LISA BAILE NATURE RESERVE MANAGEMENT PLAN NORTH PENDER ISLAND, BC

PREPARED BY:
Claudia Schaefer, M.Sc., R. P. Bio. #1001

PREPARED FOR: Islands Trust Conservancy

APPROVED BY:
Islands Trust Conservancy Board on July 13, 2022
Resolution 2022-035
Pender Island Conservancy Association on September 29, 2022

ISLANDS TRUST CONSERVANCY

i. Executive Summary

Islands Trust Conservancy (ITC) acknowledges and respects that SDÁY̓ES/ North Pender Island is within the traditional territory of Coast Salish Peoples (BOḰEĆEN (Pauquachin) First Nation, MÁLEXEŁ (Malahat) Nation, SȾÁUTW̱ (Tsawout) First Nation, W̱ JOŁEŁP (Tsartlip) First Nation, W̱ SIḴEM (Tseycum) First Nation, Cowichan Tribes, Halalt First Nation, Lyackson First Nation, Penelakut Tribe, SEMYOME (Semiahmoo) First Nation, Stz'uminus First Nation, Tsawwassen First Nation, and Ts'uubaa-asatx (Lake Cowichan) First Nation). The historical relationship to the land, culture, and spirit of this place continues to this day. ITC 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 Lisa Baile Nature Reserve is a living document that will evolve as opportunities for knowledge sharing arise and understanding grows[1].

The Lisa Baile Nature Reserve (LINR) is located at the northern end of North Pender Island, one of the Gulf Islands in the southern portion of the Salish Sea. LINR has experienced minimal human disturbance since the widespread logging of the coastal region in the 1900s. Its predominantly mature, coniferous forests blanket moderate to steep north-facing slopes. The forests of the reserve provide habitat for many species of wildlife and plants, and with the unfragmented forests adjacent support an extensive greenway for wildlife movement. Wildlife use of LINR is evident by the numerous wildlife trees and snags throughout.

Four provincially at risk ecological communities and two Sensitive Ecosystems occur in LINR, a high diversity given its size. This community diversity also provides a high biodiversity of plant species, from those restricted to dry, nutrient poor soils of the ridgetop woodland to ones requiring rich, moist soils at the toe slope. LINR is also significant for harbouring a large number of old growth trees and other ecological characteristics of old growth forest.

This Management Plan assesses the current condition of LINR, sets out conservation objectives, identifies ecological and/or cultural values, identifies relevant management issues and provides recommendations for the continued ecological health of LINR. Recommendations include ensuring minimal human disturbance by restricting visitation, pursuing the removal of the road easements, planting native trees in clearings and potentially on the roadbed, supporting the ongoing bird studies on the reserve, removing invasive species, and monitoring for threats to the integrity of the reserve and its inherent features.

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

ii. Tables and Lists

Table of Contents

List of Figures

List of Tables

List of Photos and Credits

iii. Acknowledgements

Table 1. Acknowledgements: the primary author and other contributors to the management plan, and their contributions, affiliations, and professional qualifications.

Name	Position/Affiliation	Professional Accreditation or subject expertise	Contribution
Claudia Schaefer, M.Sc.	Botanist/Ecologist, Contractor	R.P. Bio.	Fieldwork, written report, map creation
Lisa Baile	Donator of lot, experienced naturalist	Plants, birds, fungi	Bird, plant and fungi observations; local knowledge
Harold Joe	Cowichan Tribes	Cultural Knowledge Holder	Survey for Culturally Modified Trees and other features of First Nations' importance
Kathryn Martell	Ecosystem Protection Specialist, Islands Trust Conservancy (ITC)	Ecosystem protection	Background files; document review
Nuala Murphy	Property Management Specialist, ITC	Protected areas property management	Background files and site history; compilation of public surveys; document review

1. Introduction

North Pender Island is situated within the territory 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 (ITC) and its partners.

Lisa Baile Nature Reserve (LINR) is located at the northern end of North Pender Island, one of the Gulf Islands which lies in the Salish Sea. LINR includes mature coniferous forests on north facing slopes, a narrow band of woodland, and a highly significant number of old-growth trees.

The ITC will work in partnership with the Pender Islands Conservancy Association (PICA) to steward the care and management of the LINR to maintain and improve its ecological health and integrity.

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 special purpose 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 2020a)* Reference: *http://www.islandstrust.bc.ca/connect/about-us/*

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 sixteen 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 for a network of protected areas that preserve in perpetuity the natural systems of the islands in the Salish Sea. 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 as follows:

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

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

[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.

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 2020b), ITC recognizes that nature reserves may be places of great cultural and spiritual significance to First Nations. Cooperative management of these protected places will provide opportunities to establish and maintain mutually respectful relationships between 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 protecting the land and features of LINR is:

- To protect the natural ecosystems and natural values of the site;
- To preserve cultural and archaeological features; and
- To maintain the biodiversity of the site for the benefit of the flora and fauna, Pender Islands residents, local First Nations, the public and the province.

1.5. Protected Area Objectives

The objectives in protecting LINR are to:

- Preserve and protect the natural ecosystems, biological diversity and natural values;
- 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;
- Restore plant and animal communities and ecological process if necessary and feasible;
- Support ongoing inventory, mapping and monitoring to guide management;

[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 inherent rights of Indigenous Peoples.

- Allow natural forest succession and natural ecological processes and functions to proceed unimpeded, except in the case of wildfire; and
- Remove invasive species throughout the reserve.

2. Property Information

LINR is 4.05 ha (10.0 acres) in size. It is irregular in shape but largely rectangular and oriented north to south. It fronts Clam Bay Road for 141.2 m (463.25 feet). It is approximately 525 m from the ocean shoreline of Navy Channel, part of the Salish Sea.

2.1. Location

LINR is located on the northern portion of North Pender Island, oriented north towards Navy Channel, fronting on Clam Bay Road off Port Washington Road. The civic address is 3205 Clam Bay Road, North Pender Island, BC. LINR is in the North Pender Island Local Trust Area and the Capital Regional District.

Figure 1. Location of LINR on the northern portion of North Pender Island, BC. Map from MapIT (accessed February 2022).

2.2. Legal description

The legal description of LINR is Lot B, Section 22, Pender Island, Cowichan District, Plan VIP67942. The PID number is 024-289-582. The lot is irregular in shape and comprises 4.05

ha (10.0 acres) with 141.2 m (463.25 feet) of frontage along Clam Bay Road. The area of LINR is zoned as Rural.

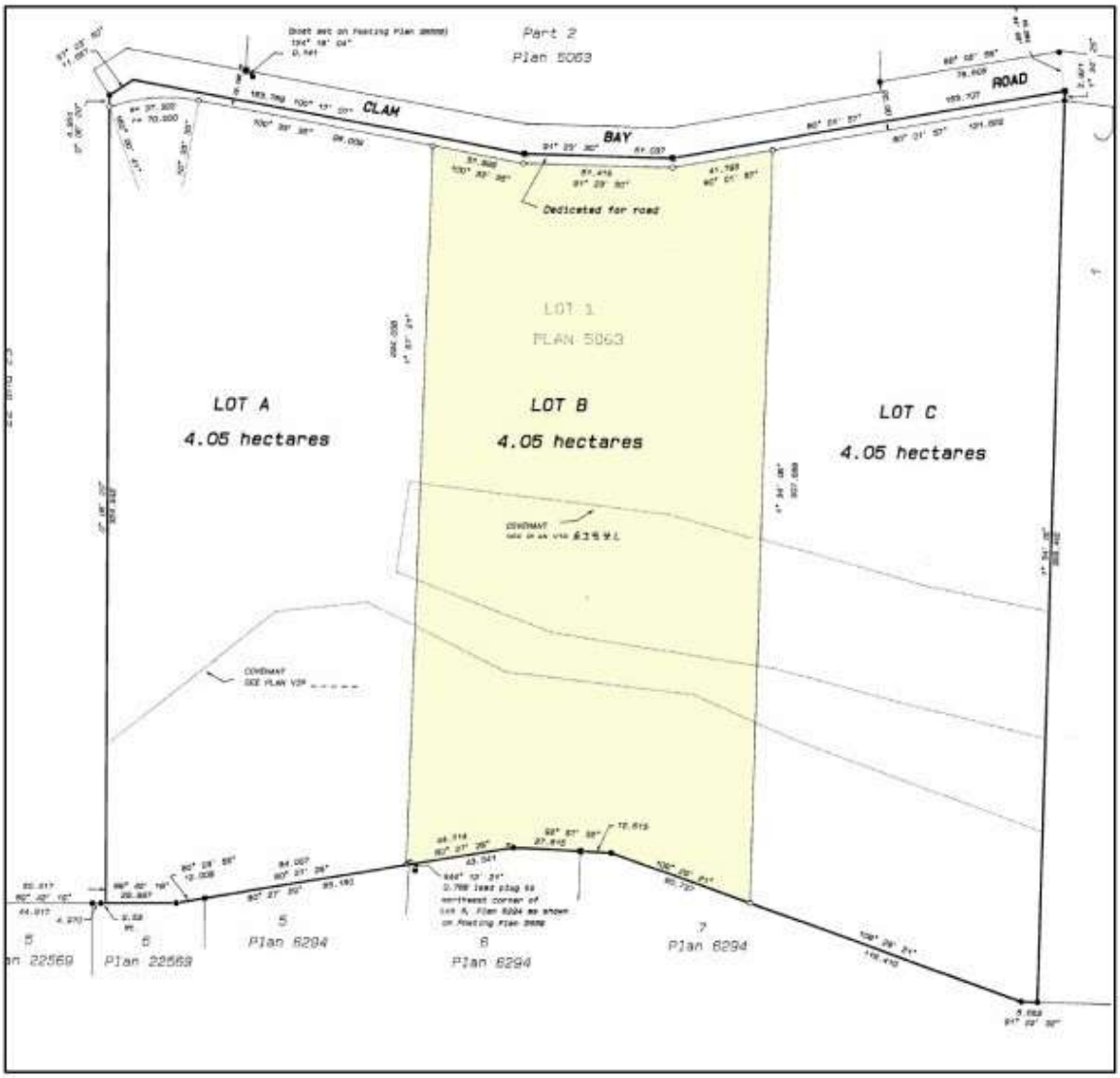


Figure 2. Survey drawing of LINR lot (shaded in yellow).

2.3. Legal Access

Legal access to LINR is from Clam Bay Road, via a short section of the adjacent lot's driveway to the east (see the Statutory Right of Way description in 2.2).

2.4. Landscape Context

North Pender Island is within the traditional and treaty territories of the BOḰEĆEN (Pauquachin) First Nation, MÁLEXEŁ (Malahat) Nation, SṮÁUTW̱ (Tsawout) First Nation, W̱ JOŁEŁP (Tsartlip) First Nation, W̱ SIḴEM (Tseycum) First Nation, Cowichan Tribes, Halalt First Nation, Lyackson First Nation, Penelakut Tribe, SEMYOME (Semiahmoo) First Nation, Stz'uminus First Nation, Tsawwassen First Nation, and Ts'uubaa-asatx (Lake Cowichan) First Nation.

LINR is roughly rectangular in shape, with its northern boundary fronting Clam Bay Road. Apart from the cleared agricultural land to the northwest of the reserve (Clam Bay Farm), the adjacent properties have largely intact second growth forest cover (Fig. 3):

- To the north, across the narrow Clam Bay Road, is a large forested lot with mature swamps;
- The lot to the west is undeveloped and supports similar forests to LINR;
- The lot adjacent to the east is a largely forested and somewhat similar to LINR, apart from a residential building and driveway; and,
- To the south are residential lots, however a woodland forest remains intact along the ridge at the southern LINR boundary.

These adjacent lands are, however, privately held, and any development on them in the future could pose a threat to the integrity of the reserve.

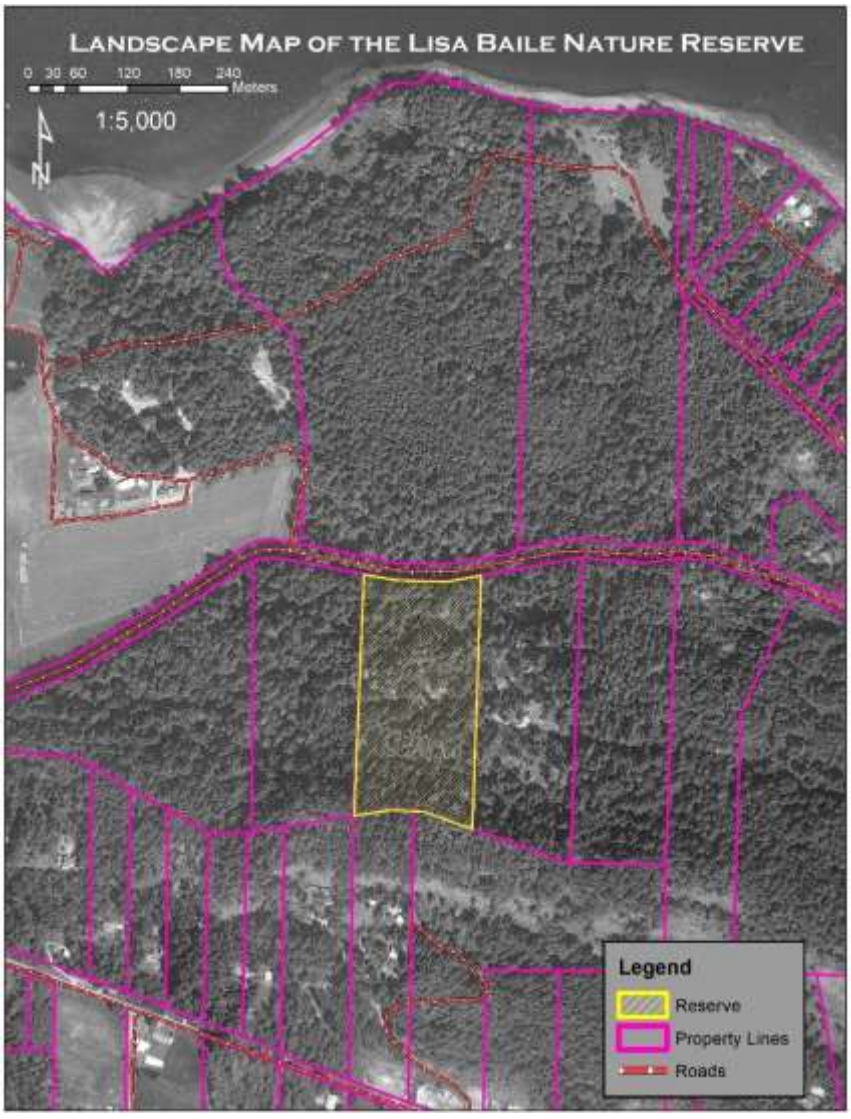


Figure 3. Map of landscape context of the Lisa Baile Nature Reserve, North Pender Island, BC.

The narrow band of Woodland along the southern boundary of the LINR is part of a larger complex designated as a Development Permit Area (Fig. 4), due to the vulnerability of this Sensitive Ecosystem. Further south of the woodland ridge is rural residential housing and several parcels designated as Commercial/Industrial. Cleared agricultural lands occur just northwest of LINR (Clam Bay Farm).

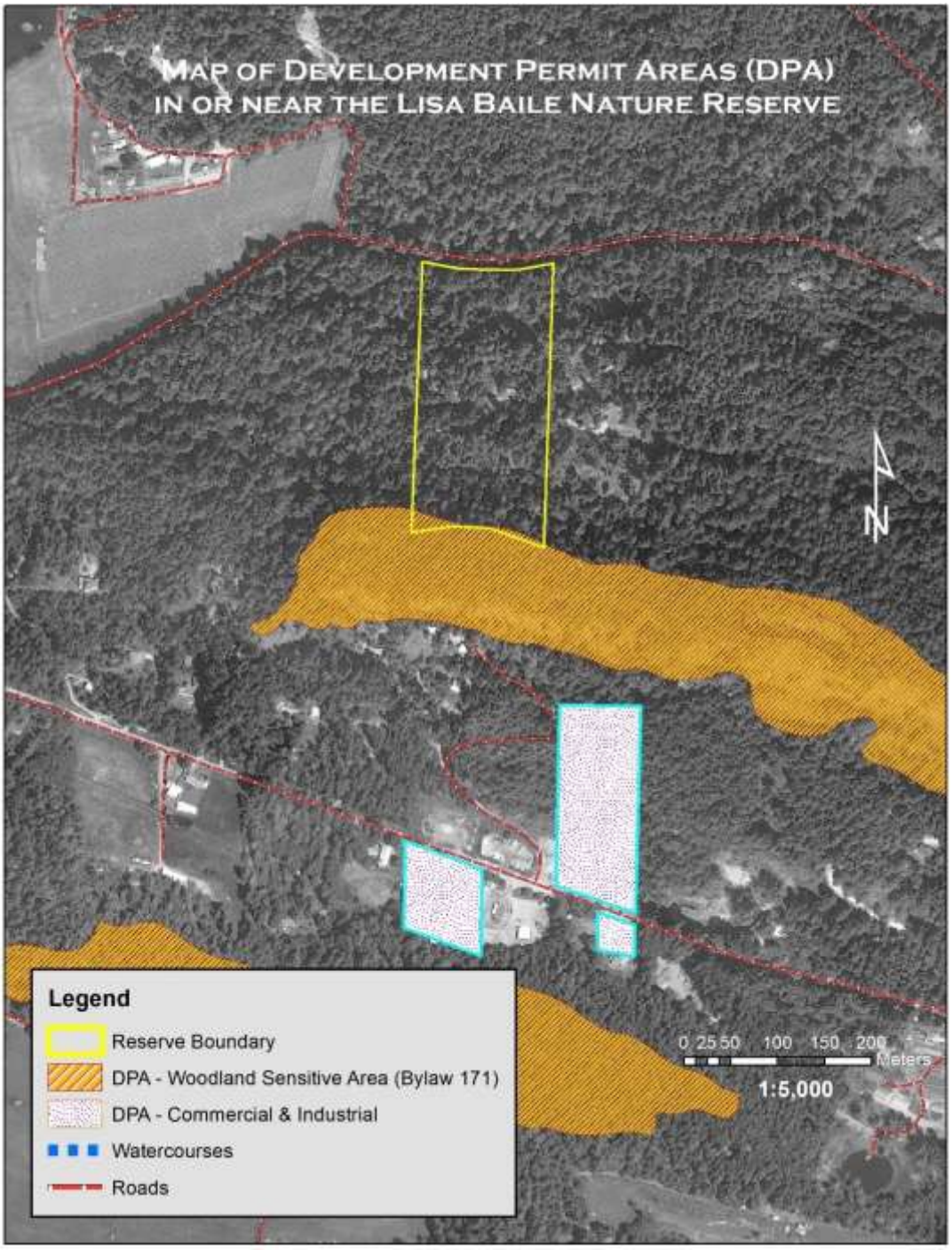


Figure 4. Map of Development Permit Areas (DPAs) in the vicinity of LINR.

