Lower Mount Erskine Nature Reserve
Property Management Plan
Salt Spring Island, BC

Photo 1. Maturing second growth forest with arbutus trees in Lower Mount Erskine Nature Reserve, Salt Spring Island. Photo: C. Maslovat

Prepared for:
Islands Trust Conservancy

ISLANDS TRUST CONSERVANCY
Protecting Islands in the Salish Sea

Lower Mount Erskine Nature Reserve Management Plan
Prepared by Joel Ussery, February 1994
Revised: January 2005 by Chris Ferris
REVISED January 2020 by: Carrina Maslovat, R. P. Bio. #1407

APPROVED BY
Islands Trust Conservancy Board on January 26, 2021, Resolution 2021-005
Nature Conservancy of Canada, March 5, 2021 and the Habitat Acquisition Trust, April 9, 2021

i. Executive Summary

Islands Trust Conservancy acknowledges and respects that Salt Spring Island is within the territory of Coast Salish Peoples, the Cowichan Tribes, Halalt First Nation, Lyackson First Nation, MÁLEXEŁ (Malahat) Nation, BOḰEĆEN (Pauquachin) First Nation, Penelakut Tribe, SEMYOME (Semiahmoo) First Nation, Stz'uminus (Chemainus) First Nation, W̱JOŁEŁP (Tsartlip) First Nation, SȾÁUTW̱ (Tsawout) First Nation, Tsawwassen First Nation, W̱SIḴEM (Tseycum) First Nation, Ts'uubaa-asatx (Lake Cowichan) First Nation. The historical relationship to the land, culture, and spirit of this place continues to this day. Islands Trust Conservancy is committed to honouring the rich history of Indigenous stewardship in the lands and waters of the Islands Trust Area and to building mutually respectful relationships between Indigenous and non-Indigenous partners in conservation. Therefore, this Management Plan for Lower Mount Erskine Nature Reserve is a living document that will evolve as opportunities for knowledge sharing arise and understanding grows[1].

The Lower Mount Erskine Nature Reserve was donated to the Province of British Columbia in 1976 as a park and greenbelt by Dr. J.H. Fisher and in 1996, the title to the Reserve was transferred to the Islands Trust Conservancy. The initial management plan was prepared in 1994 by Joel Ussery and revised by Chris Ferris in 2005. In 2019, the management plan was updated with additional field work undertaken by Carrina Maslovat.

Lower Mount Erskine Nature Reserve is located on the northwest slopes of Mount Erskine between Booth Bay and Erskine Point on the northwestern part of Salt Spring Island. The Reserve consists of a steeply sloping forested area with rocky bluffs and outcroppings. The elevation ranges from 60 metres to 250 metres. The area has been logged and is now maturing young forest, primarily Douglas-fir, but in drier areas with thinner soils there are large amounts of arbutus. The Reserve is a popular hiking destination and there is a well-used trail network that leads to the summit of Mount Erskine in the adjacent provincial park. Lower Mount Erskine Nature Reserve (22.46 hectares or 55.57 acres) along with the adjacent Mount Erskine Provincial Park and Manzanita Ridge Nature Reserve are an important, large, contiguous natural area measuring 150 hectares (372 acres) in the Coastal Douglas-fir (CDFmm) and Coastal Western Hemlock (CWHxm) biogeoclimatic zones.

Key management recommendations are trail monitoring and maintenance, restoration to a more nature state where unofficial trails now exist, removal of invasive species, maintenance of signage, and development of a wildfire management plan. Further inventories for species at risk would provide a clearer picture of the ecology of the Reserve and guide future management.

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

ii. Tables and Lists

Table of Contents

i. Executive Summary ***2***

ii. Tables and Lists ***3***

iii. Acknowledgements ***7***

1.0 Introduction ***8***

1.1 Islands Trust Conservancy 8

1.2 Purpose of Islands Trust Conservancy Management Plans 9

1.3 Scope of Islands Trust Conservancy Management Plans 9

1.4 Protected Area Purpose 10

1.5 Protected Area Objectives 10

2.0 Property Information ***10***

2.1 Location 10

2.2 Legal description 11

2.3 Legal Access 11

2.4 Landscape Context 11

2.5 Site History 12

2.6 Anthropogenic Features 13

2.7 Undersurface Rights 16

2.8 Notations, Charges, Liens and Interests 16

2.9 Local Planning Designations 16

2.10 Existing Public and Other Use 16

3.0 Inventory by Ecological Community ***17***

3.1 Ecological Significance 17

3.2 Climate 18

3.3 Geology and Physiology 19

3.4 Hydrology 19

3.5 Soils 20

3.6 Ecological Classifications 20

3.7 Ecological Communities and Site Series 21

Ecological Community 1: Douglas-fir- western hemlock / salal (CWHxm03) 22

Ecological Community 2: Western hemlock- Douglas-fir / Oregon beaked moss (CWHxm01) 25

Ecological Community 3: Douglas-fir- western hemlock / salal (CWHxm03) 28
Ecological Community 4: Western hemlock- Douglas-fir / Oregon beaked moss (CWHxm01) 31
Ecological Community 5: Douglas-fir / dull Oregon-grape (CDFmm01) 34
Ecological Community 6: Douglas-fir / Arbutus (CDFmm02) 37
3.8 Wildlife Species 40
3.9 Expected Change Over Time 41
4.0 Threats 41
4.1 Expected Change to Threats Over Time 42
5.0 Community Engagement 42
5.1 Adjacent Landholders 42
5.2 First Nations 42
5.3 Conservation Partners and Community Members 43
5.4 Engagement Results 43
6.0 Management Recommendations 43
6.1 Management Roles 43
6.2 Permitted and Prohibited Uses 44
6.3 Proposed Monitoring Program 44
6.4 Public Access 45
6.5 Signage 45
6.6 Trail Use, Maintenance and Development 46
6.7 Protection Initiatives for Sensitive Ecosystems and Species and Ecosystems at Risk 47
6.8 Ecological Restoration Options 47
6.9 Scientific Research/Education Opportunities 48
6.10 Exotic and Invasive Species Management 48
6.11 Wildfire Risk Management 49
6.12 Climate Change Impacts and Management 49
7.0 Action Items 50
7.1 Immediate Actions (1-2 years) 50
7.2 Short term Actions (3-5 years) 50
7.3 Long term Actions (5+ years) 51
7.4 Ongoing or Annual Action Items 51
8.0 Conclusion 51
9.0 References 52
10.0 Appendices 55

List of Figures

Figure 1. Location of Salt Spring Island (inset), and protected areas context surrounding Lower Mount Erskine Nature Reserve (reserve purple with cross-hatch). 12
Figure 2. Anthropogenic features including trails and signs in Lower Mount Erskine Nature Reserve. 15
Figure 3. Canadian climate normals for temperature and precipitation at Saint Mary's Lake weather station, British Columbia from 1981-2018 (Government of Canada 2019). 19
Figure 4. Ecological Communities in Lower Mount Erskine Nature Reserve with wildlife trees, photopoint locations, and ecological community plots. 21

List of Tables

Table 1. The primary author and other contributors to the management plan, and their contributions, affiliations, and professional qualifications. 7
Table 2. Anthropogenic features in Lower Mount Erskine Nature Reserve. 13
Table 3. Ecological Communities in Lower Mount Erskine Nature Reserve. 18
Table 4. Description of Ecological Community 1. 23
Table 5. Vegetation Species in Ecological Community 1. 24
Table 6. Description of Ecological Community 2. 26
Table 7. Vegetation Species in Ecological Community 2. 27
Table 8. Description of Ecological Community 3. 29
Table 9. Vegetation Species in Ecological Community 3. 30
Table 10. Description of Ecological Community 4. 32
Table 11. Vegetation Species in Ecological Community 4. 33
Table 12. Description of Ecological Community 5. 35
Table 13. Vegetation Species in Ecological Community 5. 36
Table 14. Description of Ecological Community 6. 38
Table 15. Vegetation Species in Ecological Community 6. 39
Table 16. Wildlife Species Observed in Lower Mount Erskine Nature Reserve during 2019 Field Work. 40
Table 17. Threats to Natural Values in Lower Mount Erskine Nature Reserve. 41
Table 18. Partners involved in management of MANR. 44

List of Photos

Photo 1. Maturing second growth forest with arbutus trees in Lower Mount Erskine Nature Reserve, Salt Spring Island. Photo: C. Maslovat 1
Photo 2. Collins Road trailhead signs and beginning of trail. Photo: C. Maslovat 13
Photo 3. BC Parks boundary sign where trail crosses the southern boundary. Photo: L. Matthias 14
Photo 4. On the Jack Fisher trail, Carrina points to a small reflective trail marker that is starting to have tree bark growing around it. Photo: L. Matthias 15
Photo 5. Ecological Community 1 with dense stand of pole/sapling aged Douglas-fir trees. Photo: L. Matthias 22
Photo 6. Ecological community 2 showing steeply sloping bank with bigleaf maple in middle, arbutus at right and sparse understory vegetation with abundant leaf litter and woody debris. Photo: L. Matthias 25
Photo 7. Ecological community 3 showing dense stand of young forest with Douglas-fir and arbutus and sparse understory. Photo: L. Matthias 28
Photo 8. Ecological community 4 which includes the banks and bottom of a steep gully in the north central part of the reserve. Photo: L. Matthias 31
Photo 9. Ecological Community 5 showing mixed Douglas-fir and arbutus with patches of dense salal in understory. Photo: C. Maslovat 34
Photo 10. Ecological Community 6 with mixed young Douglas-fir and arbutus and much exposed rock. Photo: C. Maslovat 37
Photo 11. Large diameter Douglas-fir wildlife tree with many cavities. Photo: L. Matthias 40
Photo 12. Unauthorized trail along old logging road to privately-managed property to the north. Photo: L. Matthias 45
Photo 13. Islands Trust Conservancy nature reserve boundary sign on the northern property boundary. Photo: C. Maslovat 45
Photo 14.Well-worn trail showing erosion next to tree roots. Photo: L. Matthias 46
Photo 15. Trail braiding on the Jack Fisher trail. Photo: L. Matthias 46
Photo 16. Trampled area at lookout with no native vegetation remaining. Photo: L. Matthias . 47
Photo 17. Small English Holly plant next to trail that has re-sprouted after being cut. Photo: L. Matthias 48
Photo 18. Young Scotch broom on thin soil rock outcrop next to trail. Photo: L. Matthias 48
Photo 19. Small dead western redcedar trees in shallow soils at right and left of photo. Photo: L. Matthias 50

