders by gently lifting coarse woody debris in some locations, without doing damage, or by adding artificial cover objects, such as wooden boards, throughout potential habitat to be checked as part of a long-term study. In the same way, when using call playback surveys for rare Western Screech Owls (*Otus kennicottii ssp kennicottii*), the researcher needs to be aware of the possibility of attracting predatory Barred Owls (*Strix varia*).

On July 16, 2019 the ITC Board adopted a Reconciliation Declaration[6] that states a commitment to creating opportunities for knowledge-sharing, understanding, and collaboration. Relationship-building with regional First Nations could lead to an improved understanding of important cultural and ecological knowledge about the forests and wetlands of Denman and possibly about historical uses and cultural values of the Reserve itself. The first steps in relationship-building may include inviting discussion and story-telling, offering support to visiting elders, and helping with any matters identified by First Nations.

6.10 Exotic and Invasive Species Management

Removal of all English holly and Scotch broom within the Reserve is possible with a comprehensive program, as the number of plants is relatively low. Manual removal methods similar to those used by the DCA in other protected areas on Denman could be employed. The majority of the holly plants are in the south portion of the Reserve, although a few are present in the north portion (Figure 5). Broom was observed only on an old logging access in the northeast corner of the Reserve, adjacent to Central Road. The presence of reed canary grass in the wetlands is more problematic. Removal in the

[6] http://www.islandstrustconservancy.ca/media/84933/itc_2019-09-05_itc-reconciliation-declaration-picture.pdf

open, exposed wet areas would require large digging equipment that would do damage to the Reserve. A possible method to limit some of the spread would be to manually cut back the stalks once or twice a year, where possible. However, even this approach would cause compaction of the wet soils and some degree of habitat disruption. Nevertheless, it could be tried and its effectiveness assessed through monitoring. A variety of other mildly invasive species are present and an overall yearly assessment of these species could be a task for the volunteer warden.

6.11 Wildfire Risk Management

Wildfire risk management actions, such as removing woody debris, are limited by the overarching conservation objective of minimizing disturbance to the natural environment. The response to a major wildfire could be challenged by the lack of road access to much of the reserve. As the Reserve is fairly small, some fires could be fought from the edge, but a major fire would likely require provincial assistance with water bombers. Wildfire mitigation and response plans should be developed in collaboration with Nature Conservancy of Canada, DCA and the Denman Island Volunteer Fire Department. These should be updated annually as needed. Methods of controlling human sources of fire include posting notices of smoking bans, installing signs to notify the public of the fire-danger index, adopting a cigarette butt disposal protocol, and closing the trail during periods of extreme danger.

In the north portion of the Reserve, including along the trail, the amount of standing dead and fallen trees is increasing as the western hemlocks die off. This increase in fuel creates a fire hazard. Fortunately, the area is very wet overall, and wildfire risk can be reduced by dropping leaning and perhaps a portion of the young standing dead trees to the ground to enhance their moisture content and encourage coverage by moss (Photo 23b).

6.12 Climate Change Impacts and Management

The moist, flat areas of the Reserve are likely to be the least affected in the short term by the loss of trees and other forest changes, compared to drier sites or those with more exposure. Although unusual storm events may have windthrow impacts on very tall trees in exposed areas, most of the Reserve is fairly protected, in a valley or on flat bottomland. The areas most likely to be impacted by wind disturbance include the forest on the southeast corner of the south portion of the Reserve and the exposed shore of the marsh in the south portion, which includes tall old-growth Douglas-firs. Both areas have withstood the recent unusual windstorm events.

The effect of warmer, drier conditions on the wetlands warrants monitoring. Changes in the species composition of the wetlands and reduction of the wetland area are predicted. More elevated dry sites may develop if water levels drop slightly, as this area is very flat. This change may encourage tree growth and shading of the understory in the previously open areas, leading to increased swamp forest development.

Climate changes may also affect the timing of seasonal events, which would likely disrupt the current patterns of emergence and migration of many species. Wetland communities involve a variety of species with life cycles dependent on water levels and linked to air and water temperatures. Because many of the cycles linking these species are not well-understood, climate change impacts are unknown.

The increased risk of wildfire is perhaps the greatest management challenge for the Reserve. Another concern is the potential increase in abundance and diversity of non-native species, including damaging insect pests that are better able to establish in already climate-stressed ecosystems. In general, for the small discrete protected land parcels on the Gulf Islands, these impacts may change the very features that contributed to their initial protection.

Managing for climate change is likely to mean preparing for new ecological scenarios that involve increased temperatures and reduced moisture conditions. Not only do managers need to plan for the protection of the existing ecosystems in the Reserve, but they also need to design realistic plans to adapt to the various scenarios that may develop over time. The natural values originally present may change considerably, and new values and opportunities may arise. Knowledge of the species growing in protected areas on the Southern Gulf Islands could be beneficial in appreciating expected ecosystem changes, as Denman's climate warms to that of islands to the south. In this potentially unstable future, adaptive management may be the best approach. This includes 1) observing how the natural systems seem to cope with the changes, 2) monitoring various changing features, and 3) managing 'gently,' while limiting human impacts to prevent further stress to the Reserve's ecosystems.

7 Action Items

The following action items are tasks that are intended to contribute to the management, maintenance, or protection of the natural and cultural values of the Reserve and that can be completed by the team of management partners.

7.1 Immediate Actions (1–2 years)

1. Support all partners, contractors and volunteers to complete cultural competency training in regard to reconciliation, knowledge and history of Coast Salish and Indigenous Peoples.
2. Seek out and appoint a volunteer warden and invite other volunteers to join a 'friends of' group if there is interest. Decide on the monitoring tasks for the warden and other volunteers.
3. Plan an overall strategy for the removal of invasive species.
    a) Plan and begin the removal of English holly.
    b) Remove the Scotch broom from the logging road.
    c) Develop a plan to control the spread of reed canary grass.

4. Remove illegally dumped materials and other evidence of trespass, including removal of the materials from the recently-discovered cannabis growing operation (plastic bags, soil, etc.) This should be done in the late fall to minimize minimal disturbance of breeding birds.
5. Engage with First Nations to ensure that the management plan is reflective of treaty, inherent rights, and the traditional territories of each Nation.
6. Work in collaboration towards a Management Plan for Areas of Cultural Heritage, gathering and harvesting, and Sacred Significance with First Nations.
7. Analyze the bat calls that have been collected with the bat acoustic call logger collected as part of the ecological inventory for this Management Plan to give an indication of the species diversity. Plan for subsequent acoustic inventories in future years if resources allow.
8. Consider the need for a kiosk. Design and secure funding for a kiosk if desired. Successful design models include the Cultural Journey kiosks on the Sea to Sky Highway.
9. Consider the need for trail markers.
10. Conduct a fire risk analysis for the Nature Reserve. Meet with the Denman Island Volunteer Fire Department to discuss approaches for mitigating the threat of wildfire in the Reserve, particularly human-source fires.

7.2 Short term Actions (3–5 years)

1. As resources allow, continue with invasive species management by implementing a comprehensive invasive species strategy (inventory, removal, reassessment), particularly for English holly.
2. As resources allow, conduct species at risk surveys at appropriate times of year to document species of concern, collect baseline data, guide future management and restoration efforts, and to provide a better understanding of the natural values of the reserve.
3. Begin the discussion of anticipated climate change. As resources allow, design effective monitoring tasks to collect basic data on possible ecosystem changes (e.g. through brainstorming with other reserve managers). Work and liaise with First Nations associations on climate strategies and knowledge.
4. If supported, construct and install an information kiosk.

Long term Actions (5+ years)

1. Review the effectiveness of invasive species management strategies and adapt as needed.
2. Review the effectiveness of climate change monitoring programs and adapt as necessary.
3. Maintain and update plant species inventories for the Reserve as funding allows.
4. Consider preparing an educational pamphlet about the significant Reserve species if funds allow.

7.4 Ongoing or Annual Action Items

1. Annual monitoring walk and discussion between ITC, management and covenant partners, volunteer warden and First Nations.
2. Annual review of issues identified by the volunteer warden, Nature Conservancy of Canada and DCA (e.g., invasive species management, trail and incursion impacts, etc.).
3. Annual review of the wildfire risk, ideally every April to prepare for wildfire season.
4. Annual review of possible climate-related changes and adaptations occurring within the Reserve, as required.

8 Conclusions

The 9.4 hectares comprising Inner Island Nature Reserve are at the heart of a major beaver-created wetland complex and part of 640 hectares of contiguous protected land on north-central Denman Island. The three creeks, associated wetlands, and a marsh support high biodiversity. Both the young and maturing (approx. 100 years old) Douglas-fir forests provide a buffer for the wetlands and add to the area of continuous intact forest. The Reserve protects three rare ecological communities and three rare species, with an additional 14 rare species likely or possible within the Reserve.