There are several protected areas on North Pender Island, including Federal Parks and Federal Marine Parks (Fig. 5).

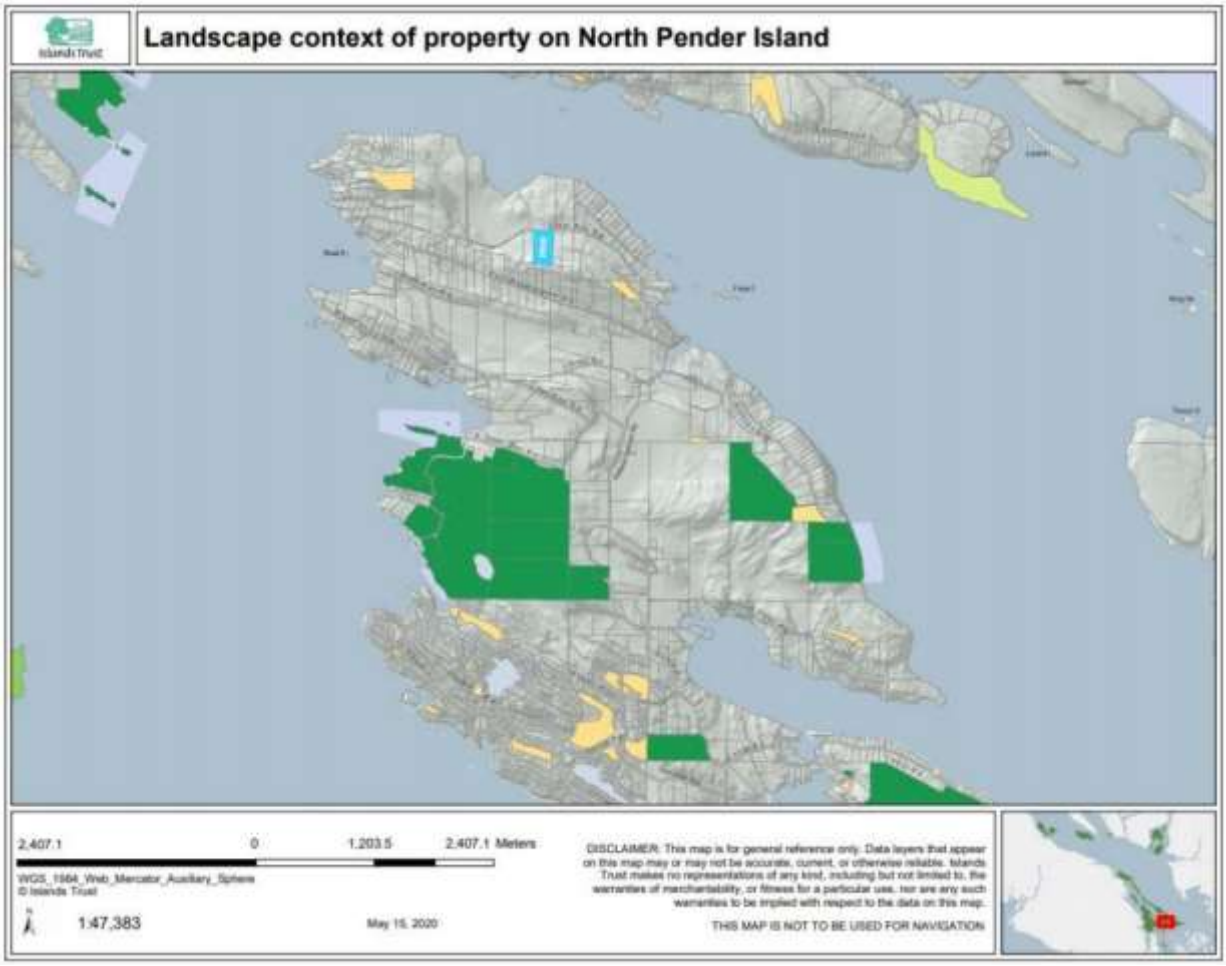


Figure 5. Map of nearby Protected Areas, showing locations of LINR (blue outline), Federal Parks (dark green), Federal Marine Parks (light purple), Community Parks (orange) and Regional Parks (light green). Map originally provided in ITC Staff Report on May 26, 2020, regarding the LINR conservation proposal.

Figures 6 shows the community parks nearest to LINR and Figure 7 shows the ITC conservation covenants at the northern end of the island.

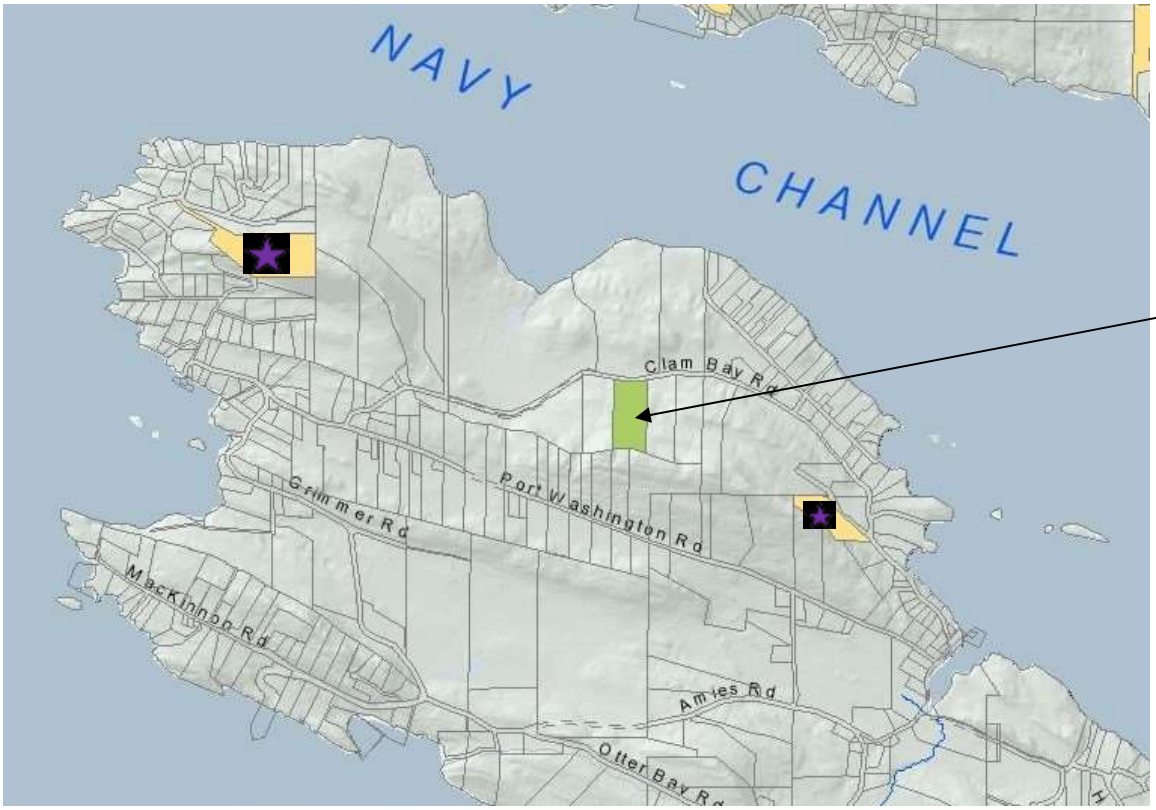


Figure 6. Map of Community Parks (marked by stars) in the vicinity of LINR.

Figure 7. Map of ITC Conservation Covenants (shown in green) near to LINR (outlined in yellow).

2.5. Site History

Lands and waters including North Pender Island were occupied and used by First Nations for settlements, resource gathering, and as spiritual and ritual places. Villages, hunting camps, cedar bark gathering areas, rock quarries, clam and fish processing camps, pictographs and cemeteries are examples of the many ways that First Nations have used and depended on the coast and lands for time immemorial. [1]

A Cultural and Archaeological Preliminary Assessment was made on August 28, 2020. Harold Joe, cultural knowledge holder and Coast Salish Nation member from Cowichan Tribes and Jo Dan, a cultural knowledge holder, were accompanied by Lisa Baile (donor) and Kathryn Martell of ITC. One Culturally Modified Tree (CMT), a small western redcedar, was located. No other evidence of First Nations use was directly observed although the land has the following features which would typically have been used traditionally:

- Rock crevices, overhangs and small caves in the bluffs on the ridge at the southern boundary
- Yew trees and oceanspray shrubs that were at times harvested for spears, fishhooks and other uses.

North Pender Island was colonized by Europeans in the late 1800s. Original old-growth forests on North Pender were almost completely logged early in the 1900s. No evidence of resource extraction was found on LINR. There is a small clearing that was likely created for a homesite on a level bench mid-way up the slope.

The LINR land is one of three lots created in 1999 by subdivision of a 30 acre lot. At that time, a conservation covenant (Ledingham 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. Ledingham Covenant is co-held by PICA and ITC and was granted as an Ecological Gift.

The lot now known as LINR was purchased in 2019 by Lisa Baile for conservation purposes. In February 2021, Lisa Baile transferred the parcel to ITC for protection of its natural features in perpetuity.

2.6. Anthropogenic Features

There are no buildings or structures in LINR. Other features that are a result of human activity are listed in Table 2, along with their condition and photopoint locations where possible. Locations of anthropogenic features are shown in Figure 9.

Table 2. Anthropogenic features of LINR.

Anthropogenic Feature	Description	Condition	Photopoint Location
Access road	Rarely used roadway on easement for emergency vehicle access to adjacent lots.	Composed of dirt and gravel; 6-8m wide, uneven surface in places; regeneration of tree saplings along edges	See Fig. 8 for location
Trail	Walking trail to access the woodland ridge	Narrow footpath, surface material is bare earth	See Fig. 8 for location
Bird nesting boxes	Numerous bird houses have been erected on trees for an avian study	Good, relatively new	Dr. O'Brien to submit to ITC
Clearing	Likely an old homesite	Partially grassy and weedy; old log pile present	547
Old log piles	Sectioned large trunk, stacked	In decay; covered in moss; may be supporting small mammals, invertebrates, amphibians and/or snakes	524, 531
Refuse	Old, rotting couch and other garbage	Removal required	535, 536
Property pin	Marks the SW corner	Good	563
Culturally Modified Tree	Cedar tree with bark removal	Relatively young tree, currently leaning	
Well	n/a	n/a	n/a

The bird nesting boxes were installed at LINR as part the Avian Bioindicator Monitoring Project on the Pender Islands. It is a longitudinal study examining Violet-green Swallows and Chestnut-backed Chickadees as bioindicators of ecosystem health. A map of the locations of the nesting boxes within LINR can be found in Appendix M.

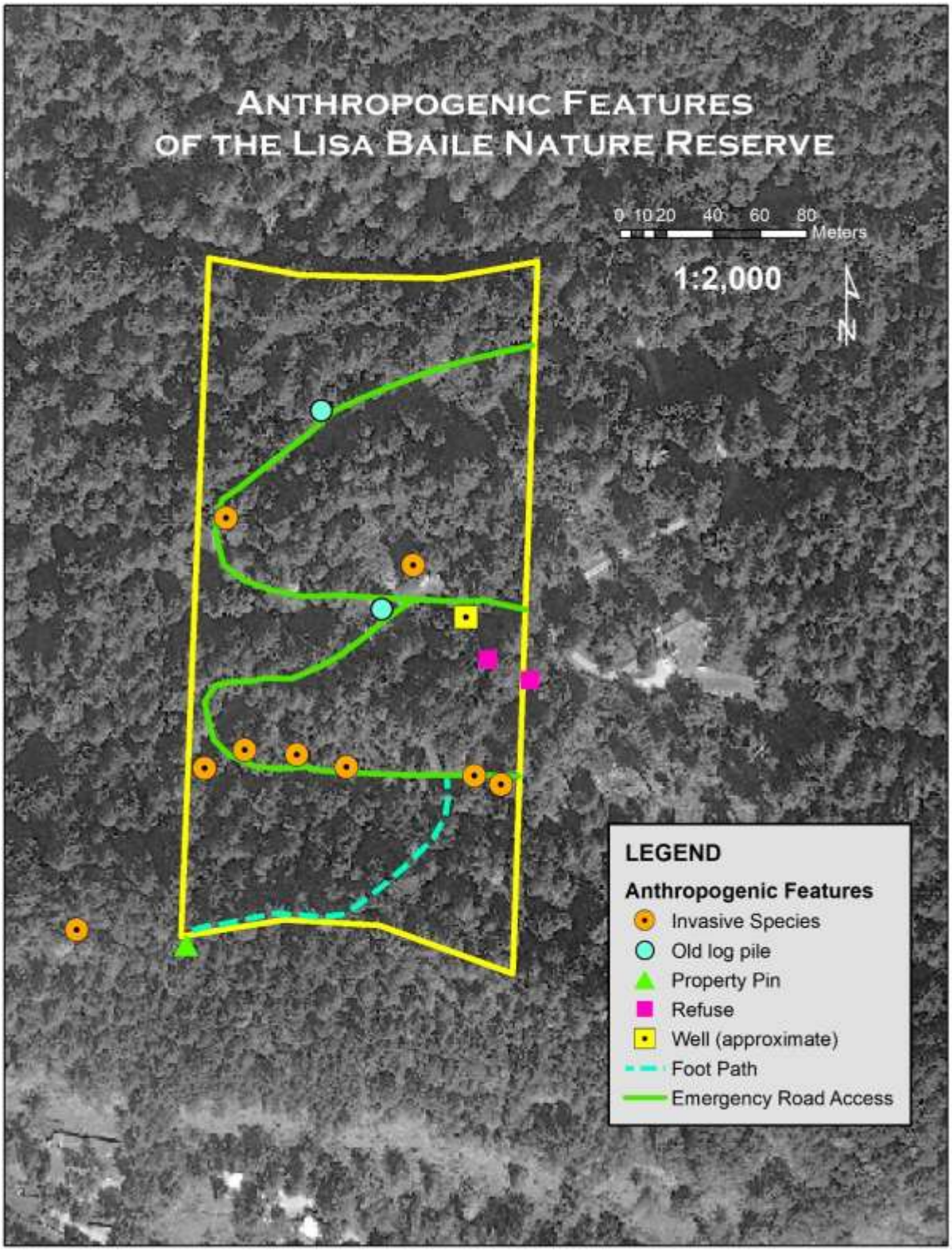


Figure 8. Anthropogenic features map of LINR.

2.7. Undersurface Rights

There are no known holders of undersurface rights for the LINR parcel.

2.8. Notations, Charges, Liens and Interests

The title of the LINR land is encumbered by three covenants, one statutory right of way and one easement.

Conservation Covenant EN27064 and associated Statutory Right of Way EN27065 (Fig. 9)

- A Section 219 Conservation Covenant and a Section 218 Statutory Right of Way were registered over LINR on March 3, 1999 in favour of Pender Islands Conservancy Association (PICA) and ITC
- Consists of 0.378 ha within LINR along Clam Bay Road
- Provides for the protection, preservation, conservation and maintenance of the land
- Initiated along with similar covenant areas along Clam Bay Road to protect the old-growth qualities of the area.
- Access is via Lot C's driveway off Clam Bay Road up to the junction with the Easement road access described below

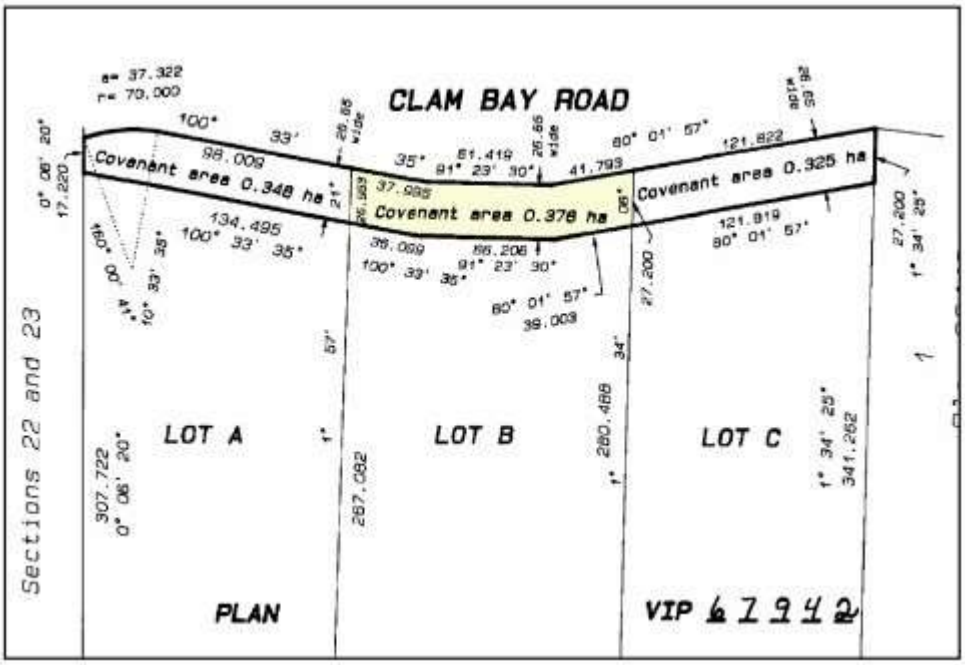


Figure 9. The covenant area (shaded in yellow) granted in favour of PICA and ITC in LINR for protection of old-growth features.

Covenant EW23983 and associated Easement EW26216 (Fig. 10)

- Granted in favour of the Capital Regional District to provide emergency fire vehicle access to Lot A or Lot C via Lot B, since in 2004 the driveways servicing Lot A and Lot B were not at a suitable grade for emergency vehicles.
- Pertains to the same access route as the Statutory Right of Way and Easement described above and shown in Figure 10.