List of Appendices

Appendix A. Vegetation found in Lower Mount Erskine Nature Reserve. 55
Appendix B. Photographic Documentation. 57
Appendix C. Letter to Neighbours. 59
Appendix D. Questionnaire sent to Neighbours and Available Online 61
Appendix E. Letter to First Nations. 63

iii. Acknowledgements

Table 1. 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
Carrina Maslovat	Botanist/Contractor	R.P. Bio.	Primary author, field data collection
Laura Matthias	Species at Risk Biologist/Subcontractor		Assistance with field data collection
Lisa Wilcox	Senior Intergovernmental Policy Advisor	B.A. Psychology, Indigenous Knowledge Holder	Reconciliation/Indigenous Knowledge Holder and editing
Jemma Green	Acting Property Management Specialist/Islands Trust Conservancy		Background information and mapping, local contacts
Nuala Murphy	Property Management Specialist/Islands Trust Conservancy		Background information, document review
Joel Ussery	Biologist/Contractor		Author of management plan (1994)
Chris Ferris	Biologist/Contractor		Author of revised management plan (2005)

1.0 Introduction

Salt Spring 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 and its partners. The Lower Mount Erskine Nature Reserve was established in 1996 thanks to the donation of the land by Dr. J.H. Fisher who wanted to see the land preserved as park and greenbelt land.

The initial management plan, written by Joel Ussery, was approved by the Islands Trust Conservancy Board in February 1994. The plan was revised in January 2005 by Chris Ferris and approved on March 29th, 2005. In 2019, the management plan was updated by Carrina Maslovat to be consistent with a new template and additional field work was done to complete the ecological descriptions of the property.

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

> *To preserve and protect the trust area and its unique amenities and environment for the benefit of the residents of the trust area and of British Columbia generally, in cooperation with municipalities, regional districts, improvement districts, other persons and organizations and the government of British Columbia.* (Islands Trust 2019a)

In 1990, through the enactment of a section of the Islands Trust Act, the Islands Trust Conservancy (originally called the Islands Trust Fund) was established as a conservation land trust to assist in carrying out the "preserve and protect" mandate. Part 6 of the Islands Trust Act establishes the corporate status, responsibilities, and governance structure of the Islands Trust Conservancy. The Islands Trust Conservancy is one of sixteen corporate entities[2] charged to uphold the Object of the Islands Trust and since 1990 has protected over 1,300 hectares (3,220 acres) of land as nature reserves and conservation covenants.

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

[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.

The mission of the Islands Trust Conservancy is to protect special places by encouraging, undertaking and assisting in voluntary conservation initiatives within the Islands Trust Area. Islands Trust Conservancy 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 property's ecological and/or cultural values and features.
- 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 complete, the ITC will work to carry out the management actions or strategies identified in the plan, as resources allow. Following general practice and as outlined in the conservation covenant and statutory right of way, the ITC will revise the Management Plan every ten years.

1.3 Scope of Islands Trust Conservancy Management Plans

Consistent with the Islands Trust Reconciliation Declaration (Islands Trust 2019), 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 takes 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 reserves. Moreover, the Management Plan defines the common vision, objectives, policies, and best

[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.

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 the Lower Mount Erskine Nature Reserve is to preserve and protect the representative natural ecosystems and natural values of the site (including any rare and endangered plant and animal species), and to maintain the biodiversity of the site for the benefit of the flora and fauna of the Reserve, the residents of the island, and the province generally. The Reserve will also provide hiking trails for low impact recreation opportunities and trail access to the summit of Mount Erskine in the adjacent Mount Erskine Provincial Park and the connecting Manzanita Ridge Nature Reserve. The site is to be protected in accordance with the objectives of the Islands Trust Conservancy and the mandate of the Islands Trust.

1.5 Protected Area Objectives

The objectives for Lower Mount Erskine Nature Reserve are to:

- Preserve and protect the natural ecosystems, biological diversity and natural values;
- Support ongoing inventory, mapping and monitoring to guide management;
- Allow natural forest succession and natural ecological processes and functions to proceed unimpeded without human intervention, except in the case of wildfire or other exceptional situations where remediation is considered imperative;
- 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;
- Remove invasive species throughout the Reserve where they compromise natural values; and
- Allow for low impact use of the Reserve for hiking, nature appreciation and similar activities provided it does not significantly impair the natural condition of the Reserve.

2.0 Property Information

The Lower Mount Erskine Nature Reserve is 22.46 hectares (55.57 acres) in size with a range in elevation from 60 to 250 metres.

2.1 Location

Lower Mount Erskine Nature Reserve is located on the northwest slopes of Mount Erskine between Booth Bay and Erskine Point on the northwestern part of Salt Spring Island (Figure 1).

Salt Spring Island can be accessed by ferries from Swartz Bay, Tsawwassen and Crofton. From Ganges take Rainbow Road and travel 4.2 kilometres to the west until the road curves to the south and becomes Collins Road. Travel south on Collins Road for 350 metres and there is a parking pullout on the right (west) side of the road. The Jack Fisher trail is on the left (east) side of the road and can be accessed south of the parking area on Collins Road. Collins Road forms the western boundary of the northern part of the Reserve.

[4] Section 35 of the Constitution Act, 1982 recognizes and affirms the inherent rights of Indigenous Peoples.

2.2 Legal description

The Lower Mount Erskine Nature Reserve is legally described as PID: 001-384-333, Lot 3, Section 2, Range 1 and 2 West, North Salt Spring Island, Cowichan District, Plan 29481.

2.3 Legal Access

Legal access to the Reserve is from the western part of the Reserve that abuts Collins Road. The Reserve can also be accessed via connecting hiking trails from the south in Mt. Erskine Provincial Park.

2.4 Landscape Context

Salt Spring Island is located in the Georgia Strait and is one of the many islands governed by the Islands Trust (see map in Figure 1 for location and protected area context). The Lower Mount Erskine Nature Reserve is located on the northwest slopes of Mount Erskine.

Mount Erskine Provincial Park (managed by BC Parks) includes three large lots to the south of the Reserve totaling 107 hectares (264 acres). Along the southern boundary in the eastern part of the provincial park is the 20 hectare (50 acre) Manzanita Ridge Nature Reserve which is managed by the Salt Spring Island Conservancy. On the southwest corner of Lower Mount Erskine Regional Park, there is a small 0.6 hectare (1.5 acre) regionally-managed park that follows the western boundary of the provincial park to Desiree Drive. The total contiguous protected area is 150 hectares (372 acres).

The remainder of the adjacent lots are low density residential. To the north in the eastern portion of the Reserve is a privately-managed 9 hectare (23 acre) lot that was clear cut between 2009 and 2013 (iMap 2019). To the north in the western portion of the Reserve is a 7 hectare (18 acre) privately-managed lot that straddles Collins Road that has been recently developed: since 2017, new roads have been installed west of Collins Road. Along the eastern boundary is a privately-managed 9 hectare (22 acre) lot and in the southwest corner is a 5 hectare (12 acre) lot. There are a number of smaller privately-managed lots further south on Collins Road.