The major management issues relate to protecting the integrity of the marsh, wetlands, and forests from prohibited human activities, both intentional and accidental, and ensuring public safety and mitigating wildfire risk along the trail and adjacent roads in this relatively remote area. The key recommendation is to appoint a volunteer warden to assist ITC and DCA with routine monitoring and maintenance tasks. Other management recommendations include developing both an invasive species management plan and a climate change response plan that involve focused monitoring for data collection, with ongoing analysis of the data and adaptive decision-making based on observations.

Inner Island Nature Reserve is a complex of ecosystems with high biological diversity, its species composition and web of interconnections is not yet fully understood. The long-term protection of the Reserve's ecological integrity will depend on a delicate application of management practices designed to protect the complex network of organisms and ecological processes against threats ranging from the readily apparent and straightforward to the unseen and unknown.

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10 Appendices

Appendix 1. Photographic Documentation

Major photo locations are shown on Figure A1-1, and all photos are described in Table A1-1.

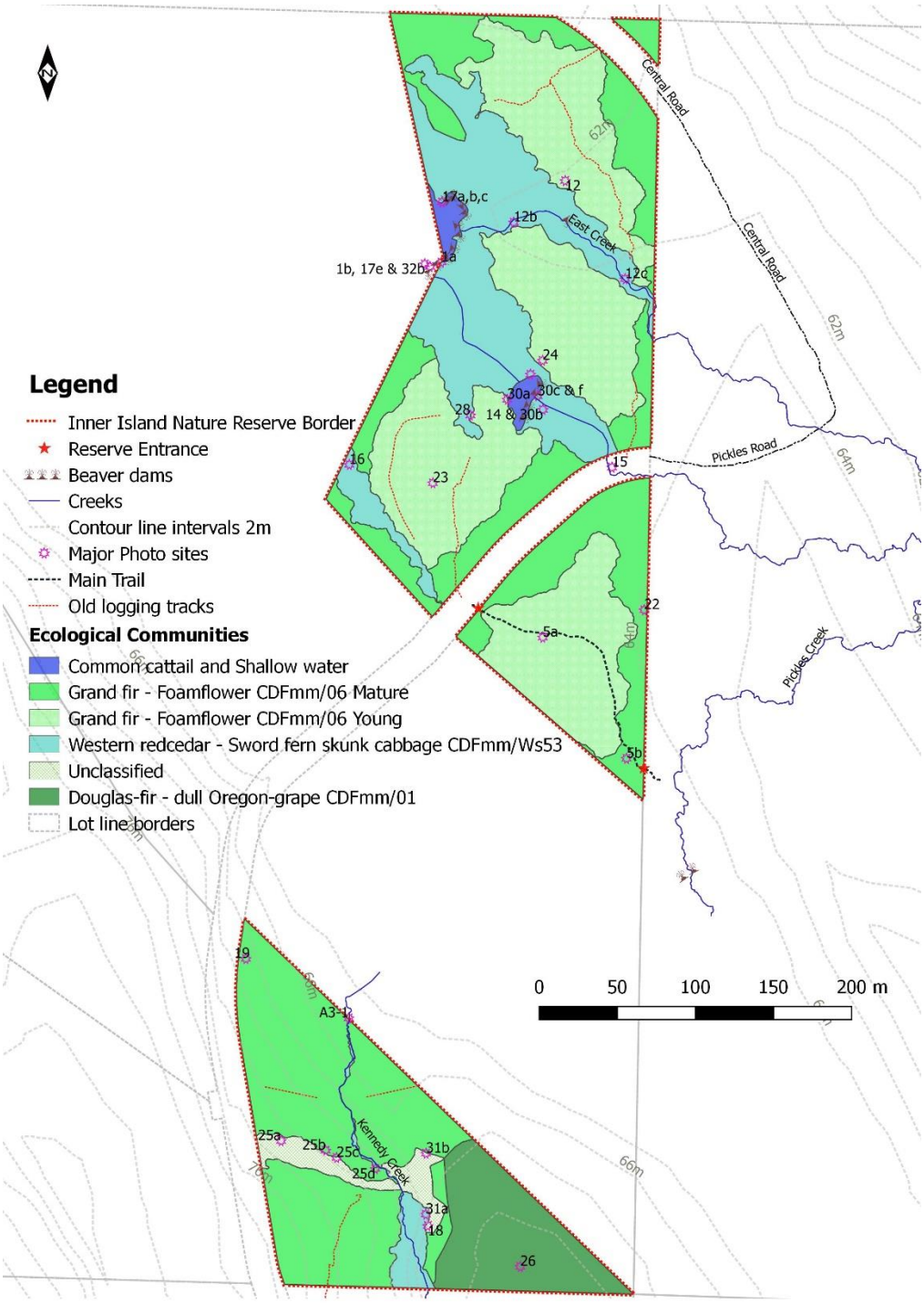

Figure A1- 1. Major photo site locations in Inner Island Nature Reserve.

Table A1- 1. Documentation of photographs taken by J. Balke and used in this Management Plan

Text Section	Photo	Location UTM Zone 10 Coordinates	Direction (°)	Date YYYY-MM-DD	Description
1	1a	369703 5489926	20	2019-03-16	Beaver dam at mouth of East and Beaver Pond creeks Polygon 4
1	1b	369671 5489900	65	2019-09-14	Beaver dam as above
2.1	2	369700 5489674	120	2019-06-09	Trail entrance
2.5	3	369675 5489691	55	2019-07-27	Springboard stumps
2.5	4	374042 5486000	295	2019-06-09	Possible historic railway-logging mounds
2.6	5a	369746 5489661	105	2019-07-27	Trail
2.6	5b	369800 5489584	325	2019-07-27	Trail
2.6	6	369573 5489255	350	2019-07-27	Conservation Area sign on Pickles Road
2.6	7a	369707 5489672	80	2019-07-27	Entrance sign at Pickles Road
2.6	7b	369806 5489578	310	2019-07-27	Entrance sign at southern boundary the north portion
2.6	8	Various, see photo collage		2019-07-27	Signage
2.6	9	369669 5489287	205	2019-05-12	Former well hole
2.10	10	369747 5489237	45	2019-07-27	Deer trail in the south portion
2.10	11	369678 5489947	195	2019-03-16	Cannabis cultivation in Pickles Marsh
3.4	12a	369761 5489954	120	2019-05-17	East Creek wetland, Polygon 4
3.4	12b	369674 5489899	180	2019-09-14	East Creek channel Polygon 4
3.4	12c	369674 5489899	335	2019-09-14	East Creek south edge of young forest Polygon 4
3.4	12d	369791 5489903	140	2019-05-17	East Creek edge of mature forest Polygon 4
3.4	13a	369701 5489836	130	2019-06-09	Beaver Pond Creek wetland before pond Polygon 4
3.4	13b	369746 5489807	100	2019-04-25	Beaver Pond Creek wetland after pond Polygon 4
3.4	13c	369700 5489804	320	2019-06-09	Beaver Pond Creek wetland - Reed canary grass area Polygon 4
3.4	14a	369724 5489813	190	2019-03-16	Polygon 5b Beaver pond
3.4	14b	379747 5489806	310	2019-04-25	Polygon 5b Beaver pond
3.4	14c	369743 5489816	310	2019-05-17	Polygon 5b Beaver pond

3.4	14d	369735 5489821	180	2019-06-09	Polygon 5b Beaver pond
3.4	14e	369735 5489821	180	2019-06-27	Polygon 5b Beaver pond
3.4	15	369791 5489770	90	2019-05-17	Beaver Pond Creek Pickles road-side pond
3.4	16	369622 5489772	140	2019-05-17	Third Creek Polygon 4
3.4	17	369673 5489285	290	2019-05-12	Kennedy Creek wetland Polygon 4
3.4	18a	369671 5489900	20	2019-05-17	Polygon 5a Pickles Marsh
3.4	18b	369676 5489940	200	2019-06-09	Polygon 5a Pickles Marsh
3.4	18c	369676 5489940	200	2019-09-14	Polygon 5a Pickles Marsh
3.4	18d	369673 5489897	335	2019-09-09	Polygon 5a Pickles Marsh
3.6	19a	369556 5489456	140	2019-05-12	Polygon 1 Mature lowland forest in south portion
3.6	19b	369688 5489374	175	2019-09-09	Polygon 1 Mature lowland forest in south portion
3.6	20	369581 5489429	310	2019-07-27	Veteran Douglas-fir in south portion Polygon 1
3.6	21	369567 5489425	145	2019-07-27	Standing snag in south portion Polygon 1
3.6	22	369760 5489249	170	2019-05-12	Polygon 1 Mature lowland forest in north portion
3.6	23	369676 5489760	350	2019-05-10	Polygon 2 Young lowland forest
3.6	24	369746 5489839	30	2019-07-27	Polygon 2 Young lowland forest
3.6	25a	369579 5489339	285	2019-07-27	Polygon 6 Logging road clearing
3.6	25b	369607 5489333	280	2019-07-27	Polygon 6 Logging road clearing
3.6	25c	369614 5489328	290	2019-06-09	Polygon 6 Logging road clearing
3.6	25d	369639 5489321	285	2019-07-27	Polygon 6 Logging road clearing
3.6	26	369732 5489258	130	2019-05-12	Polygon 3 Dry forest.
3.6	27a	369676 5489940		2019-06-09	Yellow pond lily in Pickles Marsh
3.6	27b	369676 5489940		2019-06-09	Common pondweed in Pickles Marsh
3.6	28a	369671 5489292	180	2019-06-09	Polygon 7 Creek-side bench
3.6	28b	369672 5489331	205	2019-09-09	Polygon 7 Creek-side bench
3.8	29a	Pickles Marsh		2017-04-20	Beaver in Pickles Marsh
3.8	29b	369671 5489900		20219-09-14	Beaver print
3.9	30	369799 5489768	35	2019-06-09	Dying western hemlocks in Polygon 2
App 2	A2-1	On main beaver dam		2019-03-16	Rough-skinned newt (*Taricha granulosa*)