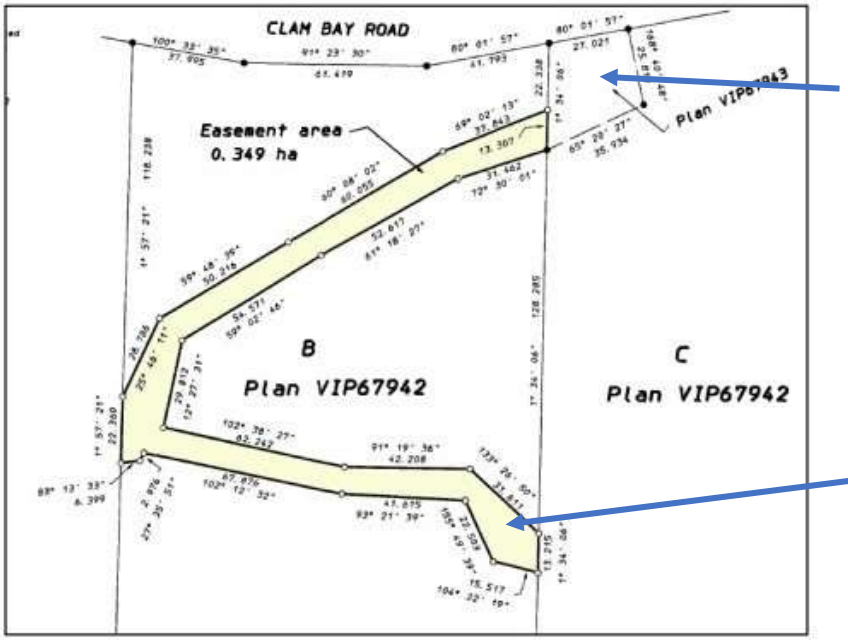


Figure 10. Drawing that shows both the Easement on title and the Statutory Right of Way for ITC and PICA to access LINR.

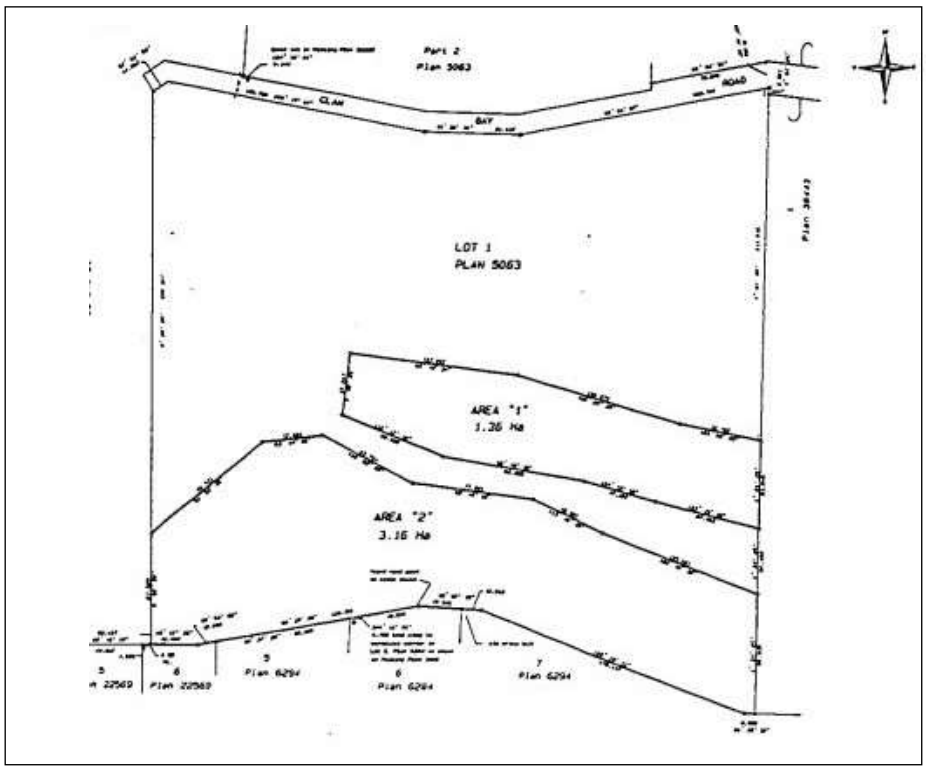


Figure 11. Drawing of Covenant EM101640, identifying no-build areas due to geotechnical and slope stabilization issues. Note, drawing is for all of Lot 1, of which LINR occupies approximately the middle third from east to west.

Covenant EM101640 (Fig. 11)

- Granted in favour of the Province of BC and the Capital Regional District and provides for a no-build area identified due to geotechnical and slope stabilization issues.
- A total of 4.52 ha in two parcels over Lot 1 (LINR is approximately the central, vertical, or north-south, one third of Lot 1).

2.9. Local Planning Designations

LINR is zoned as Rural. There are no Riparian Area Regulation areas in or near LINR. A Development Permit Area (DPA) for sensitive woodland ecosystems includes the woodland ridge at the south end of LINR (Fig. 4).

2.10. Existing Public and Other Use

Public use has not been allowed, except by or with permission of the land donor for hiking and wildlife observation. The easement road has not been used by vehicles for several years. Anthropogenic features are displayed on Figure 9.

3. Inventory by Ecological Community[5]

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

LINR is predominantly a north-facing, forested hillside with moderate to steep slopes. There are some northwest facing sections. A narrow band along the southern boundary is a relatively flat, dry ridge supporting woodland, a Sensitive Ecosystem. LINR is largely undisturbed, apart from an unused road that zig zags the land, and a small clearing.

The forests are high-quality, mature second growth, with an uncommonly high number of old-growth trees (over 60 individuals documented). These veteran trees pre-date colonization and escaped the ensuing lumber resource extraction on the South Coast of BC. Four (4) provincially red-listed ecological communities are represented in LINR (Table 3), as well as two (2) Sensitive Ecosystem types, Woodland and Mature Forest.

[5] Ecological communities are used by the B.C. Conservation Data Centre and NatureServe to describe both forested and non-forested natural areas. More information about ecological communities, including descriptions of ecological communities in the Islands Trust Area, can be found on the B.C. Conservation Data Centre website.

Table 3**.** Provincially at risk ecological communities in LINR.

Ecological Community Name		Site Series	Status		
English	**Scientific**		**Provincial**	**BC List**	**Global**
Douglas-fir / dull Oregon-grape	*Pseudotsuga menziesii / Mahonia nervosa*	CDFmm/01	S1 (2018)	Red	G2
Douglas-fir - arbutus	*Pseudotsuga menziesii – Arbutus menziesii*	CDFmm/02	S2 (2021)	Red	GNR
Grand fir / dull Oregon-grape	*Abies grandis / Mahonia nervosa*	CDFmm/04	S1 (2009)	Red	G1
Grand fir / three-leaved foamflower	*Abies grandis / Tiarella trifoliata*	CDFmm/06	S1 (2013)	Red	G1

3.2. Climate

North Pender Island is in the rainshadow of Vancouver Island and the Olympic Peninsula, and has a moderate climate with warm, dry summers and mild, wet winters. The Gulf Islands as a group are typically frost-free for over 8 months, allowing for the longest growing season in Canada. Pronounced water deficits occur in the summer months on sites with average to drier sites moisture regimes. Tables 4 and 5 show the average monthly temperature and precipitation for North Pender Island.

Table 4. Average monthly temperature of North Pender Island calculated using 25 years of climate data (www.weatherbase.com).

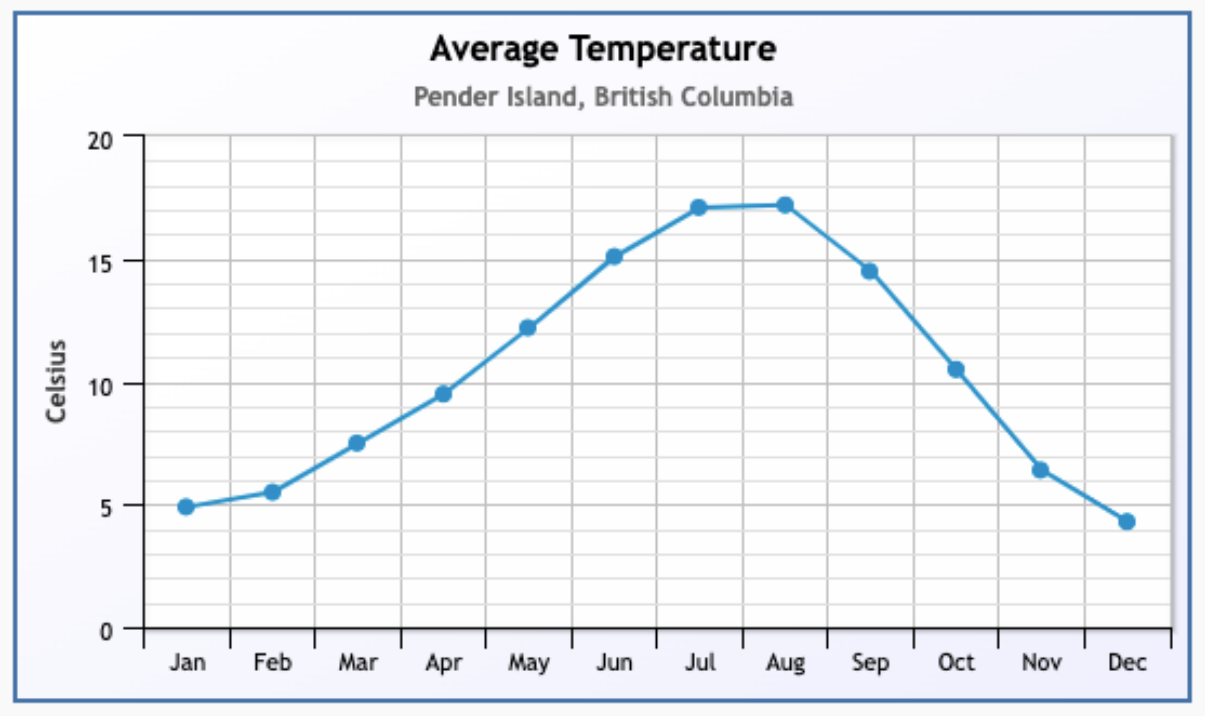
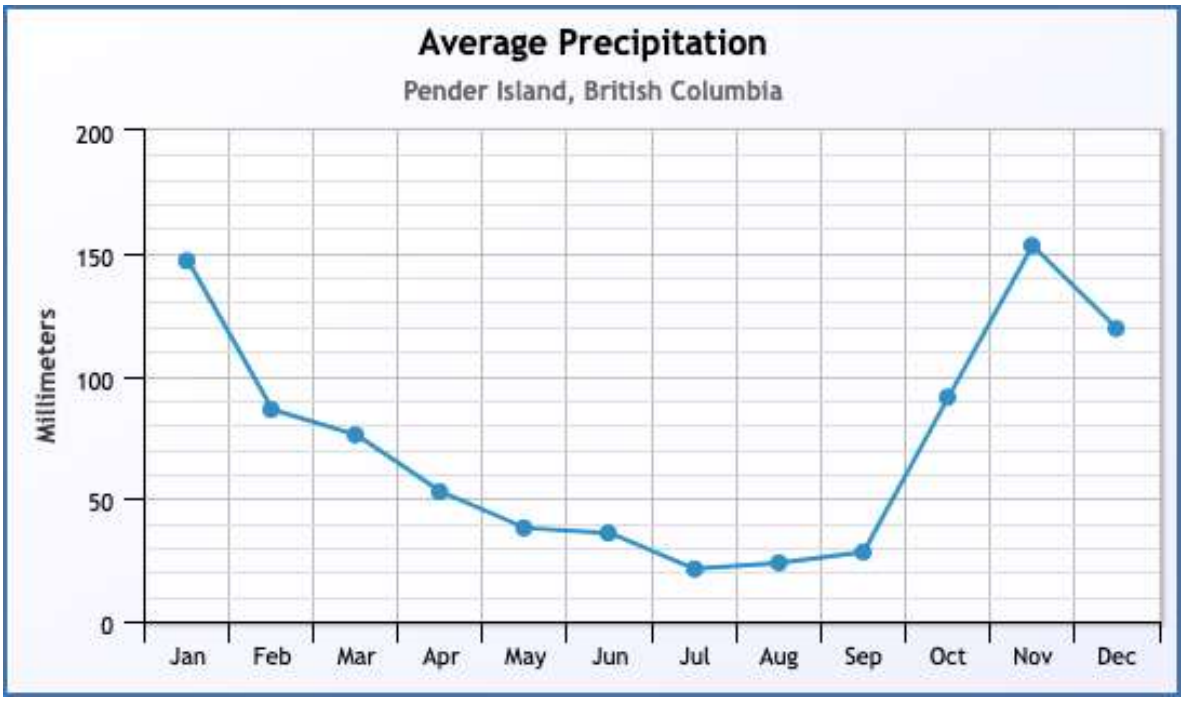


Table 5. Average monthly precipitation of North Pender Island calculated using 25 years of climate data (www.weatherbase.com).



With climate change, North Pender Island will experience hotter and drier conditions during the growing season. Predictions of winter conditions are variable, but increased storm frequency and heavier precipitation amounts are likely.

3.3. Geology and Physiology

Pender Islands and the Gulf Islands in general are underlain by folded and highly faulted sedimentary rocks. The islands' elevations are a result of folding of these ancient sediments about 55 million years ago, and again 42 million years ago. The entire area of southwestern BC is seismically active, overlying a tectonic subduction zone.

LINR is located on the north side of large ridge oriented roughly east to west. The southern end of LINR is the highest elevation of the reserve and includes a small section of the dry and rocky ridge. The majority of LINR is moderate to steep, north and northwest facing slopes. The toe slope, or lowermost portion of the slope before level ground, occurs at the northern end of LINR. Figure 12 shows the physiology and terrain of LINR and the surrounding area.

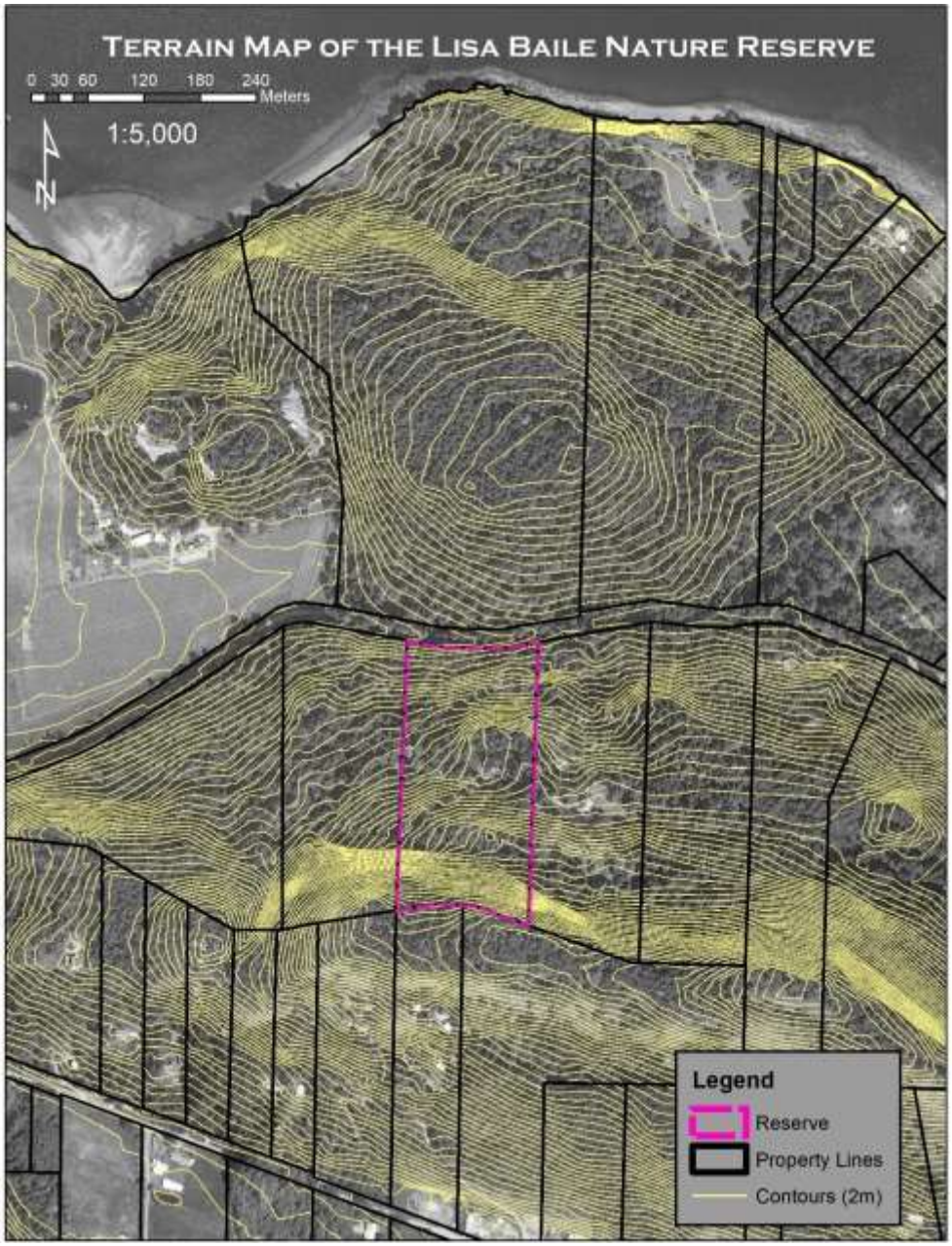


Figure 12. Terrain and physiology of LINR and the surrounding area, showing property lines and 2 m interval contours.

3.4. Hydrology

There are no significant hydrological features in LINR, although there may be intermittent drainage channels during very wet weather events.

3.5. Soils

The soils of LINR are predominantly of the Haslam-Qualicum complex (British Columbia Soil Survey, 1988). The dominant soils are well-drained, channery and sandy shale loam to loam colluvial, residual and glacial drift materials less than 100 cm deep over sandstone, siltstone

or shale bedrock. Sub-dominant soils are rapidly to moderately well-drained, consisting of gravelly sandy loam to gravelly sand glaciofluvial, fluvial or marine deposits more than 150 cm deep (British Columbia Soil Survey, 1988).

3.6. Ecological Classifications

North Pender Island and LINR occur within the Moist Maritime Coastal Douglas-fir biogeoclimatic Moist Maritime subzone (CDFmm). This subzone is the mildest in Canada, with warm, dry summers and mild, wet winters. Vegetation communities are differentiated by available soil moisture, depth, and nutrient status (Green and Klinka 1994). Climatic factors, in conjunction with existing soil conditions, result in a nutrient poor forest with a long growing season, although water deficits may occur on zonal sites. LINR is within the Pacific Maritime Ecozone and the Georgia-Puget Basin Ecoregion (Ecological Framework of Canada 2019).