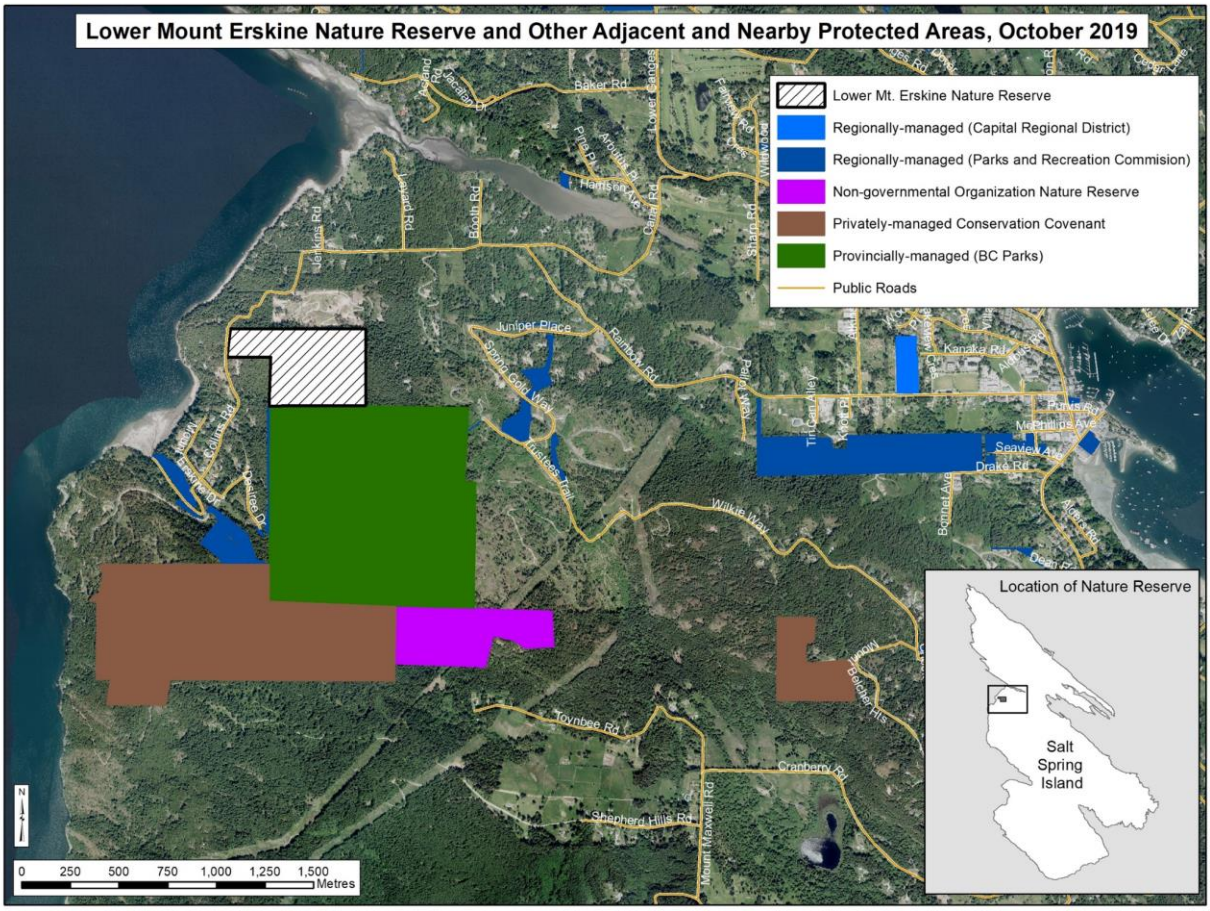

Figure 1. Location of Salt Spring Island (inset), and protected areas context surrounding Lower Mount Erskine Nature Reserve.

2.5 Site History

Salt Spring Island is within the treaty and territories of the Coast Salish People. The island has since time immemorial been the homeland and gathering place for First Peoples including the Cowichan Tribes, Halalt First Nation, Lyackson First Nation, MÁLEXEŁ (Malahat) Nation, BOḰEĆEN (Pauquachin) First Nation, Penelakut Tribe, SEMYOME (Semiahmoo) First Nation, Stz'uminus (Chemainus) First Nation, W̱JOŁEŁP (Tsartlip) First Nation, SȾÁUTW̱ (Tsawout) First Nation, Tsawwassen First Nation, W̱SIḴEM (Tseycum) First Nation, Ts'uubaa-asatx (Lake Cowichan) First Nation; this rich history and cultural heritage continues to this day.

The Coast Salish peoples maintained a vital, thriving, and sustainable connection to their territory and developed rich cultural, spiritual, and traditional ecological knowledge. However, cultural heritage and sacred sites of Salt Spring Island and the greater Islands Trust Area have been and continue to be negatively impacted by European settlement. Past archeological activities, vandalism, and land use have disturbed sites of cultural and spiritual importance. The land and the greater territory remains an embodiment of the stories, oral history, and culture of these First Nations. There are archaeological artifacts dating back thousands of years on Salt

Spring Island showing a rich history of First Nations settlement. First Nations on Salt Spring Island had permanent village sites, utilizing the lands and waters since time immemorial.

The Reserve is near the Hul'q'umi'num' place name Tatmul. Mount Erskine may have been named for James A. Erskine, an admiral in the Royal Navy or alternatively, in 1863 Captain Richards may have named it after Admiral Elphinstone Erskine, Commander-in-Chief of the North American Squadron (Salt Spring Archives 2019).

The Reserve has been logged, likely more than once and skid roads remain throughout the Reserve. The property was extensively logged approximately 70 years ago and all of the mature Douglas-fir trees were removed (Ferris 2005). Fire scars are present on the larger Douglas-fir trees suggesting a wildfire or perhaps burning after logging.

In 1976, Lower Mount Erskine Nature Reserve was transferred to the then Ministry of Environment by Dr. Fisher, who was a member of the Salt Spring Trail and Nature Club. In 1996, the Reserve was transferred to the Islands Trust Conservancy.

The first management plan for the Reserve was written in 1994 by Joel Ussery and it was revised in 2005 by Chris Ferris.

2.6 Anthropogenic Features

The Jack Fisher hiking trail goes through the Reserve from Collins Road to the summit of Mount Erskine in the adjacent Mount Erskine Provincial Park (Figure 2). It is signed at the Collins Road trailhead with a wooden sign "Jack Fisher Trail (South) Assault Route" attached to a tree. There is also a Nature Conservancy of Canada (NCC) conservation covenant sign, a multi-agency sign requesting people keep their dogs on leash due to habitat for species at risk and a trail map on a wooden post. The NCC sign was replaced in September 2019. There is a separate wooden trail post with an Islands Trust Conservancy sign requesting that visitors stay on the trail.

Photo 2. Collins Road trailhead signs and beginning of trail. Photo: C. Maslovat

There is a BC Parks boundary sign where the trail crosses into Mount Erskine Provincial Park to the south.

Table 2. Anthropogenic features in Lower Mount Erskine Nature Reserve.

Anthropogenic Feature	Description	Condition	Photopoint Location

Signs	Collins Road trailhead signs- Jack Fisher trail, Islands Trust Conservancy ("stay on trail"), NCC conservation covenant, multi-agency "dogs on leash" sign	Excellent	P2; Figure 2 458984; 5411632
Boundary sign	BC Parks boundary sign at south boundary of Mount Erskine Nature Reserve	Good	P3; Figure 2 459634; 5411314
Boundary sign	ITC sign at western boundary next to unauthorized trail loop through privately-managed property.	Good	No photo; Figure 2 459216; 5411496
Boundary sign	ITC boundary sign on northern boundary next to unauthorized trail on old logging road	Good	P13; Figure 2 459452; 5411723 459443; 5411725
Trail markers	Small metal reflective markers nailed into trees for wayfinding	Poor	Photo 4; Figure 2 459117; 5411622
Jack Fisher trail	Authorized trail from Collins Road to Mount Erskine Provincial Park	Fair	P14, P15, P16; Figure 2
Unauthorized trail loop	Loop trail through private land from Jack Fisher Trail	Fair	No photo; Figure 2 459094; 5411579 to 459216; 5411496
Unauthorized trail to north	Trail on old logging road to northern property boundary	Good	P12; Figure 2 459364; 5411492 to 459443; 5411725

The Jack Fisher trail route is marked with small diagonal orange metal tags that are nailed into the trees. The trees are beginning to grow around some of the tags. The trail markers are more frequent showing the trail back down to Collins Road than the trail up to Mount Erskine.

There is an unauthorized trail off the Jack Fisher trail to the property to the north that follows an old logging road. The trail appears to receive limited regular use. The northern boundary of the Reserve is signed with two Islands Trust Conservancy boundary signs and the boundary has been flagged and signed with metal covenant boundary stakes.

Photo 3. BC Parks boundary sign where trail crosses the southern boundary. Photo: L. Matthias

There is a well-used unauthorized trail that leads in a loop from the Jack Fisher trail to privately-managed property to the south in the western part of the Reserve. The boundary of the Reserve is signed where the trail enters the Reserve in the eastern part of the trail but it has not been signed at the western edge of the unauthorized trail.

There is trampling in areas next to viewpoints and desire line trails (shortcuts) and areas of trail widening. There are several old logging skid roads throughout the property that are slowly revegetating due to compaction.

Photo 4. On the Jack Fisher trail, Carrina points to a small reflective trail marker that is starting to have tree bark growing around it. Photo: L. Matthias