App 2	A2-2	369799 5489841		2019-05-17	Northern red-legged frog (*Rana aurora*)
App 2	A2-3	Various		Various	Invertebrates
App 2	A2-4	369824 5489675		2019-05-12	Red squirrel (*Tamiascurius hudsonicus*) midden
App 3	A3-1	369617 5489425	360	2019-07-27	Kennedy Creek edge wetland

Appendix 2. Species Status Rank Explanations

* **Provincial Status** applies to a species' or ecological community's conservation status in British Columbia. The number in parenthesis is the year the status rank was last reviewed. **1** = critically imperiled, **2** = imperiled, **3** = special concern, vulnerable to extirpation or extinction, and **4** = apparently secure.
** **B.C. List Status**: Species are assigned to provincial lists depending on their Provincial Conservation Status. **Red:** Includes any native species or subspecies that have, or are candidates for, Extirpated, Endangered, or Threatened status in British Columbia. Extirpated taxa no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered taxa are facing imminent extirpation or extinction. Threatened taxa are likely to become endangered if limiting factors are not reversed. Not all Red-listed taxa will necessarily become formally designated. Placing taxa on these lists flags them as being at risk and requiring investigation. **Blue**: Includes any native species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia. Taxa of Special Concern have characteristics that make them particularly sensitive or vulnerable to human activities or natural events. Blue-listed taxa are at risk, but are not Extirpated, Endangered, or Threatened.
^ **Global Rank** applies to a species/ecological community across its entire range. The number in parenthesis is the year the rank was last reviewed. 1 = critically imperilled, 2 = imperilled, 3 = vulnerable to extirpation or extinction, 4 = apparently secure, 5 = demonstrably widespread, abundant, and secure, and NR = not yet assessed.
^^ **COSEWIC** (Committee On the Status of Endangered Species In Canada) rank is followed by the date that the rank was last reviewed. **E = ENDANGERED**: A species facing imminent extirpation or extinction. **T = THREATENED**: A species that is likely to become endangered if limiting factors are not reversed. **SC = SPECIAL CONCERN**: A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events.
˜ **SARA** (Species At Risk Act) status consists of the SARA Schedule followed by the SARA Status code and may be followed by the date that the rank was last reviewed. **E = ENDANGERED**: A species facing imminent extirpation or extinction. **T = THREATENED**: A species that is likely to become endangered if limiting factors are not reversed. **SC = SPECIAL CONCERN**: A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events.

Appendix 3. Wildlife Species

Wildlife species that were identified in the Reserve are listed in Table 3, and rare species are noted in Table 5. Beaver are responsible for raising water levels and thus forming the marsh and the complex surrounding aquatic environment. A beaver was seen foraging among the common cattail (*Typha latifolia*) roots in June 2016 at the north end of Pickles Marsh. A rough-skinned newt (*Taricha granulosa*) was seen on the beaver dam in March 2019 (Photo A3-1), and northern red-legged frogs (*Rana aurora*) were seen near the creeks and in the adjacent forest (Photo A3-2). A variety of invertebrates were seen in the wetlands, some of which are shown in a photo collage (Photo A3-3). Red squirrels (*Tamiasciurus hudsonicus*) and their middens (Photo A3-4) were seen throughout the Reserve.



Photo A3- 1. Rough-skinned newt on beaver dam.



Photo A3- 2. Northern red-legged frog.

Additional Potential Rare Species

An additional 11 rare species may be found in the Reserve (Table A3-1), as these species have either been seen there previously or have been identified in similar habitats nearby.



Photo A3- 3. Various invertebrates seen in Inner Island Nature Reserve.



Photo A3- 4. Red squirrel midden.

Table A3- 1. Rare species potentially using habitats possible in Inner Island Nature Reserve but not identified in this inventory

Species Name		Status					~IINR
Common	**Scientific**	**Provincial***	**BC List****	**Global^**	**COSEWIC^^**	**SARA~**	
Autumn meadowhawk dragonfly	*Sympetrum vicinum*	S3S4 (2015)	Blue	G5 (2015)			L*
Barn Swallow	*Hirundo rustica*	S3S4B (2015)	Blue	G5 (2016)	T* (2011)	1-T (2017)	L
Band-tailed Pigeon	*Columba fasciata*	S3S4 (2015)	Blue	G4 (2016)	SC (2008)	1-SC (2011)	L
Common woodnymph butterfly, incana subspecies	*Cercyonis pegala incana*	S2 (2013)	Red	G5T4T5 (2003)			L
Dun skipper butterfly	*Euphyes vestris*	S2 (2013)	Red	G5 (2016)	T (2013)	1-T (2003)	L
Little brown myotis (bat)	*Myotis lucifugus*	S4 (2015)	Y∞	G3 (2016)	E (2013)	1-E (2014)	S*
Marbled Murrelet	*Bradchyramphus marmoratus*	S3B,S3N (2015)	Blue	G3 (2016)	T (2012)	1-T (2003)	P
Northern Goshawk,	*Accipter gentilis laingi*	S2 (2010)	Red	G5T2 (2016)	T (2013)	1-T (2003)	P

laingi subspecies							
Oregon forestsnail	*Allogona townsendii*	S2 (2015)	Red	G3G4 (2010)	E (2013)	1-E (2005)	L
Peregrine Falcon, *pealei* subspecies	*Falco peregrinius pealei*	S3 (2010)	Blue	G4T3 (2016)	SC (2017)	1-SC (2003)	P
Townsend's big-eared bat	*Corhyorhinus townsendii*	S3S4 (2015)	Blue	G4 (2016)			L
Wandering salamander	*Aneides vagrans*	S3 (2016)	Blue	G4 (2005)	SC (2014)	1-SC (2010)	L
Western pine elfin butterfly *sheltonensis* subspecies	*Callohyrs eryphon sheltonensis*	S3 (2013)	Blue	G5TNR			L
Western Screech Owl	*Megacops kennicottii*	S2S3 (2017)	Blue	G4G5T4 (2016)	T (2012)	1-T	L

∞ Y = yellow

*S=recorded in the Reserve previously, L=likely, P=possible

Species Status Ranking Explanations

*** Provincial Status** applies to a species' or ecological community's conservation status in British Columbia. The number in parenthesis is the year the status rank was last reviewed. **1** = critically imperiled, **2** = imperiled, **3** = special concern, vulnerable to extirpation or extinction, and **4** = apparently secure.
**** B.C. List Status**: Species are assigned to provincial lists depending on their Provincial Conservation Status. **Red:** Includes any native species or subspecies that have, or are candidates for, Extirpated, Endangered, or Threatened status in British Columbia. Extirpated taxa no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered taxa are facing imminent extirpation or extinction. Threatened taxa are likely to become endangered if limiting factors are not reversed. Not all Red-listed taxa will necessarily become formally designated. Placing taxa on these lists flags them as being at risk and requiring investigation. **Blue**: Includes any native species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia. Taxa of Special Concern have characteristics that make them particularly sensitive or vulnerable to human activities or natural events. Blue-listed taxa are at risk, but are not Extirpated, Endangered or Threatened. **Yellow**: Includes species that are apparently secure and not at risk of extinction. Yellow-listed species may have red- or blue-listed subspecies.
^ Global Rank applies to a species/ecological community across its entire range. The number in parenthesis is the year the rank was last reviewed. 1 = critically imperilled, 2 = imperilled, 3 = vulnerable to extirpation or extinction, 4 = apparently secure, 5 = demonstrably widespread, abundant, and secure, NR = not yet assessed.
^^ COSEWIC (Committee On the Status of Endangered Species In Canada) rank is followed by the date that the rank was last reviewed: **E = ENDANGERED**: A species facing imminent extirpation or extinction. **T = THREATENED**: A species that is likely to become endangered if limiting factors are not reversed. **SC = SPECIAL CONCERN**: A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events.

˜ **SARA** (Species At Risk Act) status consists of the SARA Schedule followed by the SARA Status code and may be followed by the date that the rank was last reviewed: **E = ENDANGERED**: A species facing imminent extirpation or extinction. **T = THREATENED**: A species that is likely to become endangered if limiting factors are not reversed. **SC = SPECIAL CONCERN**: A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events.