3.7. Ecological Communities and Site Series

Ecological community data was collected during five (5) days of site visits between September 27 and October 1, 2021. Note that this was not the optimum time of year to observe all flora on the site, so species lists are partial only; this is particularly true of drier ecological communities where some plant species are only evident in spring.

Tables of representative species observed, community descriptions and other features of the ecological communities mapped in LINR are found below. Site series were identified using *A Field Guide for Site Identification and Interpretation for the Vancouver Forest Region* (Green and Klinka 1994). Structural stage was accorded based on definitions in *Standards for Terrestrial Ecosystems Mapping in British* Columbia (RIC 1998). Locations of photopoints and other photograph locations are given in Appendix E.

Ecological Community: Grand fir / Three-leaved foamflower

This community is an example of a rare forest type in the region, where soils are richer and moister than average. It occurs along the toe of the slopes of the reserve, where surface and ground run-off deposits bring added moisture and nutrients and support an understorey of many plant species not found elsewhere in LINR. Three-leaved foamflower is an indicator species of rich, moist sites, and while it was not found in the polygon, vanilla leaf is also an indicator of rich soils and was abundant. The greatest diversity of mosses in LINR was found in this community.

This polygon lies within a Covenant held by Pender Islands Conservancy Association and Island Trust Conservancy (Fig. 9) to protect the almost 50 old-growth trees found on LINR as well as others in adjacent properties along Clam Bay Road.

Table 6. Mature Grand fir / Three-leaved foamflower Ecological Community Overview

Polygon ID	1
Ecological Community	Grand fir / Three-leaved foamflower (*Abies grandis / Tiarella trifoliata*)
Classification	CDFmm/06
Structural Stage	6 (mature)
Status (BC List)	Red-listed, S1 (2013)
Photopoints	565
Ecological Community Description	Occurs on sites with richer than average soils and a wetter than average moisture regime. Often found on toe slopes or floodplains.
Disturbance Notes	Past selective logging in this polygon; disturbance along the southern edge of the polygon from construction of the driveway.
Anticipated Change/Succession	It is expected that this high-quality forest will continue to mature eventually leading a climax state of old growth.
Wildlife Observations	A Pacific Tree Frog was heard calling in this community and a Pacific Banana Slug was observed.

Photo 2. Habitat photo of the Grand fir / Three-leaved foamflower ecological community. Photo credit: C. Schaefer.

Table 7**.** Mature Grand fir / Three-leaved foamflower Vegetation Composition

VEGETATION SPECIES	PERCENT COVER (%)						NOTES
	Main Canopy*	Secondary Canopy+	Shrub Layer**	Herb Layer++	Moss, Lichen Layer*+	Non-natives ^	
Thuja plicata (western redcedar)	35	5	3				21 trees are over 1m in diameter at breast height (dbh), with 5 trees >3m dbh
Pseudotsuga menziesii (Douglas-fir)	15						16 trees are over 2m dbh; one living tree is 7.3m dbh
Abies grandis (grand fir)	15						8 trees are 1.7m dbh or larger
Alnus rubra (red alder)	1						One tree is 1.65m dbh
Acer macrophyllum (bigleaf maple)	3	5	T				5 trees are 1.4m dbh
Mahonia nervosa (dull Oregon-grape)			T				Previously known as *Mahonia nervosa*
Rubus ursinus (trailing blackberry)				T			Very low woody plants are counted as part of the herbaceous layer
Polystichum munitum (sword fern)				60			Dominant in the understorey
Achlys trifoliata (vanilla-leaf)				15			Indicator of rich soils
Galium triflorum (sweet-scented bedstraw)				T			Indicator of rich soils
Lysimachia latifolia (broad-leaved starflower)				T			
Trisetum cernuum (nodding trisetum)				1			
Maianthemum stellatum (star-flowered false Solomon's-seal)				T			
Viola sp. (violet species)				T			
Mycelis muralis (wall lettuce)						T	
Eurhynchium oreganum (Oregon beaked-moss)					15		
Leucolepis acanthoneuron (Menzie's tree moss)					10		
Rhytidiadelphus triquetrus (electrified cat's-tail moss)					4		

Eurhynchium praelongum (slender beaked-moss)					1		
Climacium dendroides (tree moss)					T		
Hylocomnium splendens (step moss)					1		
Plagiomnium insigne (coastal leafy moss)					4		
Cover by Layer (%)	**65**	**10**	**3**	**78**	**35**	**T**	**Total Canopy Cover: 60%**

*Codominant trees, main layer of tree cover
+Trees greater than 10m that do not reach the main canopy
**All woody plants less than 10m tall
++All herbaceous species, regardless of height and some low woody plants less than 15cm tall
*+ All bryophytes, terrestrial lichens and liverworts
T stands for Trace or less than 1%

Ecological Community: Grand fir / Dull Oregon-grape

This forested ecological community is typically found on sites with average soil moisture and an average to rich nutrient regime and tend to be found on north-facing slopes. Mature examples of this forest type are now quite rare.

The canopy is a mix of predominantly coniferous species: Douglas-fir, western redcedar and grand fir. Bigleaf maple is scattered throughout. Salal is the main species in the shrub layer. The understorey is dominated in most parts of the community by sword fern, with few other herbaceous species. Moss cover varies between patches but overall is low in abundance.

Table 8**.** Grand fir / dull Oregon-grape Ecological Community Overview

Polygon ID	2, 5 and 7
Ecological Community	Grand fir / dull Oregon-grape (*Abies grandis / Mahonia nervosa*)
Classification	CDFmm/04
Structural Stage (ST)	ST6 (mature, polygon 2); ST5 (young, polygon 3); ST3b (tall shrub-dominated, polygon 7)
Status (BC List)	Red-listed, S1 (2009)
Photopoints	585
Ecological Community Description	This forested ecological community is typically found on sites with average soil moisture and an average to rich nutrient regime.
Disturbance Notes	Driveway and emergency vehicle access roadway transects this polygon
Anticipated Change/Succession	Several structural stages of this community occur in LINR and barring significant disturbance will continue to mature
Wildlife Observations	Varied Thrush, Northern Flicker, Red-breasted Nuthatch, Kinglet species, Columbian Black-tailed Deer, Pacific Banana Slug, Pacific Tree Frog

Photo 3. Habitat photo of the Grand fir / dull Oregon-grape ecological community. Photo credit: C. Schaefer.

Table 9**.** Grand fir / dull Oregon-grape Vegetation Composition

VEGETATION SPECIES	PERCENT COVER (%)						NOTES
	Main Canopy*	Secondary Canopy+	Shrub Layer**	Herb Layer++	Moss, Lichen Layer*+	Non-natives ^	
Pseudotsuga menziesii (Douglas-fir)	20						
Thuja plicata (western redcedar)	10	5					
Acer macrophyllum (bigleaf maple)	7	2					
Abies grandis (grand fir)	3						
Gaultheria shallon (salal)			30				
Berberis nervosa (dull Oregon-grape)			1				
Rubus spectabilis (salmonberry)				T			
Polystichum munitum (sword fern)				50			
Pteridium aquilinum (bracken)				T			
Hypochaeris radicata (hairy cat's-ear)						T	

Eurhynchium oreganum (Oregon beaked-moss)					1		
Hylocomnium splendens (step moss)					1		
Cover by Layer (%)	40	7	31	50	2		**Total Canopy Cover: 45%**

*Codominant trees, main layer of tree cover.
+Trees greater than 10m that do not reach the main canopy.
**All woody plants less than 10m tall.
++All herbaceous species, regardless of height and some low woody plants less than 15cm tall when fully grown.
*+ All bryophytes, terrestrial lichens and liverworts.
T stands for Trace or less than 1%

Ecological Community: Douglas-fir – Arbutus

At the top of the reserve slopes (at the southern boundary), is a very dry, rocky ridgetop. It supports the driest forest type of the region, dominated by Douglas-fir with arbutus scattered through. A narrow section of it falls within the reserve boundaries. The substrate is predominantly bedrock and boulders, which are blanketed by a rich moss layer. Several early-flowering, uncommon species are found in this community and not elsewhere in the reserve.

This ecological community is typically considered woodland, due to its relatively open canopy, and woodlands are Sensitive Ecosystems that are flagged as Development Permit Areas in the region (Fig. 4).
Given that fieldwork for this assessment was conducted late in the growing season, records from iNaturalist within the reserve boundaries (mostly created by Lisa Baile, the donor of LINR) have been used in the vegetation species table (Table 11). It is recommended that a plant species inventory be conducted in this community in early to mid-spring, as there is potential for at-risk species in this habitat.

Table 10**.** Douglas-fir – Arbutus Ecological Community Overview

Polygon ID	4
Ecological Community	Douglas-fir – Arbutus (*Pseudotsuga menziesii – Arbutus menziesii*)
Classification	CDFmm/02
Structural Stage	5 (young)
Status (BC List)	Red-listed, S2 (2021)
Photopoints	555, 560
Ecological Community Description	A woodland forest type due to its relatively open canopy. Occurs on the driest soils that still support forest. Soils are typically low in nutrient availability. Rock outcrops can be common.
Disturbance Notes	Foot paths; past logging
Anticipated Change/Succession	Without significant disturbance, this forest will become mature. Given the ridgetop position of the forest stand, windthrows may naturally occur.

Wildlife Observations	None during fieldwork

Photo 4. Habitat photo of the Douglas-fir – Arbutus ecological community at the south end of LINR. Photo credit: C. Schaefer.

Table 11**.** Douglas-fir – Arbutus Vegetation Composition

VEGETATION SPECIES	**PERCENT COVER (%)**						**NOTES**
	Main Canopy*	**Secondary Canopy+**	**Shrub Layer****	**Herb Layer++**	**Moss, Lichen Layer*+**	**Non-natives ^**	
Pseudotsuga menziesii (Douglas-fir)	20	1					
Arbutus menziesii (arbutus)	1	1					
Thuja plicata (western redcedar)		5					
Rubus parviflora (red huckleberry)			T				On decaying wood
Gaultheria shallon (salal)			T				
Berberis nervosa (dull Oregon-grape)			T				
Lonicera hispidula (hairy honeysuckle)			T				
Trisetum cernuum (nodding trisetum)				3			
Polystichum munitum (sword fern)				T			
Goodyera oblongifolia (rattlesnake plantain)				T			

Polypodium glycyrrhiza (licorice fern)				T			
Poa sp. (grass species); likely				T			*Melica subulata* (Alaska oniongrass) is likely present
Hylocomnium splendens (step moss)					70		Dominant moss species
Rhytidiadelphus triquetrus (electrified cat's-tail moss)					20		More abundant here than any other part of the reserve
Eurhynchium oregana (Oregon beaked-moss)					1		
Mycelis muralis (wall lettuce)						T	
Cover by Layer (%)	**21**	**7**	**1**	**1-5**	**91**	**T**	**Total Canopy Cover: 23-25%**

*Codominant trees, main layer of tree cover.
+Trees greater than 10m that do not reach the main canopy.
**All woody plants less than 10m tall.
++All herbaceous species, regardless of height and some low woody plants less than 15cm tall when fully grown.
*+ All bryophytes, terrestrial lichens and liverworts.
T stands for Trace or less than 1%

Ecological Community: Douglas-fir / dull Oregon-grape

This community occurs on a relatively flat terrace of LINR. The western portion is young but nearing maturity, and the eastern portion is mature. The understorey is notably sparse, particularly in the younger section of the forest. The shrub layer is dominated by salal. Moss cover is relatively high, with Oregon beaked-moss and step moss dominant. There are many wildlife snags and stumps present.

Table 12**.** Douglas-fir / dull Oregon-grape Ecological Community Overview

Polygon ID	5 & 6
Ecological Community	Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii / Berberis nervosa*)
Classification	CDFmm/01
Structural Stage	5 (young, polygon 6) and 6 (mature, polygon 5)
Status (BC List)	Red-listed, S2 (2021)
Photopoints	586
Ecological Community Description	Considered the 'zonal' forest for the CDFmm, i.e. given the climate, this forest type will develop on sites with average soil moisture and nutrient regimes.
Disturbance Notes	The old driveway access road passes through this community; a clearing adjacent, which would have been this same community type, is thought to be an old homesite; past logging; some refuse. Some invasive species are found along the old road.

Anticipated Change/Succession	Without further significant human disturbance, this community will develop into the climax forest expected, possibly with a larger component of Douglas-fir and a more developed understorey.
Wildlife Observations	Bird presence was common, and included Northern Flicker, Red-breasted Nuthatch and an unidentified species of Kinglet. Further evidence of abundant bird use was indicated by the numerous wildlife snags, which included Pileated Woodpecker holes. Pacific Tree Frog and Pacific Banana Slug were both observed in this community.

Photo 5. Habitat photo of the Douglas-fir / dull Oregon-grape ecological community. Photo credit: C. Schaefer.

Table 13**.** Douglas-fir / dull Oregon-grape Vegetation Composition

VEGETATION SPECIES	PERCENT COVER (%)						NOTES
	Main Canopy*	Secondary Canopy+	Shrub Layer**	Herb Layer++	Moss, Lichen Layer*+	Non-natives ^	
Thuja plicata (western redcedar)	25	5	3				
Pseudotsuga menziesii (Douglas-fir)	25						Old-growth tree present
Acer macrophyllum (bigleaf maple)	5						
Abies grandis (grand fir)	2						
Alnus rubra (red alder)		2					
Gaultheria shallon (salal)			20				
Berberis nervosa (dull Oregon-grape)			5				
Lonicera ciliosa (western trumpet honeysuckle)			T				
Trisetum cernuum (nodding trisetum)				T			
Polystichum munitum (sword fern)				1			
Hylocomnium splendens (step moss)					20		
Rhytidiadelphus triquetrus (electrified cat's-tail moss)					T		
Eurhynchium oregana (Oregon beaked-moss)					40		
Pleurozium schreberi (red-stemmed feathermoss)					1		
Cover by Layer (%)	**55**	**7**	**25**	**2**	**61**		**Total Canopy Cover: 60%**

*Codominant trees, main layer of tree cover.
+Trees greater than 10m that do not reach the main canopy.
**All woody plants less than 10m tall.
++All herbaceous species, regardless of height and some low woody plants less than 15cm tall when fully grown.
*+ All bryophytes, terrestrial lichens and liverworts.
T stands for Trace or less than 1%

3.8. Wildlife Species

A thorough wildlife survey has not been completed for LINR. Wildlife observations were made during fieldwork (Sept. 27 – Oct. 1, 2021) and by the LINR donor, Lisa Baile (Appendix G). There are no known records of wildlife species designated at-risk in LINR. The BC Conservation Data Centre have records of Sharp-tailed Snake (*Contia tenuis*) and Northern Red-legged Frog (*Rana aurora*) within 2 km of LINR.


Photos 6 and 7. Sharp-tailed Snake (left photo; photographer Kristiina Oveska) and Northern Red-legged Frog (right photo; photographer David Blevins) are two at risk species known to occur near LINR.

3.9. Expected Change over Time

The forests of LINR are expected to further mature over time. The tree species composition may change, as summer drought conditions are exacerbated by climate change. Western redcedar has been shown to be in highly vulnerable to periods of drought on the south coast over the past several years. Cedar trees on sites with the minimal acceptable moisture availability for this species' survival will decline in vigor and ultimately die off as moisture availability in the growing season is further decreased due to climate change. Douglas-fir is likely to occupy the canopy space that becomes available on these sites, as Douglas-fir is significantly more drought tolerant than the other main canopy species of LINR.

4. Threats

4.1. Threats Matrix

Table 14. Threats by habitat type.

Threats (examples below)	Forest	Overall Threat Rank
Recreational Activities: Mountain biking & hiking impact conservation targets through wildlife disturbance, trampling of vegetation, soil disturbance & erosion. Given that public access will not be permitted in LINR, impacts of this threat are minimal.	Low	Low
Fire: Coastal Douglas-fir ecosystems evolved to be adapted to low-intensity fires that used to occur about every 100-300 years. This maintained the dominance of Douglas-fir by controlling the growth of competing species and preventing tinder-dry debris from building up on the forest floor, thus reducing the risk of catastrophic, high-intensity fires. Fire suppression has resulted in a change of fire regime to lower frequency and higher intensity fires. A high intensity fire in LINR would be catastrophic. This is a threat across the entire protected area and in all the Gulf Islands. Vegetation recovery post-catastrophic fire is slow and invasive terrestrial species are likely to invade into areas with bare soil. Due to the contiguous forest cover of LINR and ample coarse woody debris, the impact of a wildfire is likely to be high. The likelihood of one occurring without control is low to moderate.	Medium	Medium
Invasive Non-Native Species: A significant threat to biodiversity. According to the International Union for Conservation of Nature (IUCN), it is second only to habitat loss. The impact on native ecosystems, habitats and species can be severe and often irreversible. Invasive plant species in LINR are low in number and cover, however they should be removed and the site monitored for new occurrences.	Low	Low
Problematic Native Species: Hyper-abundant Mule Deer (*Odocoileus hemionus*) can be problematic, dramatically altering understory vegetation structure and composition and adversely affecting songbird populations (Martin et al. 2010)	Medium	Medium
Climate Change: Hotter, drier summers have occurred over recent years and predictions are that this trend will continue and worsen. These conditions are likely to have a significant impact on LINR forests over time. Canopy composition will shift as species such as cedar die off in drier sites.	Medium	Medium
Overall Threat Status for Protected Area	**Medium**	**Low-Medium**

Definitions:

Very High: The threat is likely to destroy or eliminate the biodiversity target.
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 impair the biodiversity target only slightly

4.2. Expected Change to Threats over Time

The threat of a high-intensity wildfire may become high due to the hotter and drier conditions expected with climate change, and the continued fire suppression management in the region.

Disturbance from recreational activities should remain low given that public use is prohibited in LINR. This may change if unauthorized use of LINR starts to occur. ATV use and mountain biking are two activities that often occur in natural areas without permission and can cause serious negative impacts on ecological communities.

Invasive plant species are likely to continue to establish in LINR. Prohibited public access will lessen the occurrence of weed species being carried into the reserve on hikers' shoes and clothing, however wind and wildlife dispersal of invasive species will continue. The frequency of establishment is in part influenced by the population levels of these species outside of LINR where they may not be controlled.

5. Community Engagement

5.1. Adjacent Landholders

In preparation for the development of the Management Plan, letters were sent to all landholders and neighbours within a 150 m radius of LINR. A total of 16 letters were mailed on November 15, 2021 (Appendix J). The letters contained information about Lisa Baile Nature Reserve, an invitation to a public webinar on Zoom, and both a paper copy of the questionnaire and a link to a digital version (see Appendix L).