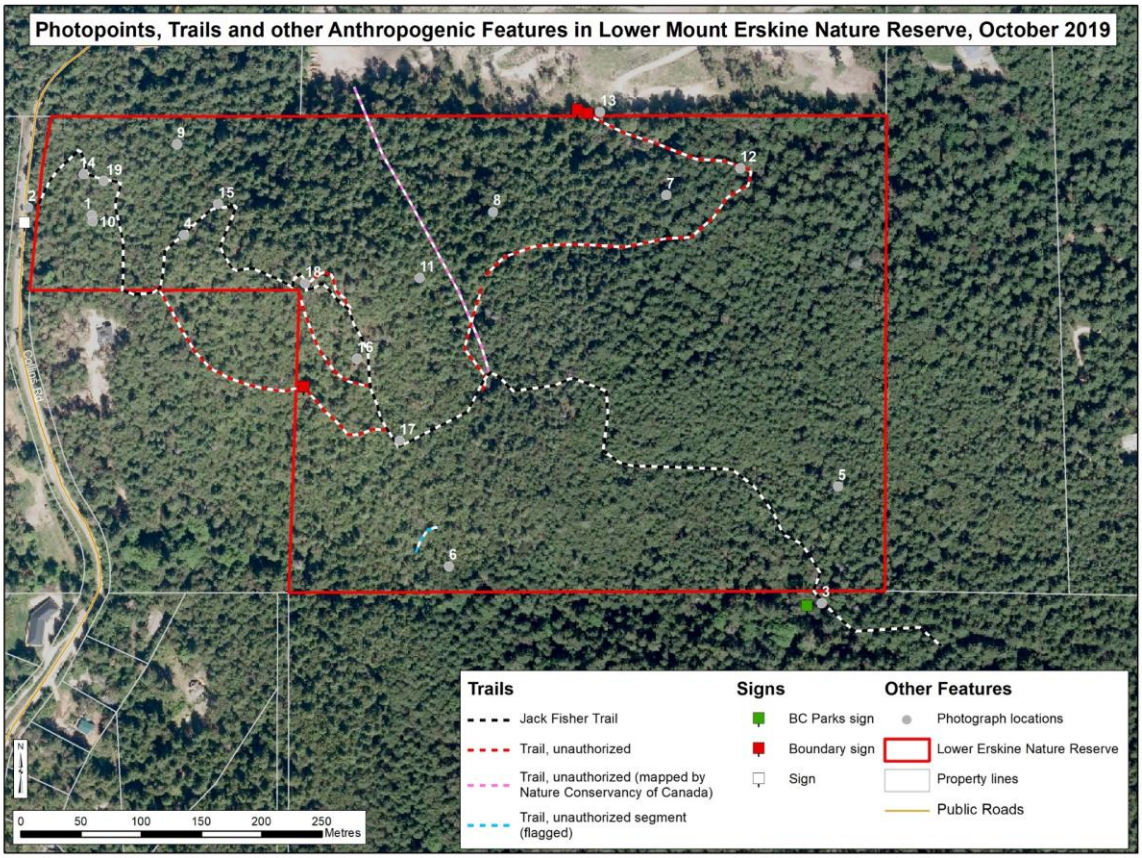

Figure 2. Anthropogenic features including trails and signs in Lower Mount Erskine Nature Reserve.

At this time ITC has not undertaken archaeological reviews in cooperation with First Nations to complete Traditional Use Studies (TUS), or a Traditional Ecological Knowledge study (TEK) or worked with Cultural Knowledge Holders (CKH) on this Reserve. ITC will work with First Nations to understand the cultural significance of the area and the ecology.

The Archaeological Branch's archaeological potential modelling indicates there are some small areas with high potential to contain unidentified archaeological deposits on the Reserve.

2.7 Undersurface Rights

Under Section 47 of the Land Act, the undersurface rights are owned by her Majesty the Queen in right of the province of BC (EK67163). There is also a Possibility of Reverter filed in favour of the province of BC (EK67164).

2.8 Notations, Charges, Liens and Interests

There is a Section 219 Covenant (EP081041) and Section 218 Statutory Right of Way (EP081042) registered on the land in favour of Nature Conservancy of Canada and Victoria Natural History Society (VNHS) Habitat Acquisition Trust Foundation (now the Habitat Acquisition Trust).

There is a Right of Way (394758G) which was registered in 1970 in favour of the BC Hydro and Power Authority over the part formerly Section 2, Range 2, West Inter Alia.

2.9 Local Planning Designations

The Reserve is zoned PR5 (Park and Recreation) (Islands Trust 2019b). The primary objective of this designation is to preserve and protect the natural environment of the island's public recreational lands and park land while providing for local and regional recreation needs (Islands Trust 2008).

There are no Development Permit Areas designated in the Reserve (Islands Trust 2019b).

2.10 Existing Public and Other Use

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

The Jack Fisher trail receives regular use by hikers who use the trail to access Mount Erskine in the adjacent provincial park. There are well travelled side trails that connect to the adjacent private property to the south on the western side of the property. There is also a less frequently travelled trail that leads from the Jack Fisher trail to the adjacent privately-managed land in the north.

Lower Mount Erskine Nature Reserve and the adjacent Mount Erskine Provincial Park are the only large recreational lands within close proximity of Ganges, Vesuvius and the northern portion of the island. The Reserve includes views to the north and there are excellent views from the summit of Mount Erskine to the north and west. The trails were developed and continue to be maintained by the Salt Spring Trail and Nature Club (Ferris 2005).

3.0 Inventory by Ecological Community

3.1 Ecological Significance

Lower Mount Erskine Nature Reserve serves as an important green space and is an important part of a 150 hectare (372 acre) contiguous protected area. Most of the property is forested with dense second or third growth Douglas-fir (*Pseudotsuga menziesii*) forests with very few scattered older trees. Over time, the forest will develop into a more complex stand and, if left undisturbed over the long term, may develop some old growth attributes. There are some mixed forests in wet areas with bigleaf maple (*Acer macrophyllum*) and in drier areas with arbutus (*Arbutus menziesii*). Steep rocky outcrops and mossy bluffs are common and there are no significant hydrological features. The Mount Erskine Nature Reserve ranges in elevation from 60-250 metres, with the highest elevation in the southeastern part of the Reserve. The Reserve is within both the Coastal Douglas-fir moist maritime (CDFmm) and Coastal Western Hemlock very dry (CWHxm) subzones.

The diversity of elevations, aspects, moisture regimes, forest ages and habitat types in the Reserve support a range of plant and animal species. Black-tailed Deer (*Odocoileus hemionus*) sign was noted throughout the Reserve and high levels of herbivory limit the diversity of understory species. Few birds were noted because of the suboptimal survey time.

No species at risk have been documented in the Reserve. The COSEWIC listed Special Concern Common Nighthawk (*Chordeiles minor*) is known to nest in the adjacent Mount Erskine Provincial Park (Ferguson 2019). Although the habitat for nesting is marginal in Lower Mount Erskine Nature Reserve, the Reserve provides an important buffer for nesting sites. Peregrine Falcon (*Falco peregrinus anatum*) likely nested on the cliff face in the provincial park in 2019 (Ferguson 2019) but there are no suitable cliffs in Lower Mount Erskine Nature Reserve.

Other species at risk observed in the adjacent provincial park include Batwing Vinyl (*Leptogium platynum*), Leafless Wintergreen (*Pyrola aphylla*), Orobus-seeded Liverwort (*Targionia hypophylla*), Coral Crackers (*Fuscopannaria coralloidea*), Small-flowered Tonella (*Tonella tenella*), and Northern Pygmy-owl (*Glaucidium gnoma swarthi*) (SPI database 2019). Olive-sided Flycatcher (*Contopus cooperi*), Band-tailed Pigeon (*Patagionenas fasciata*) and Purple Martin (*Progne subis*) were observed in the provincial park in 2019 (Ferguson 2019). Further surveys are required to determine if these species also occur in Lower Mount Erskine Nature Reserve.

The Reserve contains loose talus slopes in small arbutus forest openings with the right aspect to support the Endangered Sharp-tailed Snake (*Contia tenuis*).

Table 3. Ecological Communities in Lower Mount Erskine Nature Reserve.

Ecological Community Name		Status		
English	Scientific	Provincial	BC List	Global
Douglas-fir – western hemlock / salal (CWHxm1/03)	*Pseudotsuga menziesi – Tsuga heterophylla / Gaultheria shallon*	S2 (2019)	Red	G3G4
Western hemlock - Douglas-fir / Oregon beaked moss (CWHxm1/01)	*Tsuga heterophylla - Pseudotsuga menziesii / Eurhynchium oreganum*	S2 (2013)	Red	G3G4
Douglas-fir - Dull Oregon-grape (CDFmm/01)	*Pseudotsuga menziesii – Berberis nervosa*	S1 (2018)	Red	G2
Douglas-fir / arbutus (CDFmm/02)	*Pseudotsuga menziesii / Arbutus menziesii*	S2 (2004)	Red	GNR

Islands Trust Conservancy acknowledges that there is a wealth of traditional ecological knowledge and a long history of ecosystem stewardship among the First Nations whose territory encompasses Lower Mount Erskine 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.

3.2 Climate

The southern Gulf Islands, which includes Salt Spring Island, have a climate pattern of warm, dry summers and mild, wet winters. The maritime influence moderates the effect of elevation, latitude, and aspect on local temperature and precipitation.

The weather statistics for the Saint Mary Lake station show the annual precipitation is approximately 987 millimetres and most of it comes in the form of rain rather than snow (Government of Canada 2019). On Salt Spring Island, average daily temperatures peak in the summer months (July and August) at 18°C and are lowest in the winter (December and January) at 4°C (Figure 2). The reverse is true for precipitation, with the winter months from November to January having the highest rainfall (averaging 143-163 millimetres) and July and August being the driest months (23-28 millimetres) (Government of Canada 2019).