Appendix 4. Ecological Community Polygon Description

Seven ecological communities are described in the following charts. Forest communities include both maturing climax and maturing seral grand fir / three-leaved foamflower (*Abies grandis / Tiarella trifoliata*) and maturing climax Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii / Berberis nervosa*). The principle wetland community occurring along the four creeks is western redcedar / swordfern – skunk cabbage (T*huja plicata / Polystichum munitum – Lysichiton americanus*). There are two open water communities: the beaver pond on Beaver Pond Creek and Pickles Marsh. In addition, two communities are recovering and are unclassified: a slowly recovering area that was cleared as a logging road in 1990 and a small creek-side bench, approximately 0.1 and 0.06 hectares respectively. Both may have been sites of historic as well as more recent human activities, and soils may, as a result, be compacted and thus slow to redevelop into the original climax forest. Preliminary future classification of these communities is listed in square brackets. The vegetation within these communities is described.

Polygons

1. Grand fir / three-leaved foamflower (*Abies grandis / Tiarella trifoliata*) mature lowland forest community

Table A3.1.1. Ecological community 1. Mature lowland forest. Description.

Polygon Site	1 Mature Forest
Ecological Community	Western redcedar - Grand fir - Foamflower
Classification	CDFmm 06
Structural Stage	Mature forest
Status (BC List)	Red
Slope (%) and Aspect (°)	North portion: fairly flat with hummocks. South portion: west of the creek Avg. 16% 65°; east of the creek is a rolling hummocky section.
Photographs	19, 20, 21, 22
Ecological Community Description	Older mature second growth forest is mainly Douglas-fir and western redcedar with some grand fir and western hemlock. The shrub layer is very open, and the herb layer is mainly vanilla leaf and sword fern. Step moss is the most abundant moss in many areas, but there are many moss species, mostly on trees and downed wood. Old veteran fir snags and springboard stumps are present. Species composition and percent cover varies across the polygon.

Disturbance Notes	The polygon's forest is on the two parts of the property and both sides of the Pickles Creek in the south portion. The forest is a fringe around the sections of the north portion that were logged in 1984, the most intact portion on the southeast. The south portion is intact except for a narrow logging road incursion in 1990 (Polygon 6). Many of the old stumps throughout the polygon have burn scars from long-ago fires. Old skid roads from the logging in the north portion are now just barely visible as stump-less routes through the canopy. In the south portion, nearly hidden by fallen trees and vegetation, the remains of parallel mounds used in the railway/steam donkey logging in the early 1900s run from near Pickles Marsh across the creek and up the bank to Pickles Rd.
Anticipated Change/ Succession	This maturing forest has supplied genetic resources for growth in the adjacent logged areas and will continue to do so as the seral stage in the logged area matures and is replaced by the climax forest. Climate-change-related heating and drying may affect the redcedars, particularly on slopes, but this effect will be mediated by the adjacent wetlands and creeks. If deer-browsing increases seedling mortality would also increase.
Wildlife Observations	The older trees with large limbs and thick bark, as well as the large snags and stumps, benefit large perching birds, bark foraging species and cavity nesters . The large canopies provide abundant seed production, insects, and shelter for birds and red squirrels (*Tamiasciurus hudsonicus*). The large pieces of CWD benefit the forest floor dwellers, the decomposers, and the moisture dependent amphibians.

Table A3.1.2. Ecological community 1. Mature lowland forest. Vegetation cover by layer.

Polygon 1 Mature lowland forest Vegetation Cover	**Percent Cover (%)**								
	Veteran Tree Canopy	**Main Canopy**	**2ndary Canopy**	**Total Canopy Cover**	**Shrub Layer**	**Herb Layer**	**Moss, Lichen**	**Coarse Woody Debris**	**Non-native**
Overall Cover by Layer	T*	40-50	20	60-75	15-20	20-30	60-70	10-15	T-1

* T= trace <1%

Table A3.1.3. Ecological community 1. Mature lowland forest. Tree and shrub species.

Polygon 1 Mature lowland forest Tree and Shrub Species	**Percent Cover (%)**				**Notes**
	Main Canopy	**2ndary Canopy**	**Shrub**	**Invasive Non-native**	**Age** (yrs), **DBH**=diameter at breast height (mm), **CWD**=coarse woody debris (logs, stumps, branches on ground)
Height (m)	30-40+	10-30	< 10		
bigleaf maple (*Acer*		T*			Near road in the south portion, Ht ~20m, DBH 355

macrophyllum)					
Douglas-fir (*Pseudotsuga menziesii)*	5-30	1-5	T		Main: DBH 475-990, Age 80y +, Secondary: 240-380. Snags 10 & 30m high, also 1 veteran Age 200+
grand fir (*Abies grandis)*	5-15	T-2	T		Main: DBH 420-695, Secondary: DBH 355. Shrubs more numerous in N end of the north portion
Sitka spruce (*Picea sitchensis)*			T		Height close to 10m
western hemlock (*Tsuga heterophylla)*	5	5-15	2-10		Main DBH 420-585, Secondary: 300-380, many shrubs on stumps
western redcedar (*Thuja plicata)*	5-10	5-10	T-5		Main DBH 680-1540, Secondary: 190-330, many shrubs on stumps
holly, English (*Ilex aquifolium)*				T-1	Occasional, but some patches with tall shrubs and many small plants
huckleberry, red (*Vaccinium parvifolium)*			1-2		
Oregon-grape, dull (*Mahonia nervosa)*			2-5		In bloom, patches
rose, dwarf (*Rosa gymnocarpa)*			T		
salal (*Gaultheria shallon)*			T-2		Most growing on old CWD or in the south portion near the logged patch
twin flower (*Linnaea borealis)*			T-1		Especially in openings

* T= trace <1%

Table A3.1.4. Ecological community 1. Mature lowland forest. Herb and moss species.

Polygon 1 Mature lowland forest Herb and Moss Species	**Percent Cover (%)**			**Notes**
	Herb Layer	**Moss, Lichen**	**Non-native**	
Herbs				
bedstraw species (*Galium spp)*	T*			

fern, lady (*Athyrium filix-femina)*	T			
fern, licorice (*Polypodium glycyrrhiza)*	T			
fern, sword (*Polystichum munitum)*	2-40			
three-leaved foamflower (*Tiarella trifoliata)*	1-2			
rattlesnake plantain *(Goodyera oblongifolia)*	T			
grass species	T		T	
Lyall's anemone (*Anemone lyallii)*	T			
rattlesnake plantain *Goodyera oblongifolia*	T			
sandwort, big-leaved (*Moehringia macrophylia)*	T			Patch seen in the north portion NE
Scouler's harebell (*Campanula scouleri)*	T			
speedwell, thyme-leaved (*Veronica serpyllifolia)*	T			
starflower (*Trientalis latiflolia)*	T			
vanilla leaf (*Achlys triphylla)*	5-30			In bloom
wall lettuce (*Lactuca muralis)*	T			
Mosses				
*Dicranum sp m*oss		T		
Hylocomium splendens (step moss)		50		On ground and on CWD^
Isothecium myosuroide (cattail moss)		P		Mostly on tree trunks
Kindbergia oregana (Oregon beaked moss)		P*		
Kindbergia praelonga (slender beaked moss)		P		
*Leucolepis acanthoneuron (*Menzies' tree moss)		P		
Plagiothecium undulatum (flat moss)		P		
Rhytidiadelphus loreus (lanky moss)		P		
*Rhytidiadelphus triquestrus (*electrified cat's-tail moss)		P		
Other mosses on tree trunks and CWD				Numerous

^ CWD = coarse woody debris on ground

* PD = present and dominant, P = present, T= trace <1%. Species' percent coverage was not attempted.

2. Grand fir / three-leaved foamflower (*Abies grandis / Tiarella trifoliata*) young recovering lowland forest community

Table A3.2.1. Ecological community 2. Young recovering lowland forest. Description.

Polygon Site	Polygon 2 Young Forest
Ecological Community	Young seral probably will be Western redcedar-Grand fir-Foamflower
Classification	Probably CDFmm 06
Structural Stage	4-5 pole-sapling to young forest at 35 yr

Status (BC List)	Probably future Red
Slope (%) and Aspect (°)	Largely flat with some hummocks
Photostation	Photo collage 23
Ecological Community Description	Recovering forest in the north portion of property was logged in 1984. Tree species composition varies across the polygon but is primarily young western hemlock at approximately 20-25m in height. Forest is just emerging from dark canopy closure stage. In some areas, many of the western hemlocks are dying and falling over, particularly on the public trail area. Understory is very limited with traces of a variety of species. Herb layer is also underdeveloped and has traces of many species. Many old, burnt springboard stumps remain, as well as mossy hummocks of old dead trees and more recent small stumps.
Disturbance Notes	The polygon was high-grade logged in the early 1900s and the springboard stumps date from that era. In 1984, the polygon was clear-cut with the creation of skidder roads that are now becoming visible as stump-less spaces through the young forest. A public trail leads from Pickles Road south through the polygon, in the southern portion of the north portion, to join with trails in the new provincial park.
Anticipated Change/ Succession	As the forest matures, the Western hemlocks will thin, and many will be replaced by the young grand firs, Douglas-firs, and western redcedars that are growing here. The hemlock death will result in a continuing potential for wind-throw of these dead trees and will increase the coarse woody debris on the forest floor. Changing climate may lead to less western hemlock in the future canopy.
Wildlife Observations	Wildlife-use of this polygon was likely reduced while the canopy was closed but is beginning again, especially with woodpeckers using the debris and flycatchers probably foraging on insects in the growing canopy and dying wood. Springboard stumps and large old coarse woody debris on the ground are valuable, particularly for moisture-dependent invertebrates and amphibians.