5.2. First Nations

Letters were emailed to the following First Nations (Appendix K) on November 16, 2021:

- BOḰEĆEN (Pauquachin) First Nation
- MÁLEXEŁ (Malahat) Nation
- SȾÁUTW̱ (Tsawout) First Nation
- W̱ JOŁEŁP (Tsartlip) First Nation
- W̱ SIḴEM (Tseycum) First Nation
- Cowichan Tribes
- Halalt First Nation
- Lyackson First Nation
- Penelakut Tribe
- SEMYOME (Semiahmoo) First Nation
- Stz'uminus First Nation
- Tsawwassen First Nation
- and Ts'uubaa-asatx (Lake Cowichan) First Nation

The letters contained information about Lisa Baile Nature Reserve, an invitation to a public seminar on Zoom, and the questionnaire (Appendix L). As of January 13, 2022, no responses have been received.

5.3. Conservation Partners and Community Members

The Islands Trust Conservancy presented a public zoom seminar on December 9, 2021. A total of 2 members of the public registered and attended the meeting and an unknown number watched it as a live stream. Consultant, Claudia Schaefer, gave a brief slide show outlining management goals, objectives, ecological features and management issues which included maps and photographs of LINR. Dr. Erin O'Brien, the Community Outreach and Project Coordinator from the Pender Islands Conservancy Association spoke about the avian ecology project that has begun on LINR and donor Lisa Baile was present to give information. The public was given the opportunity to ask questions and provide input on general management planning for LINR.

An online questionnaire (Appendix L) was made available from November 15, 2021 – January 5, 2021. The webinar and questionnaire were advertised on local social media networks and in the Pender Post newspaper.

5.4. Engagement Results

The questionnaire regarding management of LINR was completed by 34 people. Three respondents (9%) were visitors to the island, and the remaining live or hold property on North Pender Island (85%) or South Pender Island (6%). Most respondents (64%) have never visited the location, while some have been there once (12%), a few times (12%), several times a year (9%) or once a month or more (3%).

Of the 44% of respondents that had visited the LINR, most went to hike or walk (67%) and the remainder to view wildlife (33%).

When asked to choose the three most important values of nature reserves, most respondents chose:

- *Conservation for the sake of the intrinsic value of nature* (75%),
- *Protection of habitat for at-risk species* (73%), and
- *Ecosystem services* (73%)

Education and research opportunities was a top three choice of 24% of respondents, and *recreational opportunities* was a top three choice of 18% of respondents.

6. Management Recommendations

The guiding management principle for LINR is to allow natural processes to occur without human influence, apart from fire. Natural disturbance factors such as wind (windthrow), pest infestation, disease, and wildlife use should proceed without intervention. Only the removal of invasive plant species is permitted. Public access will not be permitted in order to limit human influence on the land and the organisms present or moving through the land.

6.1. Management Roles

Islands Trust Conservancy is the sole landholder of LINR and monitors the reserve annually to determine any management concerns. ITC and the Pender Islands Conservation Association (PICA) hold a conservation covenant (Ledingham Covenant) on a portion of LINR protecting the old-growth features of forest along Clam Bay Road (Figure 10). PICA will act as the management group and in the future PICA may hold a conservation covenant over the entire LINR . Annual monitoring to ensure compliance with the terms of the conservation covenant are the responsibility of the covenant holders.

Table 15. Partners and their roles in management of LINR.

Partner	**Role**
Island Trust Conservancy	Landholder
Pender Islands Conservation Association	Covenant Holder of portion and possibly the entire LINR in the future, and Management Group

6.2. Permitted and Prohibited Uses[7]

Permitted uses include:

- Annual monitoring by ITC staff (or as required)
- Annual monitoring by PICA representatives
- Scientific research if approved by ITC and PICA
- Emergency vehicle access
- Planting in disturbed clearings and/or roadways with locally sourced native species that are known to already occur in LINR and are ecologically suited to the planting site.

Prohibited uses include[7]:

- Public access (e.g. hiking, nature appreciation, dog walking)
- Non-emergency motorized and non-motorized vehicles (e.g. bicycles)
- Hunting[8]
- Horseback riding
- Camping

- Fires
- Livestock grazing
- Trail development
- Forestry or tree removal (including tree parts)[9]
- Collection of plants, animals or fungi[9]
- Drone navigation

[7] ITC acknowledges the inherent rights of Indigenous Peoples under Section 35 of the Canadian Constitution
[8] Hunting under Section 35 of the Constitution Act, 1982 recognizes and affirms the inherent rights of Indigenous Peoples.
[9] Harvesting and gathering under Section 35 of the Constitution Act, 1982 recognizes and affirms the inherent rights of Indigenous Peoples.

6.3. Proposed Monitoring Program

Covenant Monitoring
Annual covenant monitoring efforts are intended to ensure the terms and intent of the covenant are being upheld. The conservation covenant held by PICA offers an additional layer of protection for LINR to help ensure it is being managed effectively for conservation purposes. If an issue is found to be in violation of the terms of the covenant, PICA will work in cooperation with ITC to find an appropriate remedy or management solution.

ITC Nature Reserve Monitoring
ITC will conduct an annual monitoring site visit of LINR, as it does with all its properties. The recommended monitoring route is provided in Appendix I. Annual monitoring visits are typically completed in half a day.

Trail Use
Trail condition should be assessed for evidence of prohibited activities (such as off-leash dog walking or mountain biking). LINR monitoring (including covenant monitoring) is intended to observe and report any potential unauthorized trail development.

Boundaries, Encroachment
It is recommended that the LINR boundaries be monitored. All boundaries of LINR abut privately held land. Sections of greater vulnerability occur along Clam Bay Road, and where the driveway on the lot to the east is adjacent to LINR. A large piece of refuse (discarded couch) was found in LINR just off the neighbouring driveway.

Species & Habitat (Biological) Monitoring
Species at risk surveys, wildlife surveys and monitoring are encouraged during appropriate times of year to assess which species are present. Monitoring of invasive species occurrence is advisable over time so that control measures can be taken as required.

The avian research study led by Dr. Erin O'Brien includes use of LINR as one of its project sites. This work should continue to be supported.

6.4. Public Access

Natural areas free of human presence can be important sheltering, foraging and breeding habitat for many wildlife species. The breeding capacity of numerous bird species is

negatively affected by the simple presence of humans and pets, as the repeated stress response to possible threats affects reproductivity output.

The woodland community at the south end of LINR is very vulnerable to foot traffic. The soil mantle is extremely thin over the underlying bedrock and boulders and is easily compacted or eroded by hikers. High moss cover is characteristic of the woodland community and provides microsites for uncommon ephemeral species. Moss clumps and the more delicate species they support are easily dislodged by foot traffic.

Given that many other natural areas are available on the Pender Islands for recreational use, and the value of areas free of human presence to wildlife and sensitive ecosystems, public access will not be permitted in LINR.

6.5. Signage

There are currently no signs erected at LINR.

It is recommended that signs indicating no public access of LINR be erected at three points along Clam Bay Road: at the northwest corner, the northeast corner, and the middle section of the northern boundary of LINR. An additional sign should be located at the junction of the driveway on the east side and the LINR roadway easement.

Contact information for ITC and/or PICA can be included on signage for individuals who wish to know more about LINR, its natural features and opportunities for protection of other land areas.

6.6. Trail Use, Maintenance and Development

As public access will not be permitted in LINR, no maintenance or development of trails is necessary.

6.7. Protection Initiatives for Sensitive Ecosystems and Species and Ecological Communities at Risk

Protection initiatives for sensitive ecosystems and ecological communities at risk include invasive species removal and planting of locally sourced native tree species in clearings and on roadway if possible. Shade from trees in these areas will reduce the likelihood of invasive species occurring or spreading.

No species at risk are known to occur in LINR, however the following surveys are recommended: early season plant species, bird, reptile, amphibian and small mammals, including bats.

The most significant protection for Sensitive Ecosystems and species and ecological communities at risk can be garnered by increasing the size of the protected area. Protection in this manner is multi-faceted: development of adjacent lands and the numerous threats to

LINR this would create would not occur; wildlife species would be able to move more freely; plant species would be able to disperse more easily into more appropriate sites with the changing climate; the deleterious effects of fragmentation of natural areas would be minimized. For example, the narrow band of woodland at the south end of LINR would not maintain its ecological integrity if the woodland adjacent to the south were removed for development.

The Ledingham Covenant links LINR to the properties adjacent to the east and west. There are opportunities to discuss further covenants and other stewardship measures with the adjacent landholders. In particular, the lot to the west of LINR, supporting undisturbed and unfragmented mature forests, is now situated between two protected areas, as an ITC conservation covenant lies just east of it (Figure 13). It is highly recommended that the landholder be contacted to discuss this significant opportunity for natural area protection.

A further opportunity exists with the large lot to the north of LINR. It is recommended that the benefits of a conservation covenant in this location be described to the landholder, as a covenant would provide, in conjunction with LINR, an exceptional contiguous natural area from the top of the ridge at the south end of LINR to the ocean at Navy Channel. The swamp forest at the south end of this lot, as viewed from Clam Bay Road, appears to be of exceptional ecological quality. The diversity of ecosystems protected would be greatly enhanced by the addition of this lot, in whole or in part, to the existing protected areas south of Clam Bay Road.

Figure 13. ITC conservation covenants (shaded in green) located near LINR (outlined in yellow).

6.8. Ecological Restoration Options

The larger clearing near the centre of LINR (location shown in Appendix B) has log debris piles and rock piles. It is recommended that these not be disturbed, as they may currently provide shelter for small mammals, numerous invertebrates and possibly hibernacula. It is recommended that locally sourced native tree saplings be planted in the clearing, around the wood and rock piles. Cages should be used to protect saplings from deer browse, until the time that the trees have grown to a suitable size to be able to withstand some browsing. Species chosen for restoration planting should be those currently found within the reserve, namely western redcedar, Douglas-fir, western hemlock, grand fir and bigleaf maple. Cedar is the recommended choice for the clearing, as it is common in the canopy of the surrounding ecological communities. While the western redcedar population on the south coast has suffered over the past several years from increased drought conditions due to climate change, the clearing is on a terrace where moisture should be sufficient for it to thrive. Depending on ITC's most current climate change adaptation planning it may be determined that there are other species ecologically suitable to the planting site conditions.

It is recommended that the disused road that zig zags LINR be revegetated as much as feasible, as it is a cleared swath 10 m wide in most sections. Natural regeneration of tree seedlings and saplings is occurring along the edges of the road, so this can be supplemented with plantings of those tree species already established. The compacted ground of the tire tracks may be too difficult to plant in, however plantings can be located at the edges and where possible between the tracks.

6.9. Scientific Research/Education Opportunities

The avian study led by Dr. Erin O'Brien that currently uses LINR as one of its study sites should continue to be supported. Other scientific research if funding or opportunity arises should include:

1. Survey of at risk vascular plants in early spring: the woodland ridge in LINR is an ecological community with a high likelihood of supporting uncommon or rare vascular plants.
2. Bryophyte survey: LINR contains two communities that support a high diversity of less common moss species, the moist and rich toe slope forest at the north end and the dry woodland at the south end.
3. Bird survey: LINR may provide foraging, roosting or nesting habitat for species at risk.
4. Small mammal survey, including bats.
5. Amphibian and reptile survey: LINR provides suitable habitat for the Northern Red-legged Frog, a species at risk, given the swamp habitat north of Clam Bay Road; Sharp-tailed Snake is an at risk species that has been recorded on North Pender Island.

6.10. Exotic and Invasive Species Management

LINR is notable for having low cover of exotic and invasive species. There are small patches of Scotch broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus discolor*), cutleaf evergreen blackberry (*Rubus laciniatus*), and Canada thistle (*Cirsium arvense*) occurring along the roadway (Fig. 14) that should be removed before they spread into other areas of LINR. Patch areas where invasives have been removed should be monitored yearly in particular, as further management control measures may be necessary. Scotch broom was also noted on the woodland ridge west of the boundary of LINR. With the neighbouring landowner's consent, the broom on that land should be removed as it can easily spread in woodland habitat and become problematic for the integrity of LINR.

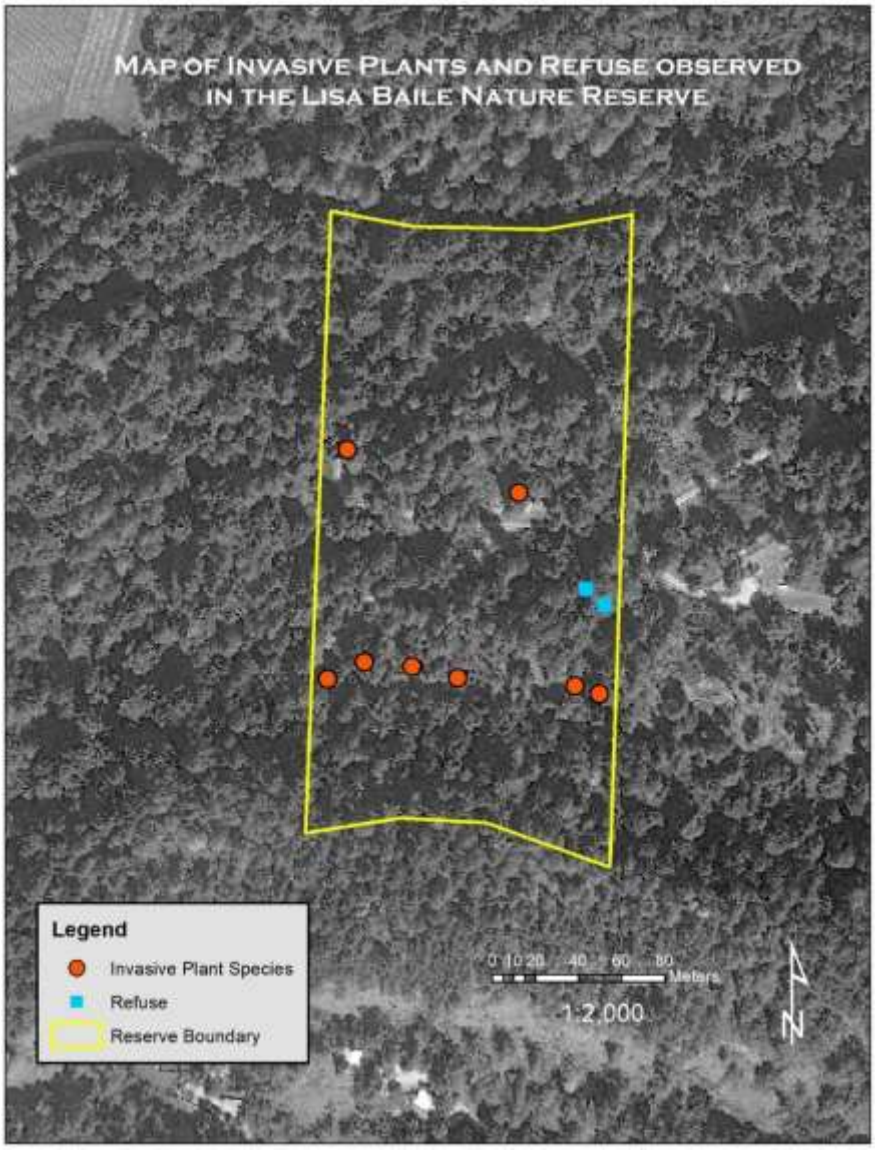


Figure 14. Locations of observed invasive plant species and two occurrences of refuse in LINR.

6.11. Wildfire Risk Management

Both wildfire, and wildfire suppression, can be extremely damaging to sensitive ecosystems. Fire events have been minimized in frequency, intensity and size for many decades by human intervention. Douglas-fir dominated forests, for example, are fire-maintained ecosystems and fire suppression has impeded a natural process of healthy Douglas-fir ecosystems. Other forest types are not fire-dependent and are able to survive periodic fires of light intensity. With fire suppression, however, flammable debris may have accumulated so significantly that a fire event turns intense in heat and spread, resulting in total forest loss. Although Douglas-fir is present in LINR, the forests on these north-facing slopes are not in need of a fire event. They are progressing towards greater maturity and ultimately a climax state. It is recommended that fire suppression continue in LINR and the vicinity.

Removing woody debris from LINR to reduce the intensity of a fire, should one occur, is not recommended as the disturbance caused by such action to ecological communities would be too significant. Coarse woody debris is a vital ecological component of mature and old-growth forests. Many species depend on this debris for shelter and foraging.

The probability of a human-caused fire event being initiated within the boundaries of LINR is significantly reduced by the decision to prohibit public access. Naturally caused wildfires by lightning strike, human-caused fires started outside the reserve boundaries or within by trespassing individuals, are still possible. Developing a plan for fire management in consultation with the Pender Islands Fire Department and BC Wildfire Service to identify optimum fire suppression techniques is recommended. This information should be provided to the province to be included in their annual fire plan. It is preferred that fire retardants or saltwater are not used for fire suppression within LINR since both can cause ecological damage to ecosystems.

6.12. Climate Change Impacts and Management

Climate change may impact the distribution of ecosystems across the landscape, affecting vegetation patterns, hydrology, and may encourage the outbreaks of pests. Trends that may prevail in this region include upslope migration of tree lines and ecosystem boundaries, and increased fire frequency (Hebda 1997).

The Coastal Douglas-fir biogeoclimatic zone (CDF) is highly sensitive to climate change (Hebda 1997). In the CDFmm, warm dry conditions will favour the replacement of forests by woodland or meadow/knoll characteristics and warm and mesic conditions may lead to the development of Garry oak woodlands and forests (Hebda 1997).

Supporting protection and connectivity between large areas of natural ecosystems will allow for the movement of species into new habitats as vegetation patterns shift due to climate change.

7. Action Items

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. Engage with First Nations to ensure that the management plan is reflective of treaty, inherent rights, and the territories of each Nation.
3. Work in collaboration towards a Management Plan for Areas of Cultural Heritage, gathering and harvesting, and Sacred Significance with First Nations.
4. Install signage at three points along Clam Bay Road, the northern boundary of LINR, and signage at the junction of the driveway along the eastern boundary and the road easement of LINR. Signs should indicate that public access is not permitted.
5. Remove invasive species from LINR before they become more established.
6. Continue contact with landholders of neighbouring properties (see section 6.7), keeping them abreast of changes they may see occur regarding management of LINR. Provide them with information on the benefits of natural area protection, emphasizing the importance of protecting contiguous natural areas for plant and wildlife movement, particularly given the current and future effects of climate change.