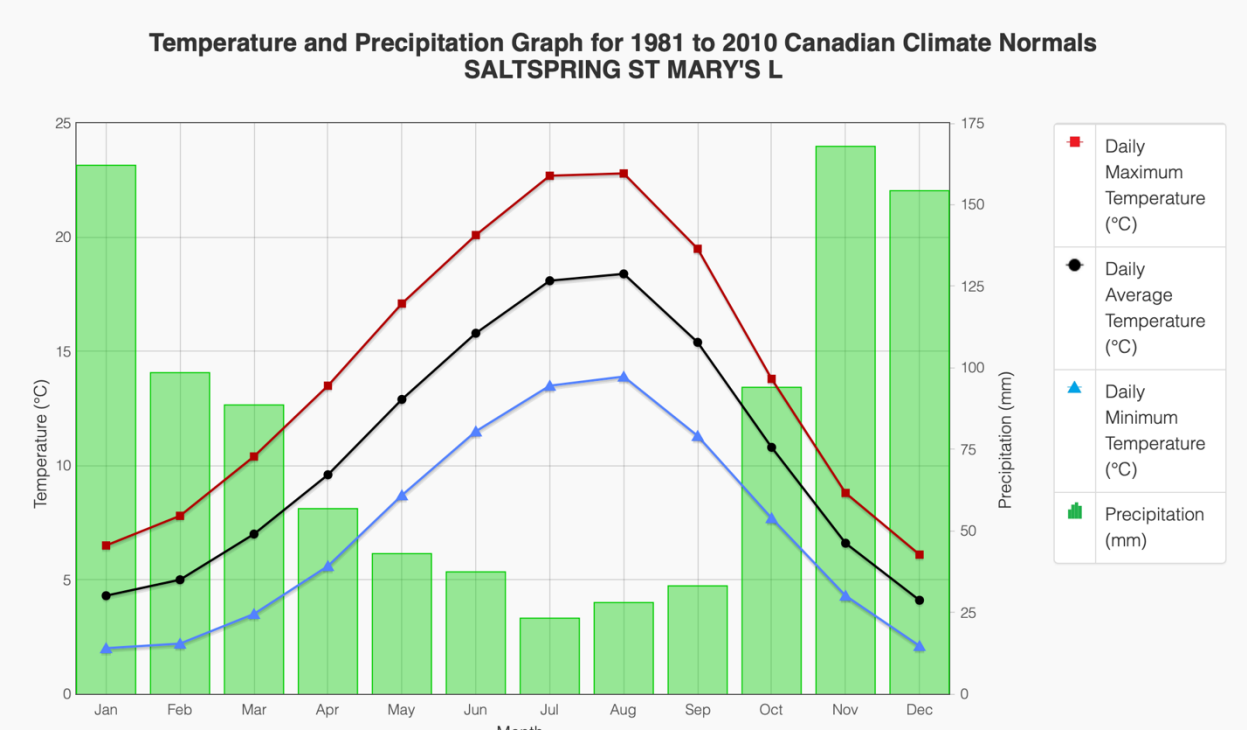

Figure 3. Canadian climate normals for temperature and precipitation at Saint Mary's Lake weather station, British Columbia from 1981-2018 (Government of Canada 2019).

The future impacts from climate change are unknown, although a summer drying trend and an increase in storm events are predicted (Mauger et.al. 2015). Dryer summers may cause increasing death of western redcedar (*Thuja plicata*), allowing the spread of Douglas-fir (*Pseudotsuga menziesii*). Higher temperatures and less precipitation may lead to localized stress on trees and plants. Maintaining habitat connectivity, biodiversity and ecosystem resilience may assist the flora and fauna adapting to climate change stresses.

3.3 Geology and Physiology

The Reserve includes the lower portion of a ridge that rises to the southeast to the summit of Mount Erskine (in Mount Erskine Provincial Park) which is the highest point of land in the northern portion of the island.

Lower Mount Erskine Nature Reserve ranges in elevation from 60 metres above sea level (asl) at Collins Road (6-15% slope) and then rises steadily and more steeply up to 250 metres asl on the north slope of Mount Erskine.

3.4 Hydrology

Most of the Reserve is moisture shedding, lower to mid slope. Water flows primarily to the north to Booth Bay except for the southwest corner of the Reserve which sheds water to the southwest. The southwest corner of the property is noticeably wetter with more deciduous trees such as bigleaf maple. There are no streams or other watercourses on the property. Surface and subsurface runoff collects in hollows and seepage areas at the base of rock faces.

Groundwater recharge may occur though faults and contact zones between rock types in underlying bedrock.

3.5 Soils

Mount Erskine is an outcrop of hard, erosion-resistant sedimentary rock primarily composed of conglomerates dating from 80 million years before present (van Vliet et al. 1987). The lower slopes are made up of sandstones and shales. Adjacent valleys have eroded from less resistant mudstones and shales, likely along fault lines. On the slopes, soils have developed from glacial till and rock fall and erosion has exposed bedrock outcroppings. Due to sea level changes after the last glaciation, marine deposits may be found below 100 metres asl.

Four soil types are found in Lower Mount Erskine Nature Reserve (van Vliet et al. 1987). These soils are moderately to rapidly drained sandy loams. The primary distinction between soil types is the depth of underlying glacial till and the exact character of the bedrock. Soils on lower slopes typically have between 20-50% coarse fragment content and are moist in the winter but subject to summer drought. Soils on upper slopes are very shallow with depth to bedrock of less than 50 centimetres. Rocky outcrops are common throughout the property.

Relatively steep slopes and poorly developed soils reduce the range of uses the property is able to support and the potential for soil erosion is high. The forestry potential for many of the ecological communities is marginal (Blom 1989 in Ferris 2005, Green and Klinka 1994). Generally, well-drained sandy loams with a coarse fragment content below 50% present little impediment to either concentrated or dispersed recreational use (Block and Hignett 1982 in Ferris 2005). However, steep slopes and a higher percentage of coarse fragments and shallow soil makes trail construction difficult. Vegetation on rock outcrops is susceptible to damage from recreational use, but once vegetation cover is destroyed, these sites can handle high use levels. Vegetation regeneration on rocky outcrops, is slow if not impossible following impact from sustained recreational use.

3.6 Ecological Classifications

The Lower Mount Erskine Nature Reserve occurs within the Coastal Douglas-fir moist maritime (CDFmm) biogeoclimatic subzone at elevations below 150 metres and in the Coastal Western Hemlock very dry maritime subzone (CWHxm) at elevations above 150 metres (Province of British Columbia no date). 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. The Reserve is within the Pacific Maritime Ecozone and the Georgia-Puget Basin Ecoregion (Ecological Framework of Canada 2019).

In some locations, there are pockets of densely stocked young Douglas-fir (20-60 years) where the understory shrub and herbaceous growth is inhibited. Where sufficient light is available, the understory is dominated by salal (*Gaultheria shallon*) and dull Oregon-grape (*Berberis nervosa*). In moister areas on the lower slopes, there is western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*) and bigleaf maple (*Acer macrophyllum*) with small numbers of

sword fern (*Polystichum munitum*). In some places, the western redcedar and western hemlock are well established and were probably released by the selective logging of Douglas-fir.

On the rock outcrops and in areas with shallow soil, arbutus (*Arbutus menziesii*) and shore pine (*Pinus contorta* var. *contorta*) are more dominant. The rock outcrops and boulders are covered with mosses and lichens. There are very few older veteran trees.

3.7 Ecological Communities and Site Series

The previous management plans for Lower Mount Erskine Nature Reserve did not delineate ecological communities. Terrestrial Ecosystem Mapping (TEM) identified 9 units, 3 of which include only a small portion of the Reserve (iMap 2019). As part of the 2019 management plan update, ecological descriptions of communities were collected on August 30th, September 12th and September 19, 2019.

Site series were identified using *A Field Guide for Site Identification and Interpretation for the Vancouver Forest Region* (Green and Klinka 1994) (refer to map in Figure 4). Structural stage was as defined in *Standards for Terrestrial Ecosystems Mapping in British* Columbia (RIC 1998).

A list of all plant species is included in Appendix B. Locations of photopoints and other photograph locations are given in Appendix C.

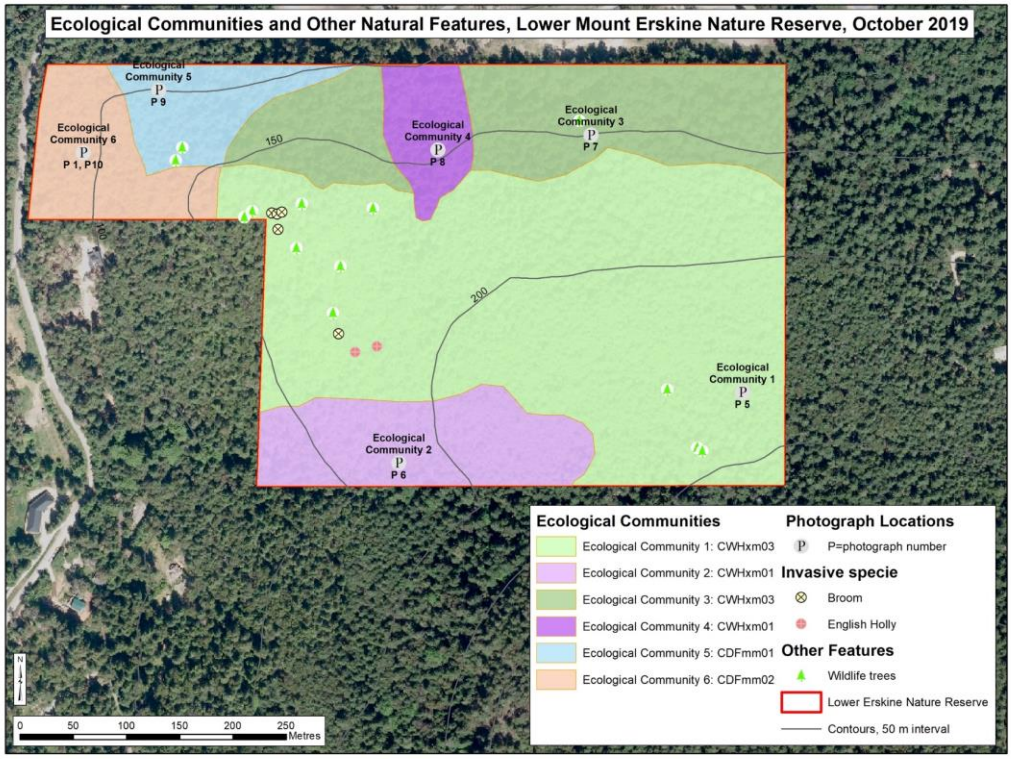

Figure 4. Ecological Communities in Lower Mount Erskine Nature Reserve with wildlife trees, photopoint locations, and ecological community plots.