Table A3.2.2. Ecological community 2. Young recovering lowland forest. Vegetation cover by layer.

Polygon 2 Young lowland forest Vegetation Cover	**Percent Cover (%)**								
	Above Main Canopy	**Main Canopy**	**Secondary Canopy**	**Total Canopy Cover**	**Shrub Layer**	**Herb Layer**	**Moss, Lichen**	**Coarse Woody Debris**	**Non-native**
Overall Cover by Layer	<5	to 90	to 30	to 90	2-10	5-10	40-50	15+	T*

* T= trace <1%

Table A3.2.3. Ecological community 2. Young recovering lowland forest. Tree and shrub species.

Polygon 2 Young Forest Tree and Shrub species	**Percent Cover (%)**					**Notes** **Age** (yrs)**, DBH**=Diameter at Breast Height (mm)**, CWD**=coarse woody debris (logs, stumps, branches on ground)
	Above Main Canopy	**Main Canopy**	**2ndary Canopy**	**Shrub**	**Non-native**	
Height (m)	**>30**	**20-30**	**10-20**	**<10**		
bigleaf maple (*Acer macrophyllum)*		T*				At least 1, multi-trunk at base, DBH 946, occasional tiny maple seedlings
Douglas-fir (*Pseudotsuga menziesii)*		2+	5			Main: DBH 290-575, Secondary: DBH 80-145, Young trees in gaps and under canopy
grand fir (*Abies grandis)*			1-2			20m, DBH 150-205
red alder (*Alnus rubra)*			T-1			4 trees seen DBH 255-430
Western hemlock (*Tsuga heterophylla)*	T	20-30	10-30	T		Main and above: DBH 455-570, Secondary: DBH 180-275, lots at this height are dead or dying
Western redcedar (*Thuja plicata)*	<5	T	2-5			Above and those broken in Main: DBH 595-865, an old split trunk DBH 1260, Secondary : 440-455
blackberry, trailing (*Rubus ursinus)*				T-1		
crab apple, Pacific *(Malus fusca)*				T		Seedling on an old logging track
elderberry, red (*Sambucus racemosa)*				T		In centre of a gap, almost grown over
holly, English (*Ilex aquifolium)*					T	Patch near Pickles Road
huckleberry, red (*Vaccinium parvifolium)*				T		Occasional on track and near edges
Oregon-grape, dull (*Mahonia nervosa)*				1		Occasional plants, thin patches in hollows
rose, dwarf (*Rosa gymnocarpa)*				T		On old logging track
salal (*Gaultheria shallon*)				T		Occasional small young plant
twin flower (*Linnaea borealis)*				T		

* T= trace <1%

Table A3.2.4. Ecological community 2. Young recovering lowland forest. Herb and moss species.

Polygon 2 Young Forest Herb and Moss Species	**Percent Cover (%)**			**Notes**
	Herb Layer	**Moss, Lichen**	**Non-native**	
Herbs				
bedstraw species (*Galium spp)*	T*			
Bracken fern (*Pteridium aquilinum)*	1-2			Occasional
daisy, oxeye (L*eucanthemum vulgare)*			T	Old track in northeast
fern, sword (*Polystichum munitum)*	1-2			Occasional
three-leaved foamflower (*Tiarella trifoliata)*	T-1			Occasional to small patches
grass species	T			
hairy cat's ear (*Hypochaeris radicata)*			T	Old track in northeast
pathfinder plant (*Adenocaulon bicolour)*	T			
pipsissewa (*Chimaphila umbellata)*	T			Occasional
rattlesnake plantain *(Goodyera oblongifolia)*				
starflower (*Trientalis latiflolia)*	T			In bloom, small patches
vanilla leaf (*Achlys triphylla)*	2-10			Patches
violet, round-leaved (*Viola orbiculata)*	T			
wall lettuce (*Lactuca muralis)*	T			Old track in northeast
wood-rush (*Luzula sp.)*	T			Old track in northeast
Mosses				
Dicranum sp moss		P*		On CWD^
Hylocomium splendens (step moss)		PD		
Kindbergia oregana (Oregon beaked moss)		P		
Kindbergia praelonga (slender beaked moss)		PD		
*Leucolepis acanthoneuron (*Menzies' tree moss)		P		
Plagiothecium undulatum (flat moss)		P		On CWD
Rhytidiadelphus loreus (lanky moss)		P		
Others on tree trunks and coarse woody debris				

^ CWD = coarse woody debris on ground

* PD = present and dominant, P = present. Species' percent coverage was not attempted.

* T= trace <1%

3. Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii* / *Berberis nervosa*) dry forest community

Table A3.3.1. Ecological community 3. Dry forest. Description.

Polygon Site	Polygon 3 Dry Forest
Ecological Community	Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii* / *Berberis nervosa*)
Classification	CDFmm/01
Structural Stage	Mature forest
Status (BC List)	Red-listed
Slope (%) and Aspect (°)	The southern portion is a bowl with a 10% slope facing 65°. The northern portion is rolling, and there is a broad flat area about 25 m wide that lies between the bench (Polygon 7) and Pickles Marsh. The slope down to Kennedy Creek is 37% facing 270°.
Photograph	25
Ecological Community Description	Mature forest, 30-40m tall, of Douglas-fir and western redcedar with a predominantly low salal understory. Herb layer is sparse with mainly vanilla leaf and a mossy patch just below the ridge edge. Springboard stumps from the 1900s logging have burn-scars. Coarse woody debris accumulation on the ground is moderate. Includes at least one large 30m high snag and some wind-thrown trees, particularly on the west side near the ridge. Polygon slopes gently to the northeast, from the top of a ridge above Kennedy Creek towards Pickles Marsh, and is fairly dry and exposed.
Disturbance Notes	As noted, the area was logged in the early 1900s, and although there are more recently cut stumps, there has been little disturbance since the first logging. A small walking trail, similar to a deer path, crosses the polygon from the south to Pickles Marsh.
Anticipated Change/ Succession	The upper to mid-slope position results in a fairly well-drained and drying, gentle slope. A drying and warming climate may limit the growth and survival of the western redcedars, despite local moderating influence of the adjacent large marsh. Some wind throw-effects may also thin the Douglas-firs as they mature.
Wildlife Observations	The woody debris and stumps offer cover and foraging habitat, and the tree canopy provides coniferous-forest habitat suitable for birds to forage and nest. -. Signs of deer and red squirrel were frequent. This polygon provides a fairly open travel corridor to the marsh but lacks the complex edge and diverse wildlife habitat of other polygons in the Reserve.

Table A3.3.2. Ecological community 3. Dry forest. Vegetation cover by layer.

Polygon 3 Dry forest Vegetation Cover	**Percent Cover (%)**							
	Main Canopy	**2ndary Canopy**	**Total Canopy Cover**	**Shrub Layer**	**Herb Layer**	**Moss, Lichen**	**Coarse Woody Debris**	**Non-native**
Overall Cover by Layer	30-50	15-20	60-70	80+	10-15	50	10	T*

* T= trace <1%

Table A3.3.3. Ecological community 3. Dry forest. Tree and shrub species.

Polygon 3 Dry forest Tree and Shrub species	**Percent Cover (%)**					**Notes** **DBH=**Diameter at breast height (mm), **CWD=**coarse woody debris
	Veteran Tree Canopy	**Main Canopy**	**2ndary Canopy**	**Shrub**	**Invasive Non-native**	
Height (m)		30-40+	15-20	<10		
Douglas-fir (*Pseudotsuga menziesii*)		30	2-5			DBH Main 700-810 2ndary 210-300
fir, grand (*Abies grandis)*				T*		Occasional
hemlock, western (*Tsuga heterophylla*)		2	1-2	5		DBH Main: 460-580 Secondary: 290-330
redcedar, western (*Thuja plicata)*		1	10	5-10		DBH Main: 590-845, Secondary: 270-450
holly, English (Ilex aquifolium)					T	
huckleberry, red (*Vaccinium parvifolium*)				5-10		
Oregon-grape, dull (*Mahonia nervosa*)				15		Large patches, bloom, early berry
salal (*Gaultheria shallon*)				60-70		Mostly low ≤1 m

* T= trace <1%

Table A3.3.4. Ecological community 3. Dry forest. Herb and moss species

Polygon 3 Dry forest Herb and Moss Species	**Percent Cover (%)**			**Notes**
	Herb Layer	**Moss, Lichen**	**Non-native**	
Herbs				
bedstraw species (*Galium spp*)	T*			
coralroot, spotted (*Corallorhiza maculatta*)	T			

fern, bracken (*Pteridium aquilinum*)	T			
fern, spiny wood (*Dryopteris expansa*)	T			
three-leaved foamflower (*Tiarella trifoliata)*	T			
grass species	T		T	
Lyall's anemone (*Anemone lyallii)*	T			
sedge species (*Carex sp.)*	T			
starflower T*rientalis latiflolia*	T			Blooming throughout
vanilla leaf (*Achlys triphylla)*	10			Blooming, widespread patches
violet, round-leaved (*Viola orbiculata)*	T			
Mosses				
Hylocomium splendens (step moss)		40-50		
Kindbergia oregana (Oregon beaked moss)		10-15		
Rhytidiadelphus loreus (lanky moss)		P*		On CWD^ on ridge
Others on tree trunks and coarse woody debris		P		

* P = present, T = trace <1%. Species' percent coverage was not attempted.