7.2. Short term Actions (3-5 years):

1. Identify opportunities for cooperative management with First Nations.
2. Supplement the ecological inventory by conducting a rare plant survey in the spring season if funding allows.
3. Consider a breeding bird survey and other wildlife surveys, such as bats, snakes and amphibians if funding allows.
4. Conduct a follow-up survey of invasive species and remove any occurrences.
5. Begin the process to unencumber the lot title of Easement EW26216 (and Covenant EW23983 allowing access along said Easement) if possible. Revegetation of the disused road along the easement can not proceed until this issue is addressed. ITC will need to discuss the discharge of the fire emergency access covenant with the CRD and North Pender Island Fire Protection Society to ensure emergency access to the adjacent lots is possible through other means.
6. Renew contact with neighbouring landholders to determine their potential interest in protecting the land with a conservation covenant or other initiative.
7. Consult local fire strategies and the provincial BC Wildfire Service to communicate best management practices in case of a wildfire.

7.3. Long term Actions (5+ years)

1. If funding is available conduct further surveys for species at risk to complement previous studies, over a range of seasons, to further define the ecological values of LINR and guide future management actions.
2. Prepare and implement a planting plan for clearing(s) and possibly the existing roadbed (subject to removal of easement). Depending on ITC's most current climate change adaptation planning determine if the use of locally sourced (grown in a similar climate) native tree saplings of species already present in LINR are best suited for planting or if there are other species ecologically suitable to the planting site conditions.

3. Monitor the success of replanted areas and supplement plantings if needed.

7.4. Ongoing or Annual Action Items

1. Work with local First Nations towards cooperative management of LINR using the Management Plan for Areas of Cultural Heritage and Sacred Significance.
2. Monitoring and regular nature reserve maintenance projects anticipated as part of the ongoing Islands Trust Conservancy property management budget and program.
3. Annual monitoring (or more frequent site visits if resources allow) by PICA representatives.
4. Survey annually for invasive species.

8. Conclusion

The Lisa Baile Nature Reserve protects four at risk ecological communities and two Sensitive Ecosystems. It supports a wide array of wildlife and plant species and may also support at risk species. The ecological communities of LINR are functioning well and management needs are minimal. The guiding principle of the management of LINR is to allow the natural functions of the site to continue unimpeded by human presence or activities. LINR will be a protected natural area where public access is not permitted.

Existing and future invasive species occurrences will be removed and revegetation of cleared areas will be pursued. The opportunities for connections with nearby protected areas and other undisturbed natural areas is significant.

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

9. References

Baile, Lisa. Personal Communication. September - December 2021 and January 2022.

BC Species and Ecosystem Explorer (BCSEE). No date. BC Conservation Data Centre. https://a100.gov.bc.ca/pub/eswp/ (Accessed December 2021 and January 2022).

Canada Travel Weather Averages. Website: https://www.weatherbase.com/weather/state.php3?c=CA&name=Canada. (Accessed January 2022).

Ecological Framework of Canada. 2019. Ecoregions of Canada. Website: http://ecozones.ca/english/region/195.html (Accessed December 2021).

Government of Canada. 2019. Canadian Climate Normals: 1981 to 2010 Climate Normals and

Averages. Website: http://climate.weather.gc.ca/climate_normals/index_e.html?#1981 (Accessed January 2022).

Green, R.N. and K. Klinka. 1994. A Field Guide to Site Identification and Interpretation for the Vancouver Forest Region. Land Management Handbook No. 28. Ministry of Forests. Victoria, B.C.

Hebda, R.J. 1997. Chapter 13: Impacts of Climate Change on Biogeoclimatic Zones of British Columbia and Yukon *In* Responding to Global Climate Change in British Columbia and Yukon, Volume 1 of the Canada Country Study: Climate Impacts and Adaptations. *Eds* E.Taylor and B. Taylor. Pp. 13-1 - 13-15.

International Union for Conservation of Nature (IUCN). 2019. Invasive Species. Website: https://www.iucn.org/theme/species/our-work/invasive-species (Accessed January 2022).

Islands Trust. 2019a. About the Islands Trust. http://www.islandstrust.bc.ca/connect/about-us/ (Accessed January 2022).

Islands Trust. 2019b. Reconciliation Declaration. http://www.islandstrust.bc.ca/trust-council/first-nations-reconciliation/ (Accessed July 2019).

Islands Trust 2019b. MapIt. Website: http://mapit.islandstrust.bc.ca/Html5Viewer/Index.html?configBase=http://mapit.islandstrust.bc.ca/Geocortex/Essentials/REST/sites/MapIT/viewers/MapIT/virtualdirectory/Resources/Config/Default&runworkflow=Startup&Proceed=Prop (Accessed December 2021 and January 2022).

(Islands Trust 2020b) Reference http://www.islandstrust.bc.ca/trust-council/first-nations-reconciliation/ (Accessed January 2022).

Kenney, E.A., L.P.J. van Vliet and A.J. Green. 1988. Soils of the Gulf Islands: North Pender, South Pender, Prevost, Mayne, Saturna, and lesser islands. Soil Survey Report No. 43 ,Vol. 2. British Columbia Soil Survey. Research Branch. Agriculture Canada. Ottawa, Ontario.

Martin, T.G., P. Arcese, and N. Scheerder. 2011. Browsing down out natural heritage: Deer impacts on vegetation structure and songbird populations across an island archipelago. Biological Conservation 144 (2011): 459-469.

Province of British Columbia, Ministry of Agriculture. 2018. British Columbia Soil Information Finder Tool. https://governmentofbc.maps.arcgis.com/apps/MapSeries/index.html?appid=cc25e43525c5471ca7b13d639bbcd7aa

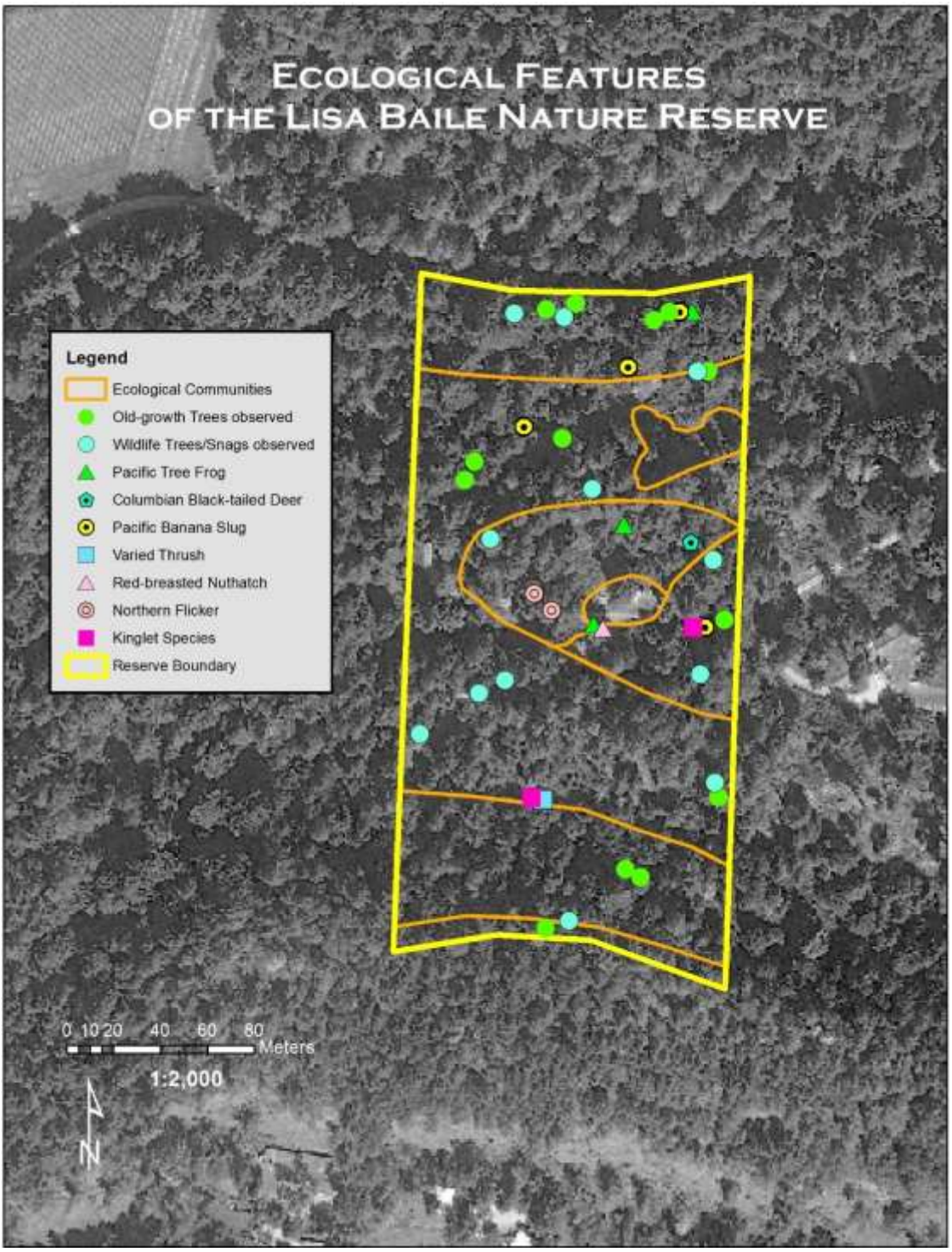
Resource Inventory Committee (RIC). 1998. Field Manual for Describing Terrestrial Ecosystems. Co-published by Ministry of Forests and Ministry of Environment, Province of BC, Victoria, BC.

Stipec, Katrina. BC Conservation Data Centre. 2021. Personal communication. November 2021.

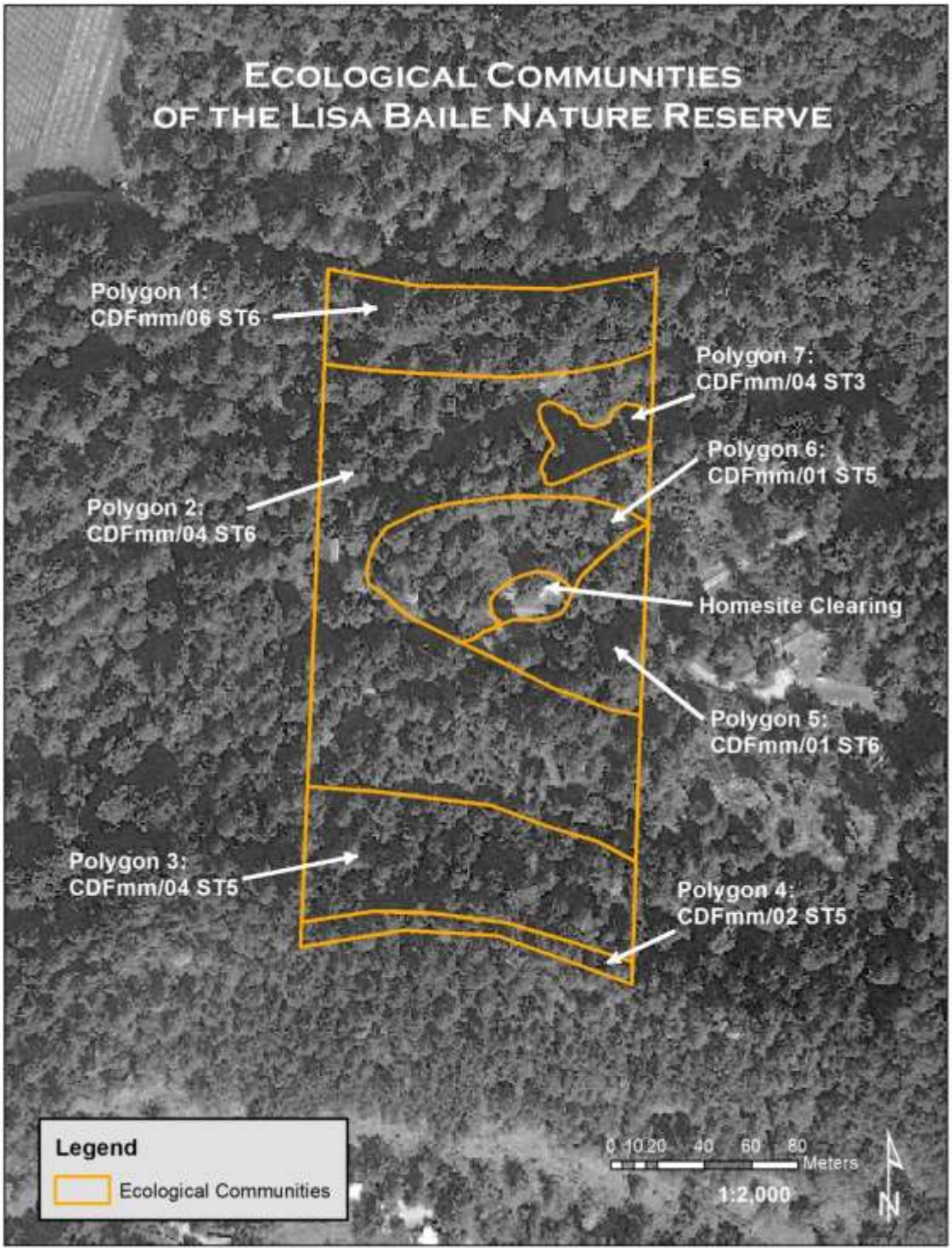
University of British Columbia, Faculty of Forestry. 2019. Coastal Douglas-fir Zone. https://cfcg.forestry.ubc.ca/resources/cataloguing-in-situ-genetic-resources/cdf-zone/ (Accessed June 2019).