Ecological Community 1: Douglas-fir- western hemlock / salal (CWHxm03)

Ecological Community 1 is found in the southeastern part of the Reserve, mid-slope on the north-facing ridge. The site is dominated by pole-sapling Douglas-fir (20-40 years old) with some larger arbutus (>50 years old). The slope is 30% and the aspect is north facing (10°). The site is dry with poor, shallow soils and there is abundant arbutus leaf litter on the forest floor. The understory is dominated by salal (*Gaultheria shallon*) and mosses. There is a large amount of coarse woody debris on the forest floor and scattered large surface rock and boulders. The elevation reaches 254 metres, so the community is within the Coastal Western Hemlock very dry maritime subzone (CWHxm).

Photo 5. Ecological Community 1 with dense stand of pole/sapling aged Douglas-fir trees. Photo: L. Matthias

Table 4. Description of Ecological Community 1.

Polygon ID:	Ecological Community 1
Ecological Community:	Douglas-fir - western hemlock / salal
Classification:	CWHxm1/03
Structural Stage:	Pole/sapling with some older arbutus
Status (BC List):	Red-list
Photopoint(s):	P5
Ecological Community Description:	Dry, well-drained forest with northern exposure, mid-slope on ridge. Pole-sapling Douglas-fir with some older arbutus trees.
Disturbance Notes:	Previously logged with many Douglas-fir stumps that were approximately 40-60 years old when cut. Lots of windfall with approximately 5% coarse woody debris on the ground.
Anticipated Change/Succession:	Increased complexity as forest self-thins allowing more light to understory. There may be a reduction in western redcedar with increasing drought conditions.
Wildlife observations:	Heard: Northern Flicker (*Colaptes auratus*), Red Squirrel (*Tamiasciurus hudsonicus*)

Table 5. Vegetation Species in Ecological Community 1.

VEGETATION SPECIES	***PERCENT COVER (%)***						***NOTES***
	Main Canopy	***Secondary Canopy***	***Shrub Layer***	***Herb Layer***	***Moss, Lichen Layer***	***Non-natives***	
Pseudotsuga menziesii (Douglas-fir)	***20***	***10***					***MC: 20-40 yrs, ht: 15-20 m, DBH: 25-40 cm SC: 15-20 yrs, ht: 5-12 m, DBH: 7-21 cm***
Arbutus menziesii (arbutus5)	***5***						***MC: 60-80 yrs, ht: 10-15 m, DBH: 25-50 cm***
Pinus contorta var. contorta (shore pine)	***2***						***MC: 30-40 yrs, ht: 12-15 m, DBH: 40 cm***
Thuja plicata (western redcedar6)	***1***	***1***					***MC: 50 yrs, ht: 15 m, DBH: 55 cm SC: 15-20 yrs, ht: 5 m, DBH: 17 cm***
Gaultheria shallon (salal)			***20***				
Berberis nervosa (dull Oregon-grape)			***3***				
Rosa gymnocarpa (baldhip rose)			***1***				
Berberis aquifolium (tall Oregon-grape)			***<1***				
Lonicera hispidula (hairy honeysuckle)			***<1***				
Bromus vulgaris (Columbia brome)				***<1***			
Festuca occidentalis (western fescue)				***<1***			
Goodyera oblongifolia (rattlesnake plantain)				***<1***			
Polypodium glycyrrhiza (licorice fern)				***<1***			
Polystichum munitum (sword fern)				***<1***			
Moss Layer							***Total Moss Layer: 60%***
Eurynchium oreganum (Oregon-beaked moss)					***40***		
Hylocomium splendens (step moss)					***20***		
Dicranum sp. (broom moss)					***<1***		
Isothecium sp. (isothecium moss)					***<1***		
Rhytidiadelphus loreus (lanky moss)					***<1***		
Cover by Layer (%)	***28***	***11***	***24***	***<1***	***60***		***Total Canopy Cover: 39%***

[5] Culturally significant species
[6] Culturally significant species

Ecological Community 2: Western hemlock- Douglas-fir / Oregon beaked moss (CWHxm01)

Ecological community 2 is in a south-facing, moisture-receiving draw and the moisture-receiving slopes above the draw are found in the southwestern corner of the Reserve. The soils are rapidly draining, shallow and poor in nutrients. The trees are larger than in other parts of the Reserve, in part because of increased moisture conditions but also because not all of the trees were logged as recently. Many of the younger Douglas-fir in the secondary canopy are dead or dying. The understory vegetation is sparse with a small amount of salal and dull Oregon-grape and most of the forest floor (80%) is covered by arbutus leaf litter with some arbutus and bigleaf maple coarse woody debris. The slope is 60% with a southerly aspect (192°). The elevation is 188 metres, so it is within the Coastal Western Hemlock very dry maritime subzone. There are surface boulders and loose rock.

Photo 6. Ecological Community 2 showing steeply sloping bank with bigleaf maple in middle, arbutus at right and sparse understory vegetation with abundant leaf litter and woody debris. Photo: L. Matthias

Table 6. Description of Ecological Community 2.

Polygon ID:	Ecological Community 2
Ecological Community:	Western hemlock- Douglas-fir / Oregon beaked moss
Classification:	CWHxm/01
Structural Stage:	Young forest
Status (BC List):	Red-list
Photopoint(s):	P6
Ecological Community Description:	Moderately dry, well-drained forest with southern exposure, mid-slope on ridge. Young forest dominated by Douglas-fir and arbutus with western hemlock, bigleaf maple and western redcedar.
Disturbance Notes:	Previously logged with many Douglas-fir stumps, including one larger stump. There are fire scars on the older Douglas-fir and arbutus trees.
Anticipated Change/Succession:	Increased complexity as forest self-thins allowing more light to understory.
Wildlife observations:	Heard: Red-breasted Nuthatch (*Sitta canadensis*)

Table 7. Vegetation Species in Ecological Community 2.

VEGETATION SPECIES	PERCENT COVER (%)						NOTES
	Main Canopy	Secondary	Shrub Layer	Herb Layer	Moss, Lichen Layer	Non-natives	
Arbutus menziesii (arbutus)	10						MC: 60-80 yrs, ht: 7-10 m, DBH: 30-55 cm
Pseudotsuga menziesii (Douglas-fir)	8	2					MC: 100+ yrs, ht: 25 m, DBH: 100 cm SC: 15-20 yrs, ht: 5-10 m, DBH: 7-15 cm
Acer macrophyllum (bigleaf maple)	5	<1					MC: 80-100 yrs, ht: 15-20 m, DBH: 803cm SC: 5-15 yrs, ht: 3-7 m, DBH: 3-10 cm
Thuja plicata (western redcedar)	3	1					MC: 40-50 yrs, ht:15 m, DBH: 55 cm SC: 10-15 yrs, ht: 5 m, DBH: 15 cm
Tsuga heterophylla (western hemlock)	2						MC: 60 yrs, ht: 15 m, DBH: 48 cm
Gaultheria shallon (salal)			10				
Berberis nervosa (dull Oregon-grape)			1				
Lonicera ciliosa (western trumpet)			<1				
Lonicera hispidula (hairy honeysuckle)			<1				
Rosa gymnocarpa (baldhip rose)			<1				
Polystichum munitum (sword fern)				<1			
Moss Layer							**Total Moss Layer: 2%**
Eurynchium oreganum (Oregon-beaked moss)- all moss on wood or boulders					2		
Cover by Layer (%)	**28**	**3**	**11**	**<1**	**2**		**Total Canopy Cover: 31%**

Ecological Community 3: Douglas-fir- western hemlock / salal (CWHxm03)

Ecological community 3 is found in the northern part of the Reserve at elevations above 150 metres and is in the Coastal Western Hemlock very dry maritime (CWHxm) subzone. The site is steeply sloping (70%) with a northerly aspect (9°). The soils are thin and well-drained with abundant loose surface rock and large amount of small diameter coarse woody debris. There is some blowdown of small diameter Douglas-fir trees and self-thinning with standing dead small diameter Douglas-fir and western redcedar trees. There are stumps from the former logging and some wildlife trees in the area. The forest canopy is primarily young Douglas-fir with some arbutus and western redcedar in the secondary canopy. The understory vegetation is dominated by mosses with sparse shrubs and forbs.

Photo 7. Ecological Community 3 showing dense stand of young forest with Douglas-fir and arbutus and sparse understory. Photo: L. Matthias

Table 8. Description of Ecological Community 3.

Polygon ID:	Ecological Community 3
Ecological Community:	Douglas-fir- western hemlock / salal
Classification:	CWHxm1/03
Structural Stage:	Young forest
Status (BC List):	Red-list
Photopoint(s):	P7
Ecological Community Description:	Moderately dry, well-drained forest with northern aspect mid-slope on ridge. Young forest dominated by small diameter Douglas-fir and arbutus.
Disturbance Notes:	Previously logged with many Douglas-fir stumps, some blowdown of small diameter Douglas-fir and self-thinning with standing dead Douglas-fir and western redcedar.
Anticipated Change/Succession:	Increased complexity as forest self-thins allowing more light to understory.
Wildlife observations:	Heard: Northern Pacific Treefrog (*Pseudacris regilla*), Chestnut-backed Chickadee (*Poecile rufescens*). Observed: Pacific Bananaslug (*Ariolimax columbianus*), Black-tailed Deer (*Odocoileus hemionus*) browse and bones.

Table 9. Vegetation Species in Ecological Community 3.