^ CWD = coarse woody debris on ground

4. Western redcedar / sword fern - skunk cabbage (*Thuja plicata / Polystichum munitum - Lysichiton americanus*) wetlands

The creek and wetland polygon is extremely variable with respect to cover and species composition. In the north portion of the Reserve, sedge (*Carex obnupta*) extends widely into the periphery around large areas of open wetlands that surround the creeks, and these sedge areas are included in the polygon. Where present, trees in this periphery area tend to be growing on small raised hummocks where any accompanying species are similar to those of the young or mature forest polygons. As already noted, reed canary grass is present in areas along the edges of creek channels, as well as in a section of what was likely a logging equipment track, along a portion of the west side of Beaver Pond Creek wetland, which is both low lying and likely compacted. There have been other beaver dams along the creeks and there are pools and creek channels that, this year, are holding water well into July. Thus, there is more diverse aquatic vegetation in these areas. These creeks and wetlands are subject to change resulting from the activities of beavers, as well as changing temperature and moisture conditions.

In the south portion of the Reserve, variably sized areas of sedge (*Carex obnupta*) and skunk cabbage (*Lysichiton americanus*) occur along the sides of Kennedy Creek (Photo A4-1) throughout its length, until near the southern border, where the creek widens into a larger wetland, approximately 20 m across (Photo 18). As already noted, the south

portion of the polygon has been free of human interference since the first historic logging, except for the crossing of the creek at the east end of polygon 6. As with the other wetlands, the wetlands in the south portion are dependent on water flows from the surrounding watershed, so future changes will be influenced by human activities upstream and overall climate effects. Also, beavers could dam this creek, as they may have in the past, creating standing water pools and changing the vegetation. Deer, and possibly other wildlife, have been heavily browsing the skunk cabbage along the creek.



Photo A4- 1. Small wetland areas along Kennedy Creek.

Table A3.4.1. Ecological community 4 Creeks and wetlands. Description.

Ecological Community	Western redcedar / sword fern - skunk cabbage (Thuja plicata / Polystichum munitum - Lysichiton americanus)
Classification	CDFmm/Ws53
Structural Stage	Mature wetlands along sections of creek edges in the north portion and all of wetlands in the south portion. In the north portion, sections of creek edges were damaged in 1984, so they are younger and some have disclimax reed canary grass *(Phalaris arundinacea)*.
Status (BC List)	Blue-listed
Slope (%) and Aspect (º)	Fairly flat. Incline of creeks <5%
Photograph	13, 14, 15
Ecological Community Description	Slough sedge (*Carex obnupta*) dominated wetlands along four small creeks in a low-lying depression next to a peat-based marsh. Wetlands cover an area of approximately 1.5 ha and are largely open with occasional western redcedar, red alder (*Alnus rubra*), Douglas-fir (*Pseudotsuga menziesii*) and western hemlock (*Tsuga heterophylla*) on raised hummocks. Shrubs are present along the forest edge but few in the wetlands. Herb layer is variable but dominated by sedges, with

	pockets of skunk cabbage (*Lysichiton americanus*), particularly along creek edges and depressions, and with approximately 5-10% discliamx areas dominated by reed canary grass.
Disturbance Notes	Historically these wetlands may have been damaged by logging practices, and the south portion appears to have had an old railway mound crossing from that era. Since then, the south portion has remained undamaged. Portions of the wetlands along creeks in the north portion were damaged by log skidders removing trees in 1984. Beavers, as keystone species, are continually altering the wetlands. They have repaired and replaced the dams in this area over at least the last 30 years, altering flows in the creeks. Recently, the edge of Pickles Marsh, just inside the Reserve, was used for the cultivation of marijuana in 32 plastic-bag containers full of potting soil and fertilizer. These will be removed later in the summer after the major wetland wildlife activities.
Anticipated Change/ Succession	With the continuing presence and activities of the beavers on Pickles Marsh, the dams will be in place, creeks will continue to have flow during most of the year, and the water table will remain high. Surrounding trees will mature. Monotypic stands of reed canary grass may increase in open sites with full sun. Excessive climate-related drying or removing beaver would reduce and alter the wetland size and species composition.
Wildlife Observations	Beavers are active along the creeks and are responsible for creating and maintaining Pickles Marsh. The dammed water provides fresh water drinking, foraging, breeding, and shelter habitat for a host of species from invertebrates to other mammals. The edge habitat along the creeks is also valuable to wildlife, particularly as seen in the increased diversity and activity of the bird community.

Table A3.4.2. Ecological community 4 Creeks and wetlands. Overall Species List.

Species are listed without a % coverage as the area is extremely varied. Forest species that occur in the surrounding polygons and are present on raised hummocks within polygon 4, are not included, unless non-native or prominent.

Polygon 4 Creek and wetlands Overall Species List	**Notes**
Trees	
alder, red (*Alnus* rubra)	Occasional in periphery and on hummocks
Douglas-fir (*Pseudotsuga menziesii*)	Occasional in periphery and on hummocks
fir, grand (*Abies grandis)*	Occasional in periphery and on hummocks
hemlock, western (*Tsuga heterophylla*)	Occasional in periphery and on hummocks
maple, bigleaf (*Acer macrophyllum*)	Occasional in periphery and on hummocks
redcedar, western (*Thuja plicata)*	Occasional in periphery and on hummocks
Shrubs	
blackberry, evergreen (*Rubus laciniatus*) **	
blackberry, Himalayan (*Rubus discolour*) **	
blackberry, trailing (*Rubus ursinus*)	

cascara (*Rhamnus purshiana*)	
crab apple, Pacific *(Malus fusca)*	
currant, stink (*Ribes bracteosum*)	Kennedy Creek wetland
huckleberry, red (*Vaccinium parvifolium*)	
rose, dwarf (*Rosa gymnocarpa*)	
salmonberry (*Rubus spectabilisabilis*)	
spiraea (*Spiraea douglasii spp. Douglasii*)	
Herbs	
bulrush, small-flowered (*Scirpus microcarpus*)	
bracken fern (*Pteridium aquilinum*)	Just emerging, probably incr. %
daisy, oxeye (L*eucanthemum vulgare*) **	Occasional
fern, deer (*Blechnum spicant*)	Occasional and on maples
fern, lady (*Athyrium fil*ix-femina)	Varies throughout
fern, maidenhair (*Adiantum pedatum*)	
fern, spiny wood (*Dryopteris expansa*)	Occasional on CWD*
fern, sword (*Polystichum munitum*)	Varies throughout
foam flower (*Tiarella trifoliata*)	Occasional
foxglove (*Digitalis purpurea*) **	Along East Creek, etc.
grass species **	
grass, reed canary (*Phalaris arundinacea*) **	In the south portion Creeks, patches, esp. near creek mouths, along East Ck, and west side of Beaver Pond Creek
hairy cat's ear (*Hypochaeris radicata*) **	East Creek, mouth, and patch at Beaver Pond
horsetail, common (*Equisetum arvense*)	Large areas throughout
miner's lettuce, siberian (*Claytonia sibirica*)	
mint, Canada (*Mentha arvensis*)	
monkey-flower (*Mimulus moschatus*)	
pathfinder plant (*Adenocaulon bicolour*)	
rush species *Juncus* sp.	
rush, common (*Juncus effusus*)	Various
rush, dagger-leaved (*Juncus ensifolius*)	Various
sedge species *Carex* sp to be identified	Few at East Creek mouth and at Beaver Pond
sedge species *Carex* sp to be identified	Patches in damp forest
sedge species *Carex* sp to be identified	Isolated patch East Creek near mouth
sedge, slough (*Carex obnupta*)	Throughout, varies
skullcap, marsh (*Scutellaria galericulata*)	Beaver Pond
skullcap, blue (*Scutellaria lateriflora*)	Beaver Pond
skunk cabbage (*Lysichiton americanus)*	Varies
speedwell, thyme-leaved (*Veronica serpyllifolia*)	
spike-rush, creeping (*Eleocharis palustris*)	Beaver Pond
water-parsely, Pacific (*Oenanthe sarmentosa*)	
wood-rush, many-flowered (*Luzula multiflora*)	

**Non-native species

5. Marsh and shallow-water communities

a. Pickles Marsh Inlet. Combination of common cattail marsh (*Typha latifolia*) and shallow water communities: yellow pond-lily (*Nuphar lutea ssp polysepala*) and common pondweed *(Potamogeton natans*) predominantly shallow water communities

Photographs show the beaver dam and inlet at different seasonal stages: winter (March) when the water level is high and vegetative growth is limited, spring (May) as vegetation begins to grow, and summer (June) as the emergent and floating vegetation develops. Later in the year, water levels likely drop and vegetation growth gradually declines.

b. Beaver Pond: Shallow water community: yellow pond-lily (*Nuphar lutea ssp polysepala*) in an encroaching sedge-dominated wetland/creek complex

Photographs show the seasonal change from winter when the pond has no vegetation to mid-summer when vegetation covers the surface and the water level is low.