10. Appendices

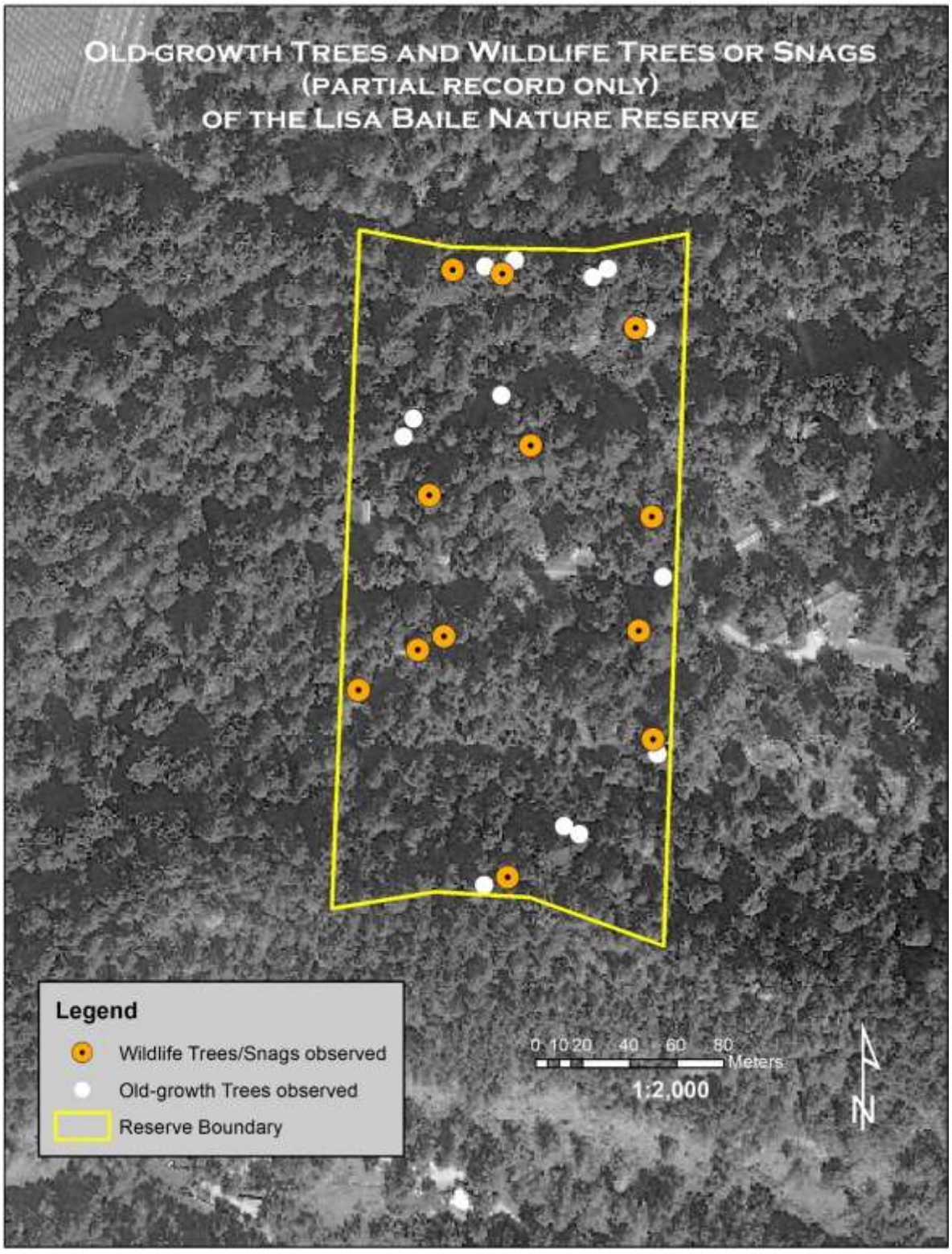
Appendix A. Ecological Features Map



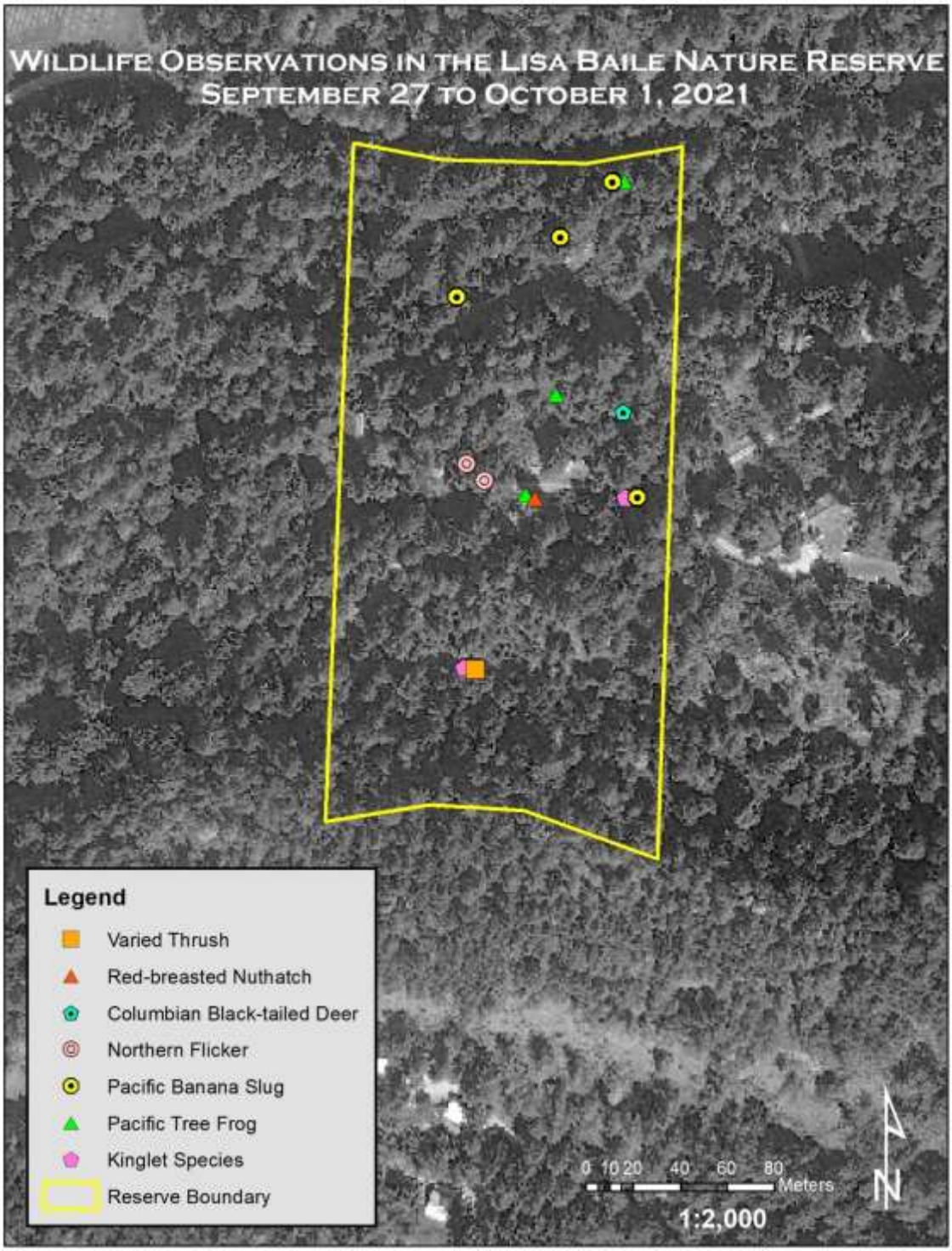
Appendix B. Ecological Communities Map



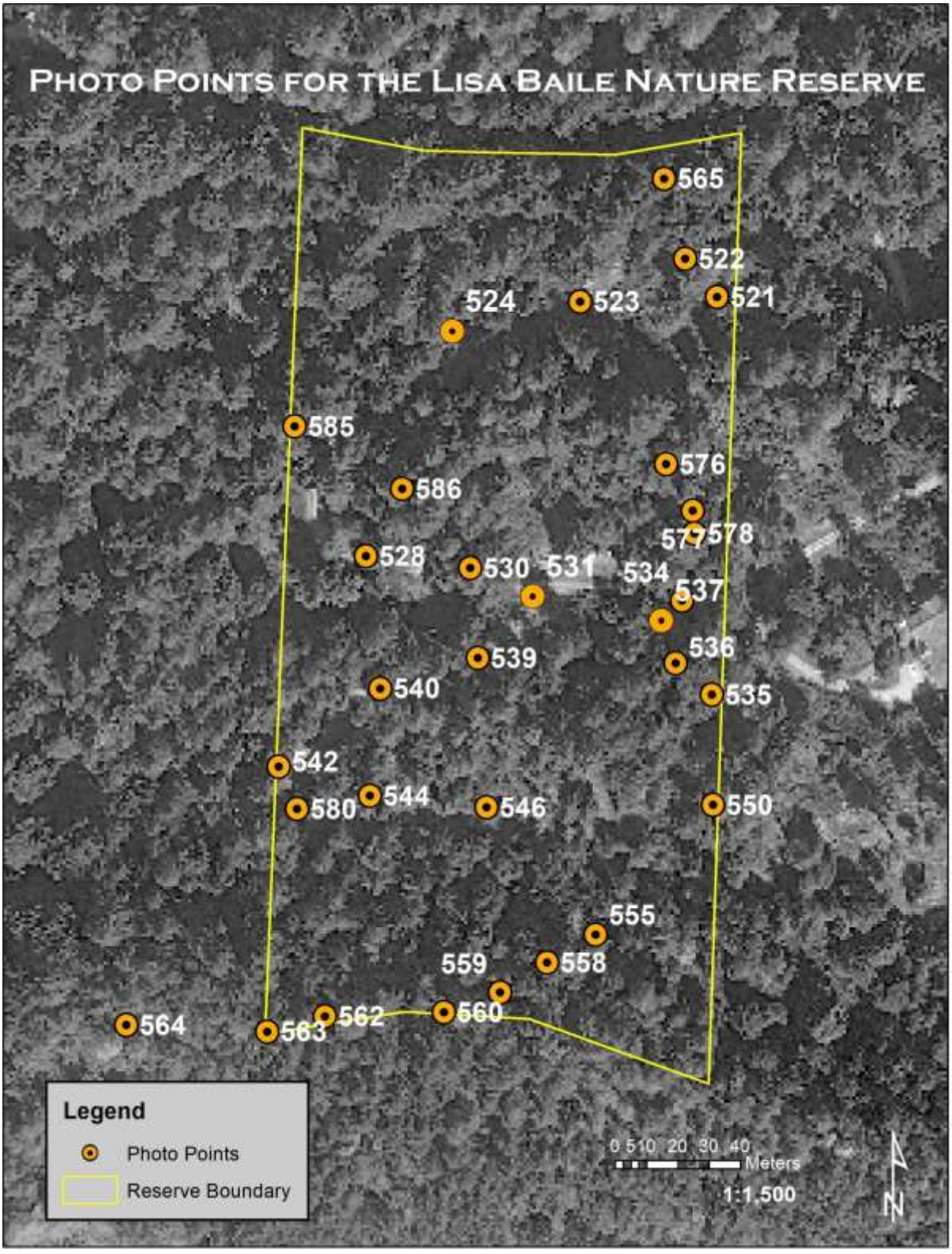
Appendix C. Observed Old-growth Trees and Wildlife Trees or Snags.



Appendix D. Map of Wildlife Observations in LINR made by Claudia Schaefer between September 27 – October 1, 2021.



Appendix E. Map of Photo Documentation Points



Appendix F. List of reference photos taken in or near the Lisa Baile Nature Reserve during fieldwork (September 27 – October 1, 2021) for the ecological assessment of LINR. Points are mapped in Appendix E.

PHOTO POINT	LOCATION (UTM Coordinates)	DIRECTION where relevant (in degrees)	PHOTO-GRAPHER	DATE YYYY-MM-DD	DESCRIPTION
521	10 U 478411 5406647	238	*CS	2021-09-28	CDFmm/04 habitat
522	10 U 478401 5406659	183	CS	2021-09-28	Old-growth tree; veteran Douglas-fir
522b	10 U 478401 5406659	183	CS	2021-09-28	Unimproved emergency access road
523	10 U 478367 5406646	89	CS	2021-09-28	Open. regenerating area of Douglas-fir saplings and some redcedar saplings
524	10 U 478326 5406636	340	CS	2021-09-28	Old log pile
528	10 U 478299 5406564	195	CS	2021-09-28	Western yew tree
530	10 U 478332 5406561	203	CS	2021-09-28	Young regeneration along road
531	10 U 478352 5406552	355	CS	2021-09-28	Old log piles in clearing
534	10 U 478400 5406550		CS	2021-09-28	Pacific Banana Slug
535	10 U 478409 5406520	110	CS	2021-09-28	Refuse (discarded couch)
536	10 U 478398 5406530	218	CS	2021-09-28	Transitional habitat of CDFmm 01 & 04
537	10 U 478393 5406544		CS	2021-09-28	Fungus
539	10 U 478334 5406532	145	CS	2021-09-28	Talus with Douglas-fir and redcedar
542	10 U 478271 5406497	281	CS	2021-09-28	Overgrown easement
544	10 U 478300 5406488	182	CS	2021-09-28	CDFmm/04 habitat
550	10 U 478410 5406485	350	CS	2021-09-28	Old-growth Douglas-fir; wildlife tree

555	10 U 478372 5406444	185	CS	2021-09-28	CDFmm/01 habitat
558	10 U 478357 5406435	95	CS	2021-09-28	5-7m high cliff that continues along ridge
559	10 U 478342 5406425	79	CS	2021-09-28	CDFmm/01 habitat
560	10 U 478324 5406419		CS	2021-09-28	CDFmm/02 habitat (woodland)
562	10 U 478286 5406417	66	CS	2021-09-28	CDFmm/02 habitat (woodland)
563	10 U 478267 5406413	61	CS	2021-09-28	Property pin (SW corner)
565	10 U 478394 5406685	252	CS	2021-09-29	CDFmm/06 habitat
576	10 U 478395 5406594		CS	2021-09-30	Bones of Columbian Black-tailed Deer
577	10 U 478403 5406579		CS	2021-09-28	Ridge with CDFmm/04 on N-facing side, 01 site series on S-facing slope
578	10 U 478404 5406572	90	CS	2021-09-30	Looking towards house site of adjacent lot
580	10 U 478277 5406484	185	CS	2021-09-30	CDFmm/04 habitat
585	10 U 478276 5406606		CS	2021-09-30	CDFmm/04 habitat
586	10 U 478310 5406586		CS		Young CDFmm/01, mossy section

* CS = Claudia Schaefer

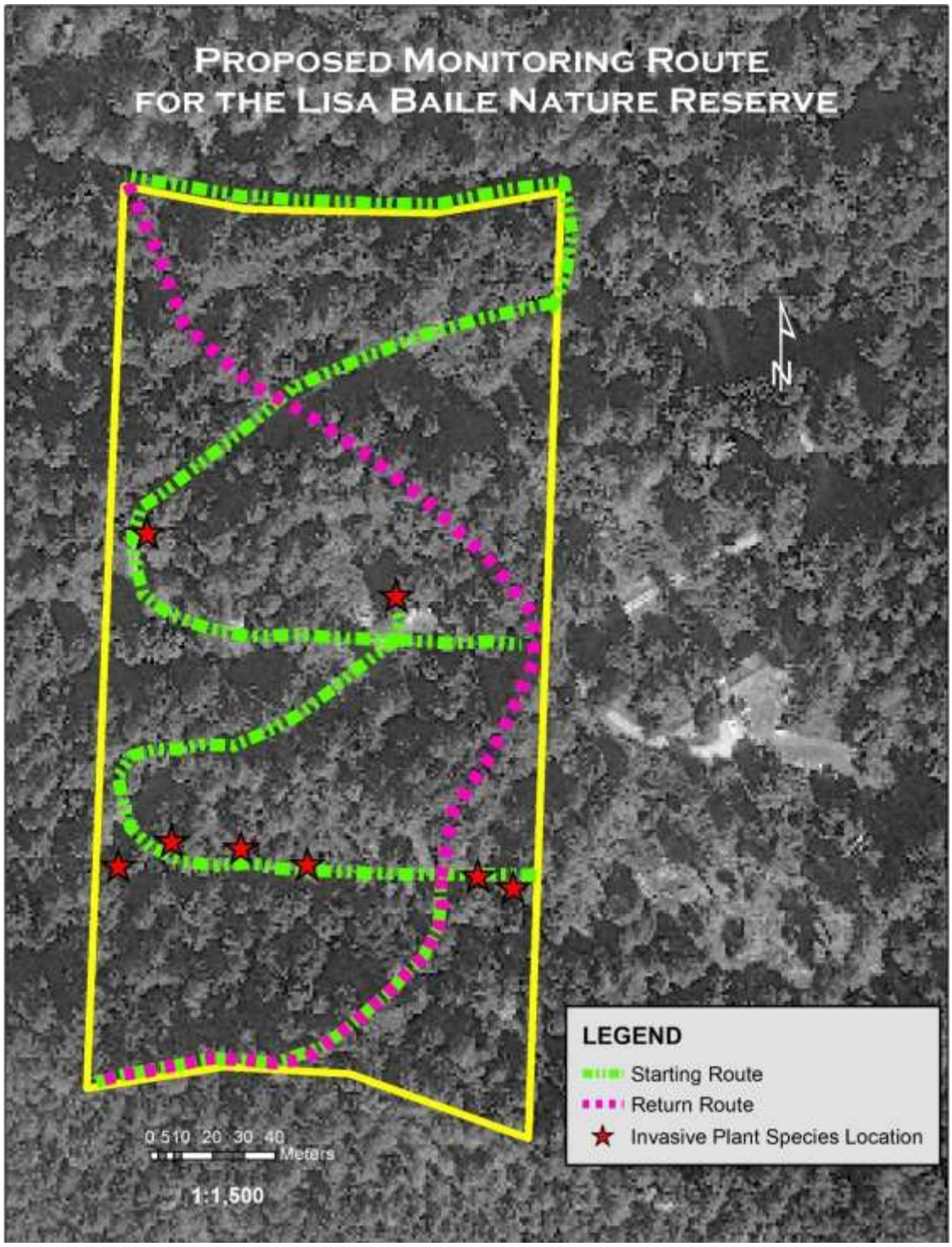
Appendix G. List of bird species observed by Lisa Baile over recent years at LINR.

Common Name	**Scientific Name**
Osprey	*Pandion haliaetus*
Turkey Vulture	*Cathartes aura*
Dark-eyed Junco	*Junco hyemalis*
Chestnut-backed Chickadee	*Poecile rufescens*
Red-breasted Sapsucker	*Sphyrapicus ruber*
Downy Woodpecker	*Dryobates pubescens*
Hairy Woodpecker	*Dryobates villosus* ssp. *picoideus*
Pileated Woodpecker	*Dryocopus pileatus*
Common Raven	*Corvus corax*
Great Horned Owl	*Bubo virginianus*
Barred Owl	*Strix varia*
Yellow-rumped Warbler	*Setophaga coronata*
MacGillivary's Warbler	*Geothlypis tolmiei*
Townsend's Warbler	*Setophaga townsendii*

Appendix H. Notable plant species observed by Lisa Baile over recent years at LINR.

Common Name	**Scientific Name**
Checker lily	*Fritillaria affinis*
Great Camas	*Camassia leichtinii*
Fairy-slipper	*Calypso bulbosa*
Big-leaved sandwort	*Moehringia macrophylla*
Broad-leaved stonecrop	*Sedum spathulifolium*
White fawn lily	*Erythronium oreganum*
Ghost pipe	*Monotropa uniflora*

Appendix I. Proposed Monitoring Route



Appendix J. Sample letter sent to First Nations.

November 15, 2021

Dear Chief and Council,

Re: Lisa Baile Nature Reserve Management Plan, SDÁY̓ES/North Pender Island

Islands Trust Conservancy, through its work as a land trust, is drafting a management plan for the Lisa Baile Nature Reserves on SDÁY̓ES/North Pender Island.

The nature reserve is within your First Nations treaty and/or territorial lands and waters and we want to ensure that the direction of the management plan is reflective of both reconciliation and conservation goals. At this time, Islands Trust Conservancy would like to work with you to understand the cultural significance and use of the area so that these values can also be preserved and protected—now and into the future. We understand that the cultural significance of this land may be confidential and we would work with you to ensure that the management plan reflects this significance appropriately. Acknowledging the importance of naming and recognition, if there is signage, names, or place names that should be used for these areas please let us know.

Lisa Baile Nature Reserve (PID: 024-289-582, Lot B Section 22 Pender Island Cowichan District Plan VIP 67942) is a 4-hectare nature reserve located adjacent to an existing group of protected lands to create 13 contiguous protected hectares and was transferred in February 2021 through a donation by Lisa Baile. Lisa Baile Nature Reserve is home to a mixed mature forest of largely Douglas-fir and western redcedar, and rises steeply to a ridge with small rocky bluffs and Garry oak and arbutus woodlands, with patches of native wildflowers such as fairy-slipper, camas (a lily), chocolate lily, and fawn lily. Take a tour to see protected area locations here: https://islandstrust.bc.ca/conservancy/protected-places/

Islands Trust Conservancy would like to undertake an archaeological review or traditional use study in collaboration with you. Islands Trust Conservancy passed a Reconciliation Declaration, committing to building relationships to work with First Nations. We hope to work with your Nation to protect and manage the area and any cultural heritage sites in this nature reserve in a way that is reflective of treaty, inherent rights, and the territorial lands of your Nation.

You may also be interested to know that Islands Trust Conservancy has developed a draft management plan template that includes cultural heritage and spiritual significance. I would be pleased to provide it to you, as a starting point if you would like to comment on it.