VEGETATION SPECIES	PERCENT COVER (%)						NOTES
	Main Canopy	Secondary	Shrub Layer	Herb Layer	Moss, Lichen Layer	Non-natives	
Pseudotsuga menziesii (Douglas-fir)	25						MC: 40-60 yrs, ht: 10-15m, DBH: 20-40 cm
Arbutus menziesii (arbutus)	10						MC: 40-60 yrs, ht: 8-12 m, DBH: 20-40 cm
Thuja plicata (western redcedar)		3					SC: 10-20 yrs, ht: 3-5 m, DBH: 8-15 cm
Berberis nervosa (dull Oregon-grape)			1				
Gaultheria shallon (salal)			1				
Holodiscus discolor (oceanspray)			<1				
Lonicera ciliosa (western trumpet)			<1				
Lonicera hispidula (hairy honeysuckle)			<1				
Rosa gymnocarpa (baldhip rose)			<1				
Bromus vulgaris (Columbia brome)				<1			
Corallorhiza sp. (coralroot)				<1			
Festuca occidentalis (western fescue)				<1			
Goodyera oblongifolia (rattlesnake plantain)				<1			
Melica harfordii (Harford's melic)				<1			
Polystichum munitum (sword fern)				<1			
Mycelis muralis (wall lettuce)						<1	
Moss Layer							**Total Moss Layer: 60%**
Eurynchium oreganum (Oregon-beaked moss)- on wood or boulders					50		
Hylocomium splendens (step moss)					5		
Rhytidiadelphus triquetrus (electrified cat's-tail moss)					5		
Cover by Layer (%)	**35**	**3**	**2**	**<1**	**60**		**Total Canopy Cover: 38%**

Ecological Community 4: Western hemlock- Douglas-fir / Oregon beaked moss (CWHxm01)

This community includes a steep (60%) north-facing (345°) gully in the northern central part of the Reserve. There is scattered surface rock and decaying coarse woody debris on the forest floor with an abundance of arbutus litter. The soils are thin and very rapidly draining. There are Douglas-fir stumps next to the gully and a number of young western redcedar in the gully bottom and on the moisture receiving banks.

Photo 8. Ecological Community 4 which includes the banks and bottom of a steep gully in the north central part of the Reserve. Photo: L. Matthias

Table 10. Description of Ecological Community 4.

Polygon ID:	Ecological Community 4
Ecological Community:	Western hemlock- Douglas-fir / Oregon beaked moss
Classification:	CWHxm/01
Structural Stage:	Young forest
Status (BC List):	Red-list
Photopoint(s):	P8
Ecological Community Description:	Steep, north-facing gully in the northern part of the Reserve above 150 metres. Moderately dry, well-drained forest with northern aspect mid-slope on ridge. Young forest dominated by small diameter western redcedar and arbutus.
Disturbance Notes:	Previously logged with many Douglas-fir stumps.
Anticipated Change/Succession:	Increased complexity as forest self-thins allowing more light to understory. Western redcedar may act as nurse species for secondary canopy of Douglas-fir.
Wildlife observations:	Black-tailed Deer (*Odocoileus hemionus*) browse and scat.

Table 11. Vegetation Species in Ecological Community 4.

VEGETATION SPECIES	PERCENT COVER (%)						NOTES
	Main Canopy	Secondary	Shrub Layer	Herb Layer	Moss, Lichen Layer	Non-natives	
Arbutus menziesii (arbutus)	15						MC: 25-50 yrs, ht: 7-10 m, DBH: 25-60 cm
Thuja plicata (western redcedar)	15						MC: 20-50 yrs, ht: 10-15 m, DBH: 35-40 cm
Pseudotsuga menziesii (Douglas-fir)	10						MC: 25-50 yrs, ht: 10-15m, DBH: 50 cm SC: 15-20 yrs, ht: 8 m, DBH: 10-18 cm
Berberis nervosa (dull Oregon-grape)			1				
Gaultheria shallon (salal)			1				
Rosa gymnocarpa (baldhip rose)			<1				
Vaccinium parvifolium (red huckleberry)			<1				
Polystichum munitum (sword fern)				<1			
Moss Layer							**Total Moss Layer: 10%**
Eurynchium oreganum (Oregon-beaked moss)- on wood or boulders					10		
Cover by Layer (%)	**40**		**2**	**<1**	**10**		**Total Canopy Cover: 40%**

Ecological Community 5: Douglas-fir / dull Oregon-grape (CDFmm01)

This maturing second or third growth forest is steeply sloping (100%) mid-slope with a northern aspect (25°). The forest is comprised of young Douglas-fir and arbutus trees with patches of salal and moss in the understory. There are a few scattered older veteran trees estimated to be 80 years old with a DBH of 70 centimetres. There are some small surface rocks and a number of small diameter blow downs that now form coarse woody debris on the forest floor. There are also some small diameter standing dead trees. The site is well-drained and moderately dry.

Photo 9. Ecological Community 5 showing mixed Douglas-fir and arbutus with patches of dense salal in understory. Photo: C. Maslovat

Table 12. Description of Ecological Community 5.

Polygon ID:	Ecological Community 5
Ecological Community:	Douglas-fir / dull Oregon-grape
Classification:	CDFmm/01
Structural Stage:	Young forest
Status (BC List):	Red-list
Photopoint(s):	P9
Ecological Community Description:	Steep, north-facing slope in northern part of the Reserve below 150 metres. Moderately dry, well-drained forest dominated by Douglas-fir and arbutus.
Disturbance Notes:	Previously logged with Douglas-fir stumps and older stumps with fire scars. Some blowdown of small diameter Douglas-fir.
Anticipated Change/Succession:	Increased complexity as forest self-thins allowing more light to understory.
Wildlife observations:	Heard: Red-breasted Nuthatch (*Sitta canadensis*), Common Raven (*Corvus corax*). Observed: American Robin (*Turdus migratorius*), Brown Creeper (*Certhia americana*), Northern Flicker (*Colaptes auratus*), Red Squirrel (*Tamiasciurus hudsonicus*), Black-tailed Deer (*Odocoileus hemionus*) trails.

Table 13. Vegetation Species in Ecological Community 5.

VEGETATION SPECIES	PERCENT COVER (%)						NOTES
	Main Canopy	Secondary	Shrub Layer	Herb Layer	Moss, Lichen Layer	Non-natives	
Pseudotsuga menziesii (Douglas-fir)	15	5					MC: 30-60 yrs, ht: 10-20 m, DBH: 20-35 cm SC: 15-20 yrs, ht: 6-8 m, DBH: 8-10 cm
Arbutus menziesii (arbutus)	15						MC: 30-70 yrs, ht: 10-15 m, DBH: 25-35 cm
Thuja plicata (western redcedar)		5					SC: 10-25 yrs, ht: 3-10 m, DBH: 8-20 cm
Gaultheria shallon (salal)			35				
Berberis nervosa (dull Oregon-grape)			1				
Holodiscus discolor (oceanspray)			<1				
Lonicera ciliosa (western trumpet)			<1				
Lonicera hispidula (hairy honeysuckle)			<1				
Rosa gymnocarpa (baldhip rose)			<1				
Symphoricarpos sp.			<1				
Polystichum munitum (sword fern)				1			
Acer macrophyllum (bigleaf maple)				<1			
Bromus vulgaris (Columbia brome)				<1			
Corallorhiza sp. (coralroot)				<1			
Festuca occidentails (western fescue)				<1			
Goodyera oblongifolia (rattlesnake plantain)				<1			
Melica harfordii (Harford's melic)				<1			
Mycelis muralis (wall lettuce)						<1	
Moss Layer							**Total Moss Layer: 37%**
Eurynchium oreganum (Oregon-beaked moss)					25		
Rhytidiadelphus triquetrus (electrified cat's-tail moss)					10		
Hylocomium splendens (step moss)					2		
Cover by Layer (%)	**30**	**10**	**36**	**1**	**37**	**<1**	**Total Canopy Cover: 40%**

Ecological Community 6: Douglas-fir / Arbutus (CDFmm02)

The maturing second or third growth forest slopes to the west (260°) over undulating terrain with an average slope of 35%. The forest is a mix of young Douglas-fir and arbutus with exposed rock outcrop and very thin soils. The soils are poor and fast-draining and there are Douglas-fir stumps throughout. There is a large amount of arbutus litter on the forest floor.

Photo 10. Ecological Community 6 with mixed young Douglas-fir and arbutus and much exposed rock. Photo: C. Maslovat

Table 14. Description of Ecological Community 6.

Polygon ID:	Ecological Community 6
Ecological Community:	Douglas-fir / arbutus
Classification:	CDFmm/02
Structural Stage:	Young forest
Status (BC List):	Red-list
Photopoint(s):	P10
Ecological Community Description:	West-facing open, dry, well-drained mixed Douglas-fir and arbutus forest below. Rock outcrops are dominant.
Disturbance Notes:	Previously logged with many Douglas-fir stumps.
Anticipated Change/Succession:	Increased complexity as forest self-thins allowing more light to understory.
Wildlife observations:	Heard: Chestnut-backed Chickadee (*Poecile rufescens*), American Robin (*Turdus migratorius*). Observed: Black-tailed Deer (*Odocoileus hemionus*) browse and scat.

Table 15. Vegetation Species in Ecological Community 6.