Table A3.5.1. Ecological community 5. Shallow waters. Description.

Polygon Site	5a Shallow-water Pickles Marsh	5b Shallow-water Beaver Pond
Ecological Community	Common cattail (*Typha latifolia*) marsh and shallow-water communities: yellow pond-lily (*Nuphar lutea ssp polysepala*) and common pondweed (*Potamogeton natans*)	Sedges and yellow pond-lily (*Nuphar lutea ssp polysepala*) shallow-water community
Classification	CDFmm/Wm05 and unclassified	Unclassified
Structural Stage	Beaver-influenced. Being naturally modified regularly.	Beaver-influenced. Being naturally modified.
Status (BC List)	Blue and NA	NA
Slope and Aspect	Flat	Flat
Photographs	1, 17	30
Ecological Community Description	An approximately 0.06-hectare, partially open water-inlet off a large mixed Wm05/Wm06 marsh is in the Reserve. The 1-2 m wide rim of common cattail lies along the 60m beaver dam. The shallow-water of the marsh has about 10-15% yellow pond-lily and 70+% common pondweed.	An approximately 15m beaver dam across Beaver Pond Creek causes ponding that is open in winter and gradually dries in summer to about a 10m diameter pond of about 50% yellow pond-lily. The predominantly sedges, with other wetland species, gradually advance as the surface water dries.

Disturbance Notes	Beavers (*Castor canadensis*) have raised the water level of the marsh by creating several dams across drainage creeks. There appears to be the remains of an earlier dam behind the current East Creek dam. Dead flood-killed second-growth trees in other parts of the marsh indicate that water levels were lower for at least 30+ years. This whole area is likely in flux continually, depending on the presence of beavers. Large trees at the marsh edge suggest that the area was not damaged in the 1984 logging.	Beavers probably use the creek and cause more alterations when water levels are high. Earlier logging practices, plus the beaver, have disturbed this area. Deer trails through the sedge were the only evidence of disturbance noted in the summer.
Anticipated Change/ Succession	Water levels and vegetation growth will fluctuate with the condition and height of the beaver dams and amount of water available. Reed canary grass areas may increase in abundance and other invasive species may become established.	
Wildlife Observations	Current water levels and vegetation are dependent on the beaver populations. A beaver track entering Pickles Marsh in polygon 5a allows non-flying species to easily access the fresh water source, even in periods of thick vegetation growth. The beaver pond is also an easily accessed source of fresh water. Nesting ducks, other birds, and other aquatic species (amphibians, invertebrates) reproduce, forage, and shelter in the area.	

Table A3.5.2. Ecological community 5. Shallow waters. Vegetation cover by layer.

Polygon 5 Shallow-water Vegetation Cover	**Percent Cover (%)**								
	Veteran Trees	**Main Canopy**	**2ndary Canopy**	**Total Canopy Cover**	**Shrub Layer**	**Herb Layer**	**Moss, Lichen**	**Coarse Woody Debris**	**Non-native**
Pickles Marsh	1-2			1-2	5	90			2-5
Beaver Pond					5-10	90		5+	

Table A3.5.3. Ecological community 5. Shallow waters. Tree and shrub species.

Polygon 5 Shallow-water Pickles Marsh/Beaver Pond Tree and Shrub species	**Percent Cover (%)**					**Notes:** DBH=diameter at breast height
	Veteran Trees	**Main Canopy**	**2ndary Canopy**	**Shrub**	**Non-native**	
Trees						
Douglas-fir (*Pseudotsuga menziesii*)	1-2/					
redcedar, western (*Thuja plicata)*	1/			1-2/		Trees are dead snags

Shrubs						
apple, Pacific crab (*Malus fusca*)			/3-5			
cascara (*Rhamnus purshiana*)			/3-5			
spirea (*Spirea douglasii spp. Douglasii*)			2-5/3			

Table A3.5.4. Ecological community 5. Shallow waters. Herb and moss species.

Many of the forest species were growing around the shallow-water areas and on any raised site or piece of coarse woody debris. This list refers to the aquatic species.

Polygon 5 Shallow-water Pickles Marsh/Beaver Pond Herb and Moss species	**Percent Cover (%)**			**Notes**
	Herb Layer	**Moss, Lichen**	**Non-native**	
Herbs				
bulrush, small-flowered (*Scirpus microcarpus*)	/1+			
cattail (*Typha latifolia*)	45/			Along beaver dam
duckweed species (*Lemna sp.*)	2+/			At beaver entrance
grass, reed canary (*Phalaris arundinacea*)			2-5/2+	
horsetail, common (*Equisetum arvense*)	/T*			On edge of Pond
pond-lily, yellow (*Nuphar lutea ssp polysepala*)	10-15/45+			
pondweed, common (*Potamogeton natans*)	45			
sedge, slough (*Carex obnupta*)	/10+			Pond edges
sedge species (*Carex sp.*)	/20			In Pond
spike-rush, creeping (*Eleocharis palustris*)	/T			Pond edges
water-parsely, Pacific (*Oenanthe sarmentosa*)	1/2+			

* T= trace <1%

6. Logging road clearing [Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii / Berberis nervosa*)] forest community

Photographs show how this polygon varies along its length, from dying young seral forest to occasional surviving seral western hemlock trees to an open shrub herb community.

Table A3.6.1. Ecological community 6. Logging road recovery. Description.

Polygon Site	6 Logging road clearing
Ecological Community	A recovering forest with compacted soils, formerly part of Polygon 1
Classification	Unclassified

Structural Stage	Maturing seral
Status (BC List)	NA
Photograph	Photo collage 24
Ecological Community Description	Recovery of the narrow strip of clear-cut vegetation is slow, probably due to the proximity of tall forests on both sides and compacted soil. Young western hemlocks (*Tsuga heterophylla*), 29 years old, are dying as they compete for nutrients and light, leaving a few healthy young trees, particularly on the north side in the western half. The eastern half is a herb-shrub community that becomes increasingly moist towards Kennedy Creek, where sword fern (*Polystichum munitum*) and salal (*Gaultheria shallon*) are replaced by deer (*Blechnum spicant*) and lady fern (*Athyrium filix-femina*).
Disturbance Notes	Polygon was cleared for a logging road in 1990. An old track is evident to the south of this polygon that begins at Pickles Road and crosses this polygon. It may have been a historic logging road or an access road to Pickles Marsh.
Anticipated Change/ Succession	This polygon will gradually develop into a mature forest, similar to Polygon 1. The terrain and soils may delay the process and continue to make the growth irregular. The polygon may continually lose trees to wind-throw and other stresses and may retain some of the moisture-favoring species in the eastern half.
Wildlife Observations	No unusual wildlife was identified in this polygon, although the moist lower half would be favoured by amphibians and some invertebrates.

Table A3.6.2. Ecological community 6. Logging road recovery. Vegetation cover by layer.

Polygon 6 Logging road clearing Vegetation Cover	**Percent Cover (%)**					
	Main Canopy	**Shrub Layer**	**Herb Layer**	**Moss, Lichen**	**Coarse Woody Debris**	**Non-native**
Overall Cover by Layer*	10-30	50-60	15-60	10-25	5-20	T*

* T= trace <1%

Note: Cover % varies from young seral forest to open shrub-herb area.

Table A3.6.3. Ecological community 6. Logging road recovery. Vegetation species.

Polygon 6 Logging road clearing Tree and shrub species	**Percent Cover (%)**					**Notes** All heights are estimates
	Main Canopy	**Shrub**	**Herb Layer**	**Moss, Lichen**	**Non-native**	
Trees						
hemlock, western (*Tsuga heterophylla*)	10-30	10-60				Up to 15m high
fir, grand (*Abies grandis)*		1-5				

Shrubs						
huckleberry, red (*Vaccinium parvifolium*)		1-3				
rose, dwarf (*Rosa gymnocarpa*)		T*				
salal (*Gaultheria shallon*)		5-30				
Herbs						
bedstraw, cleavers (*Galium aparine*)			T			
bedstraw species (*Galium spp*)			T			
fern, bracken (*Pteridium aquilinum*)			to 5			
fern, deer (*Blechnum spicant*)			5-10			
fern, lady (*Athyrium filix-femina*)			1			
fern, sword (*Polystichum munitum*)			10-15			
sedge species (*Carex sp.*)			T			
vanilla leaf (*Achlys triphylla*)			1-2			
wall lettuce (*Lactuca muralis*)			T			
Mosses						
*Hylocomium splendens (*step moss)				P		
Kindbergia praelonga (slender beaked moss)				P		
*Leucolepis acanthoneuron (*Menzies' tree moss)				P		
Rhytidiadelphus loreus (lanky moss)				P		
Others on tree trunks and coarse woody debris						

* P = present, T= trace <1%. Species' percent coverage was not attempted.