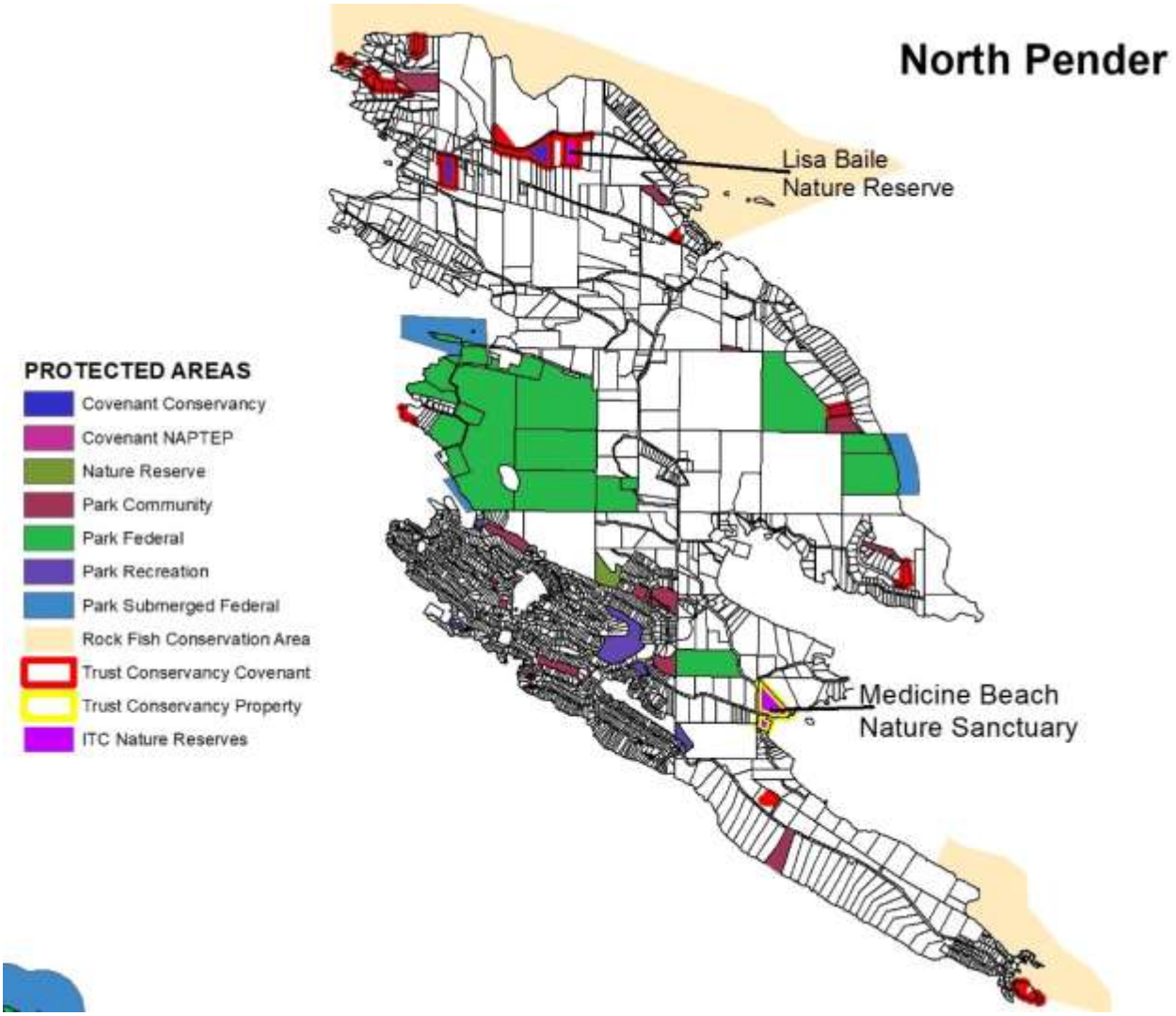


Figure 1. SDÁY¸ES/North Pender Island, Islands Trust Conservancy Nature Reserves

A questionnaire can be completed online through our website:
https://islandstrust.bc.ca/whats-happening/surveys-and-polls/

The survey will remain online until January 5, 2022 and I can also be contacted at any time using the contact details below.

There will be a webinar with information about the Lisa Baile Nature Reserve on Thursday, December 9, 2021 at 7:30 pm. Register in advance for this webinar or watch it as a live stream:
https://islandstrust.bc.ca/event/islands-trust-conservancy-lisa-baile-nature-reserve-management-plan-open-house/

If you would prefer to discuss management with us separately from our current process, we'd be happy to arrange a meeting to hear your input and guidance about management of the land.

Thank you for considering our request to work together. Please contact me at the number or email listed below. Thank you for your kind consideration.

Sincerely,

Nuala Murphy
Property Management Specialist
Islands Trust Conservancy
250-405-5193 | nmurphy@islandstrust.bc.ca

Islands Trust Conservancy's Victoria office is located in Coast Salish territory and we acknowledge with respect the BOḰEĆEN, Cowichan Tribes, Halalt, Homalco, K'ómoks, Klahoose, Ts'uubaa-asatx, Lək̓ ʷəŋən (SXIMEŁEŁ, Songhees, T'Sou-ke), Lyackson, MÁLEXEŁ, Penelakut, Qualicum, Scia'new, səlilwətaʔɬ, SEMYOME, shíshálh, Snaw-naw-as, Snuneymuxw, Siwxwú7mesh, SȾÁUTW̱ , Stz'uminus, Tla'amin, scəẃaθən məsteyəxʷ, We Wai Kai, Wei Wai Kum, W̱ JOŁEŁP, W̱ SIḴEM, and xʷməθkʷəy̓əm territories in which we live and work.

Appendix K. Sample letter sent to nearby landholders and neighbours.

November 15, 2021

Dear Neighbour,

The Islands Trust Conservancy is creating a management plan to guide management of the new Lisa Baile Nature Reserve for the next 10 years and we are interested in hearing from you.

Islands Trust Conservancy acknowledges and respects that SDÁY̓ES/North Pender Island is within the treaty and territorial lands and waters of the BOḰEĆEN (Pauquachin) First Nation, MÁLEXEŁ (Malahat) Nation, STÁUTW̱ (Tsawout) First Nation, W̱ JOŁEŁP (Tsartlip) First Nation, and W̱ SIḴEM (Tseycum) First Nation, and is nestled in the Salish Sea, the homeland of the Coast Salish Peoples including Cowichan Tribes, Halalt First Nation, Lyackson First Nation, Penelakut Tribe, SEMYOME (Semiahmoo) First Nation, Stz'uminus First Nation, Tsawwassen First Nation, and Ts'uubaa-asatx (Lake Cowichan) First Nation.

Lisa Baile Nature Reserve (PID: 024-289-582, LOT B SECTION 22 PENDER ISLAND COWICHAN DISTRICT PLAN VIP67942) is a 4-hectare nature reserve located adjacent to an existing group of protected lands to create 13 contiguous protected hectares and was acquired in February 2021 through a donation by Lisa Baile. Take a tour to see protected area locations here:
https://islandstrust.bc.ca/conservancy/protected-places/

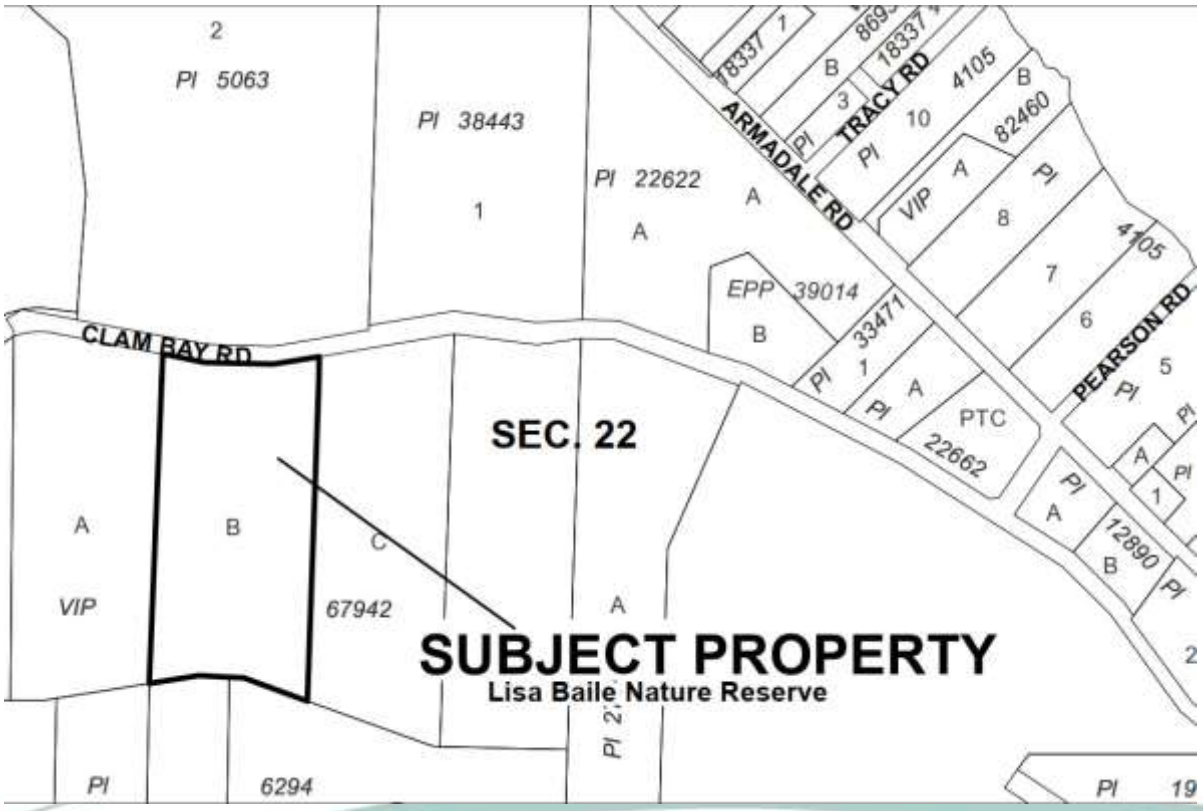


Figure 1. Location Map of Lisa Baile Nature Reserve, SḴAY̓ES/North Pender Island

PHONE: (250) 405-5151 · FAX: (250) 405-5155 · 200-1627 FORT ST, VICTORIA, BC, V8R 1H8
ITCMAIL@ISLANDSTRUST.BC.CA · WWW.ISLANDSTRUST.BC.CA/CONSERVANCY

Lisa Baile Nature Reserve is home to a mixed mature forest of largely Douglas-fir and western redcedar, and rises steeply to a ridge with small rocky bluffs and Garry oak and arbutus woodlands, with patches of native wildflowers such as fairy-slipper, camas (a lily), chocolate lily, and fawn lily.

Islands Trust Conservancy will work in partnership with Pender Islands Conservation Association who hold the existing conservation covenant along Clam Bay Rd. and may hold a conservation covenant on the entire Nature Reserve in the future. There are restrictions on the use of the property, outlined in the covenant, that have been put in place to protect the native plants and animals within the reserve.

Your input is requested for the development of the first Lisa Baile 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.

The enclosed questionnaire can be:

- completed online through our website: https://islandstrust.bc.ca/whats-happening/surveys-and-polls/
- returned by mail to the Victoria office at 200 – 1627 Fort Street, Victoria, BC V8R 1H8

The deadline to complete the survey is January 5, 2022.

There will be a webinar with information about Lisa Baile Nature Reserve on
Thursday, December 9, 2022 at 7:30 pm.

Register in advance for this webinar or watch it as a live stream:
https://islandstrust.bc.ca/event/islands-trust-conservancy-lisa-baile-nature-reserve-management-plan-open-house/

Thank you for taking the time to share your ideas regarding management of the Lisa Baile Nature Reserve. For more information, please contact me at the phone number or email listed below.

Sincerely,

Nuala Murphy
Property Management Specialist, Islands Trust Conservancy
250-405-5193
nmurphy@islandstrust.bc.ca

Appendix L.

Lisa Baile Nature Reserve Questionnaire

Islands Trust Conservancy acknowledges and respects that SD̸AY̓ES/North Pender Island is within the treaty and territorial lands and waters of the BOḰEĆEN (Pauquachin) First Nation, MÁLEXEŁ (Malahat) Nation, S̸TÁUTW̱ (Tsawout) First Nation, W̱ JOŁEŁP (Tsartlip) First Nation, and W̱ SIḴEM (Tseycum) First Nation, and is nestled in the Salish Sea, the homeland of the Coast Salish Peoples including Cowichan Tribes, Halalt First Nation, Lyackson First Nation, Penelakut Tribe, SEMYOME (Semiahmoo) First Nation, Stz'uminus First Nation, Tsawwassen First Nation, and Ts'uubaa-asatx (Lake Cowichan) First Nation.

Lisa Baile Nature Reserve is a 4-hectare nature reserve located adjacent to an existing group of protected lands to create 13 contiguous protected hectares and was acquired in February 2021 through a donation by Lisa Baile. Take a tour to see protected area locations here: https://islandstrust.bc.ca/conservancy/protected-places/

Lisa Baile Nature Reserve is home to a mixed mature forest of largely Douglas-fir and western redcedar, and rises steeply to a ridge with small rocky bluffs and Garry oak and arbutus woodlands, with patches of native wildflowers such as fairy-slipper, camas (a lily), chocolate lily, and fawn lily.

The Islands Trust Conservancy's primary goal is to protect and nurture the sensitive ecosystems and natural values on this land. The information and actions required to achieve this goal and guide the management of the property are set out in a management plan that is updated every 10 years. We welcome community input and ask you to share your thoughts on the protection and long-term management of Lisa Baile Nature Reserve.

1. Are you a resident of SD̸AY̓ES/North Pender Island?

- ◯ Yes, I live on the north end of North Pender
- ◯ Yes, I live on the south end of North Pender
- ◯ No, but I own property on North Pender
- ◯ No, I live on South Pender Island
- ◯ No, I'm a visitor

2. Have you ever visited the land that is now Lisa Baile Nature Reserve? If so, how often?

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

3. If you have visited Lisa Baile Nature Reserve before, what did you do there?

- ◯ Hiking/walking
- ◯ Wildlife viewing
- ◯ Dog walking
- ◯ Other (please list):

4. Please list any wildlife and unique plant species you have seen in or near Lisa Baile Nature Reserve:

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

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

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

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

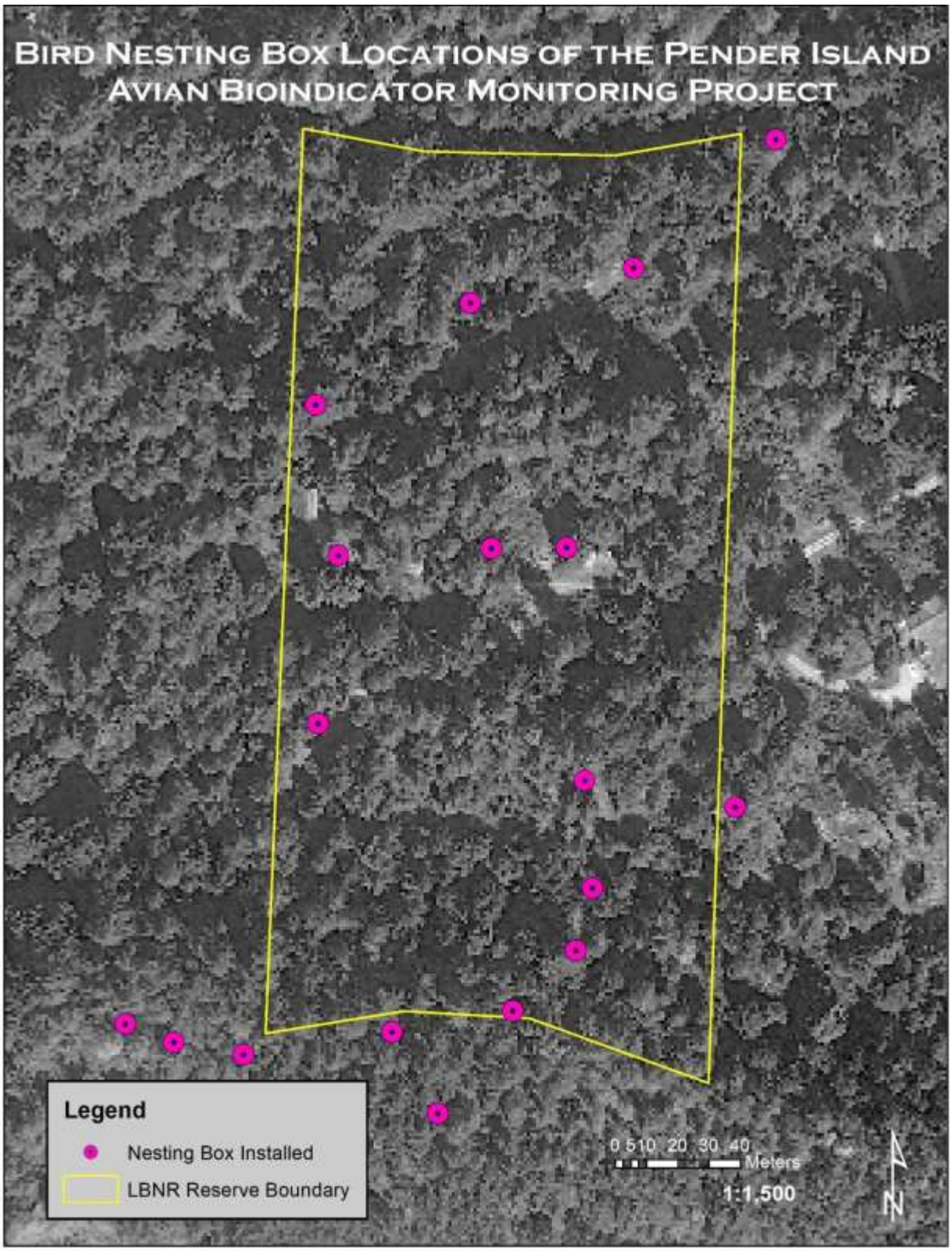
8. Please provide any other relevant information that will help us make the best management decisions for Lisa Baile Nature Reserve.

9. There has been no history of public use of the property and there are no designated trails. Do you have any thoughts on public access?

10. Please share with us any history you know about this property or any knowledge you have about unique cultural or other special features on the property or in the area.

11. If you would like to receive periodic updates from the Islands Trust Conservancy on this and other conservation projects on the islands, please provide your name and email address you will be added to our e-news:

Appendix M. Map of Avian Bioindicator Monitoring Project bird nesting box locations in or near LINR.



Appendix N. Reference photos of LINR. See Appendix F for more details.

Photo point 521. Habitat of CDFmm/04

Photo point 522. Large veteran Douglas-fir tree.

Photo point 523. Area of regeneration.

Photo point 524. Old log pile

Photo point 528. Western Yew tree.

Photo point 530. Regeneration along road.

Photo 531. Old log piles in small clearing.

Photo 534. Pacific Banana Slug.

Photo 535. Refuse, old couch.

Photo point 536. Transitional between 01 & 04 site series.

Photo 537. Fungus (unidentified).

Photo 539. A mossy talus portion of CDFmm/01.

Photo point 542. Overgrown easement.

Photo point 544. CDFmm/04 habitat.

Photo point 550. Veteran and wildlife tree.

Photo point 555. CDFmm/01 habitat.

Photo 558. Small cliff below woodland.

Photo 559. CDFmm/01 habitat.

Photo point 560. CDFmm/02 woodland habitat.

Photo point 562. CDFmm/02 woodland habitat.

Photo point 563. Property pin, SW corner.

Photo point 565. CDFmm/06 habitat.

Photo point 576. Deer bones.

Photo point 522b. Road along easement.

Photo point 577. Ridge photo showing the richer, moister CDFmm/04 unit on the north-facing slope (left side) and the CDFmm/01 site series with little understorey on the south-facing slope (right side).

Photo point 578. Looking east to neighbour lot.

Photo point 580. Dense sword fern of CDFmm/04.

Photo point 585. CDFmm/04 habitat.

Photo point 586. CDFmm/01 habitat.