7. Creek-side bench [grand fir / three-leaved foamflower (Abies grandis / Tiarella trifoliata)] forest community

Table A3.7.1. Ecological community 7. Creek-side bench. Description.

Polygon Site	Creek-side Bench
Ecological Community	Predicted: grand fir / three-leaved foamflower (*Abies grandis* / *Tiarella trifoliata)*
Classification	Predicted - CDFmm/06
Structural Stage	Shrub-herb
Status (BC List)	Unclassified, Predicted - Red-listed
Slope and Aspect	Flat
Photograph	31
Ecological Community Description	A flat bench on the east side of Kennedy Creek is perhaps a disclimax community of low shrubs and herbaceous species. The shrub layer is diverse but low, sparse and predominantly salal (*Gaultheria shallon*), and sword fern (*Polystichum munitum*) dominates the herb layer. The moss layer is well developed.

Disturbance Notes	The history of human use of this bench is unknown and will be sought during the public consultation.
Anticipated Change/ Succession	If and how this bench may have changed in the last 30 years will be sought in the public consultation. This knowledge may help to determine the rate and nature of the possible changes. Young coniferous trees are present in the shrub layer, which suggests that, over time, the bench may become similar to the surrounding forest.
Wildlife Observations	No particular wildlife species were identified in this polygon, although the young recovering forest has been browsed by black-tailed deer (*Odocoileus hemionus columbianus*).

Table A3.7.2. Ecological community 7. Creek-side bench. Vegetation cover by layer.

Polygon 7 Creek-side bench Vegetation Cover	**Percent Cover (%)**				
	Shrub Layer	**Herb Layer**	**Moss, Lichen**	**Coarse Woody Debris**	**Non-native**
Overall Cover by Layer	20-25	80	60	5	T*

* T= trace <1%

Table A3.7.3. Ecological community 7. Creek-side bench. Vegetation species.

Polygon 7 Creek-side bench Vegetation	**Percent Cover (%)**			
	Shrub	**Herb Layer**	**Moss, Lichen**	**Non-native**
Trees				
Douglas-fir (*Pseudotsuga menziesii*)	1			
fir, grand (*Abies grandis)*	2-3			
hemlock, western (*Tsuga heterophylla*)	3-5			
redcedar, western (Thuja plicata)	T			
Shrubs				
blackberry, trailing (*Rubus ursinus*)	T*			
huckleberry, red (*Vaccinium parvifolium*)	5			
Oregon-grape, dull (*Mahonia nervosa*)	2-3			
Oregon grape, tall (Mahonia aquifolium)	2-3			
salal (*Gaultheria shallon*)	10-15			
salmonberry (*Rubus spectabilis*)	1-2			
twin flower (*Linnaea borealis*)	T			
Herbs				
anemone, Lyall's (*Anemone lyallii*)		T		
bedstraw species (*Galium spp*)		T		
fern, bracken (*Pteridium aquilinum*)		T		
fern, deer (*Blechnum spicant*)		T		
fern, lady (*Athyrium filix-femina*)		T		
fern, spiny wood (*Dryopteris expansa*)		T		

fern, sword (*Polystichum munitum*)		40-50		
foam flower (*Tiarella trifoliata*)		1		
grass species ** also non-native		5		**
harebell, Scouler's (*Campanula scouleri*)		1		
hairy cat's ear (*Hypochaeris radicata)*				T
Pathfinder plant (*Adenocaulon bicolour)*		2		
rush species Juncus sp.		T		
sedge, Dewey's (*Carex deweyana*)		1-2		
sedge, slough (*Carex obnupta*)		T		
sedge species (*Carex sp.*)		1		
vanilla leaf (*Achlys triphylla*)		20		
violet, trailing (*Viola simpervirens)*		1		
Mosses				
Dicranum sp			PD^	
Hylocomium splendens (step moss)			P	
Kindbergia oregana (Oregon beaked moss)			P	
Kindbergia praelonga (slender beaked moss)			P	
*Leucolepis acanthoneuron (*Menzies' tree moss)			P	
*Plagiothecium undulatum (*flat moss)			P	
Rhytidiadelphus triquestrus (electrified cat's-tail moss)			P	
Other mosses present				

^ PD = present and dominant

* T= trace <1%, P = present. Species' percent coverage was not attempted.

**Non-native species

ISLANDS TRUST CONSERVANCY
Protecting Canada's Islands in the Salish Sea

Appendix 4. Letter to Neighbours

August 21, 2019

Dear Neighbour,

The Islands Trust Conservancy is updating its management plan for Inner Island Nature Reserve and we are interested in hearing from you.

The Inner Island Nature Reserve (PID 018-012-256; Lot A, Section 21, Denman Island, Nanaimo
District, Plan VIP55499) is a 9.4-hectare (23.2 acre) protected area located in north-central Denman Island, to the north and south of Pickles Road. A portion of Pickles Marsh, three creeks connected to the marsh, and a number of associated wetlands all lie within the Reserve. The Reserve protects mature and regenerating coastal Douglas-fir forests as well as this beaver created complex of creek and wetland habitat. The property is a central link connecting the surrounding network of 700 ha of protected lands, which includes the Denman Conservancy Association's 62-hectare Settlement Lands and the Denman Island Park and Protected Area established by BC Parks in 2013.

The Islands Trust Conservancy will work in partnership with the Denman Conservancy Association to manage the property to protect its natural values, sensitive ecosystems, and threatened species. 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 the Nature Conservancy of Canada, that have been put in place to protect the native plants and animals within the Reserve. We are now updating the management plan to guide management of the Reserve for the next ten years.

Your input is requested for the development of the next Inner Island Nature Reserve Management Plan. As a neighbour of the Reserve, we would like to hear your ideas and concerns regarding the long-term management of this special place. Please complete the enclosed questionnaire, which is also available online: www.surveymonkey.com/r/IINR.

The questionnaire can be completed online or returned to me by mail by September 20th, 2019, or dropped off in person at the Inner Island Nature Reserve management plan open house. The open house will be held on Saturday September 7th from 11-1 pm at the Marcus Isbister Old School Centre at 5901 Denman Road.

Thank you for taking the time to share your ideas regarding management of the Inner Island Nature Reserve. For more information, please contact me at the number or address listed below.

Sincerely,



Jemma Green
A/Property Management Specialist,
Covenant Management and Outreach Specialist
Islands Trust Conservancy
250-405-5193
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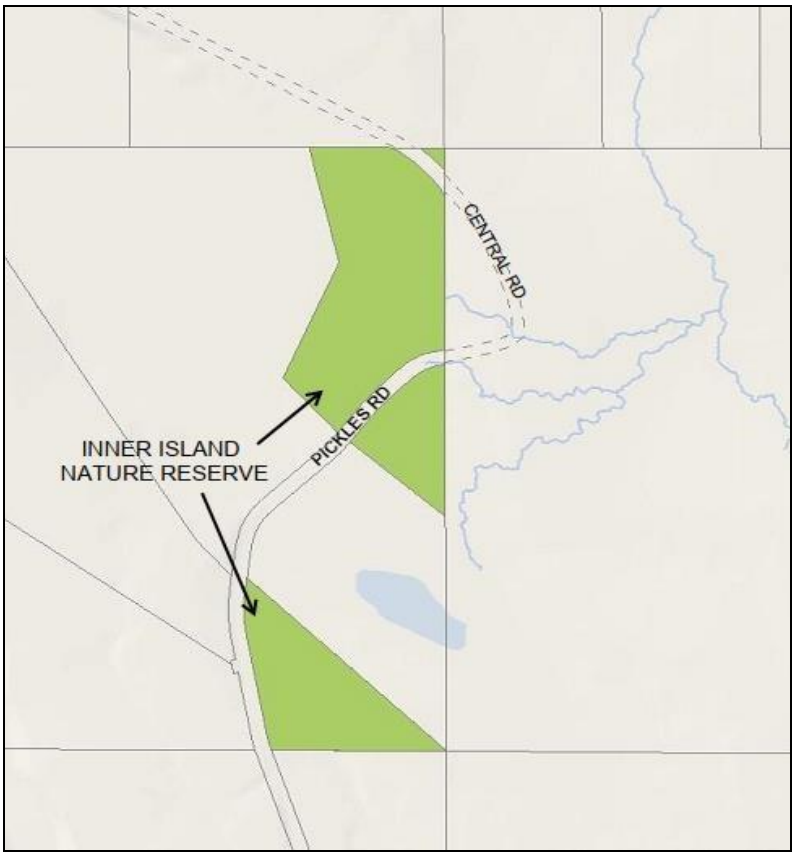

Inner Island Nature Reserve is located to the north and south of Pickles Marsh along Pickles Road.