VEGETATION SPECIES	PERCENT COVER (%)						NOTES
	Main Canopy	Secondary	Shrub Layer	Herb Layer	Moss, Lichen Layer	Non-natives	
Arbutus menziesii (arbutus)	15						MC: 20-80 yrs, ht: 7-15 m, DBH: 15-45 cm
Pseudotsuga menziesii (Douglas-fir)	15	5					MC: 20-50 yrs, ht: 15-20 m, DBH: 30-45cm SC: 3-20 yrs, ht: 1-10m, DBH: 3-20 cm
Berberis nervosa (dull Oregon-grape)			1				
Gaultheria shallon (salal)			<1				
Lonicera hispidula (hairy honeysuckle)			<1				
Rosa gymnocarpa (baldhip rose)			<1				
Symphoricarpos sp. (snowberry)			<1				
Bromus vulgaris (Columbia brome)				<1			
Festuca occidentalis (western fescue)				<1			
Goodyera oblongifolia (rattlesnake plantain)				<1			
Anisocarpus madioides (woodland tarweed)				<1			
Cytisus scoparius (Scotch broom)						<1	
Moss Layer							**Total Moss Layer: 50%**
Dicranum spp. (broom-moss)					30		
Eurynchium oreganum (Oregon-beaked moss)- on wood or boulders					20		
Rhytidiadelphus triquetrus (electrified cat's-tail moss)					<1		
Cover by Layer (%)	**30**	**5**	**1**	**<1**	**50**	**<1**	**Total Canopy Cover: 35%**

3.8 Wildlife Species

The mixed coniferous and deciduous forest supports a number of bird and animal species. Songbirds are attracted to the open mixed forests on hilltops and the edges of rock outcrops. Common Raven (*Corvus corax*) use the updrafts next to Mount Erskine for soaring. Crevices in bedrock outcrops and rock overhangs on Mount Erskine provide important habitat for a number of animal species including sites for Turkey Vulture (*Cathartes aura*) nests.

The presence of standing dead wildlife trees provides perches for birds of prey, foraging habitat for woodpeckers, nesting habitat for birds that rely on cavities and roost sites for bats. There is a large amount of woody debris on the forest floor, including some large diameter logs that may be good habitat for amphibians and reptiles. Black-tailed deer (*Odocoileus hemionus*) scat and trails were noted throughout the Reserve.

Photo 11. Large diameter Douglas-fir wildlife tree with many cavities. Photo: L. Matthias

The Reserve likely provides habitat for a wide range of birds, but the field surveys were not done at an ideal time for assessing bird activity. Few gastropods were found due to the extremely dry conditions during the survey.

Table 16. Wildlife Species Observed in Lower Mount Erskine Nature Reserve during 2019 Field Work.

Common Name	**Latin Name**	**Observation Type**
Mammals		
Black-tailed Deer	*Odocoileus hemionus*	Scat, trails, bones and browse observed
Red Squirrel	*Tamiasciurus hudsonicus*	Heard, middens seen
Invertebrates		
Pacific Bananaslug	*Ariolimax columbianus*	Visual observation
Pacific Sideband	*Monodenia fidelis*	Visual observation
Amphibians		
Northern Pacific Treefrog	*Pseudacris regilla*	Heard calling
Birds		
American Robin	*Turdus migratorius*	Heard and visual observation
Dusky Grouse	*Dendrgapus obscurus*	Noted in MacDonald and Crocker 2000
Brown Creeper	*Certhia americana*	Heard and visual observation
Chestnut-backed Chickadee	*Poecile rufescens*	Heard and visual observation
Common Raven	*Corvus corax*	Heard and visual observation
Dark-eyed Junco	*Junco hyemalis*	Heard

Golden-crowned Kinglet	*Regulus satrapa*	Noted in MacDonald and Crocker 2000
Hairy Woodpecker	*Picoides villosus*	Heard
Northern Flicker	*Colaptes auratus*	Heard
Pacific-slope Flycatcher	*Empidonax difficilis*	Heard
Pileated Woodpecker	*Dryocopus pileatus*	Cavities noted in trees
Pine Siskin	*Carduelis pinus*	Noted in MacDonald and Crocker 2000
Red-breasted Nuthatch	*Sitta canadensis*	Heard
Song Sparrow	*Melospiza melodia*	Noted in MacDonald and Crocker 2000
Turkey Vulture	*Cathartes aura*	Observed flying over Reserve

3.9 Expected Change Over Time

The forests will continue to mature and diversify over time. In areas with dense young conifers, self-thinning will occur, providing more light for understory plants to grow. There will be slow development of old forest characteristics as trees mature and gaps are created through natural mortality and wind. In areas with dense growth, there will be self-thinning due to density-related mortality.

4.0 Threats

Table 17. Threats to Natural Values in Lower Mount Erskine Nature Reserve.

Threats (examples below)	Forest	Overall Threat Rank
Recreational Activities and Unauthorized Human Disturbance: Hiking can impact conservation targets through wildlife disturbance, soil disturbance, vegetation trampling, and erosion. This threat is expected to increase in severity over time with increasing numbers of residents and seasonal visitors to Salt Spring. Erosion and trail widening have been noted on several parts of the trail and there is trampling next to lookout sites (Drake 2019). There are unauthorized trails in the Reserve and on adjacent private land. Mountain bike use of the trails has caused increased erosion from braking on steep downhill sections as well as trail braiding and widening (Ferris 2005). Extra nutrients from dog feces can alter the vegetation community, shifting the balance toward more non-native species.	Medium	Medium
Fire (Catastrophic Wildfire): Fire suppression results in a change of fire regime to lower-frequency and higher-intensity fires. Higher-intensity fires are also generally larger in size. A less frequent, more intense fire could potentially replace the forests. Vegetation recovery post-catastrophic fire is slow and invasive terrestrial species are likely to invade areas with bare soil. Because of the dense stands in the Reserve and high abundance of ladder fuels, the impact from a wildfire is likely to be moderate or high.	Medium	Medium
Invasive Non-Native Species: Invasive non-native species are a significant threat to biodiversity, second only to habitat loss (IUCN 2018). The impact on native ecosystems, habitats and species can be severe and often irreversible. There are low numbers of Scotch broom (*Cytisus scoparius*) and a few isolated English holly (*Ilex aquifolium*)	Low	Low

plants in the Reserve. One holly next to the trail has been cut and is resprouting from the roots.		
Problematic Native Species: Hyper-abundant Black-tailed Deer (*Odocoileus hemionus*) can be problematic, limiting natural regeneration, dramatically altering understory vegetation structure and composition, and adversely affecting songbird populations (Martin et al. 2011).	Medium	Medium
Windthrow and Falling Trees: The high density of trees has led to natural mortality and thinning. There are a large number of small diameter dead and dying trees that are still standing or on the ground as woody debris. A significant windstorm in December 2018 resulted in a large number of fallen trees in the adjacent Mount Erskine Provincial Park, however the Reserve was less severely impacted.	Low	Low
Climate Changes: Over time, the trend towards longer, drier summers and droughts in the region may impact the survival of tree seedlings and even established species such as western redcedar that prefer wetter soils. Dead, small diameter cedars were noted in the Reserve.	Unknown	Unknown
Overall Threat Status for Protected Area	**Medium**	**Medium**

4.1 Expected Change to Threats Over Time

Recreational activities and unauthorized human disturbance in the Reserve are likely to increase over time given the increased development pressure on Salt Spring Island and the increase in seasonal visitors.

The threat of catastrophic high-intensity wildfire could move to high in the region as climate appears to be shifting to increasingly drier summers and fire suppression remains active in the region.

Invasive species spread will likely increase without a concerted effort at control. Ongoing removal and control efforts will be required because Scotch broom forms large, persistent seed banks and English holly can continue to resprout from cut stems.

5.0 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 100 metre radius of the Reserve. A total of 10 letters were mailed on November 29, 2019 (Appendix C). The letters contained information about Lower Mount Erskine Nature Reserve, an invitation to a public display, and a questionnaire (see Appendix D).

5.2 First Nations

Letters were mailed to the following First Nations on December 2, 2020 (Appendix E):

- Cowichan Tribes, Halalt First Nation, Lyackson First Nation, MÁLEXEŁ (Malahat) Nation, BOḰEĆEN (Pauquachin) First Nation, Penelakut Tribe, SEMYOME (Semiahmoo) First Nation, Stz'uminus (Chemainus) First Nation, W̱JOŁEŁP (Tsartlip) First Nation, S̱TÁUTW̱

(Tsawout) First Nation, Tsawwassen First Nation, W̱SIḴEM (Tseycum) First Nation, Ts'uubaa-asatx (Lake Cowichan) First Nation

This letter provided information about the Nature Reserve and outlined the proposed management plan. It also outlined the commitment to develop 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.

5.3 Conservation Partners and Community Members

The Islands Trust Conservancy was present at the Saturday market at Centennial Park, December 14th, 2019 from 10:30am to 12:30pm. People attending the market were asked to provide input on the draft management plan and general management planning for the reserve. Maps and photographs were presented, and residents were asked for their input at that time.

An online questionnaire was also made available from November 29, 2019 – January 20, 2020.

5.4 Engagement Results

The questionnaire was completed by 11 people. All respondents were full-time Salt Spring Island residents, with 45% living on northern Salt Spring, 45% living on the mid-island and 10% living on southern Salt Spring. Some respondents (36%) visit the reserve a few times per year, some (18%) have visited the reserve a few times, and many (45%) had never visited the reserve. Most who have visited the reserve engaged in hiking/walking (83%) and some engaged in dog walking (33%) or trail running (9%). The most important values for respondents were protection of habitat for at-risk species (70%), conservation for the sake of the intrinsic value of nature (50%), and ecosystem services (50%). Recreational opportunities (40%) and educational and research opportunities (10%) were also noted as important values by respondents.

6.0 Management Recommendations

The general management direction for the Lower Mount Erskine Nature Reserve is to allow natural successional processes. With the exception of fire, natural disturbance factors due to wind (windthrow), pest infestation, disease, and wildlife use should proceed without intervention. Only the removal of invasive plant species is permitted. Public access will be limited to the Jack Fisher trail and public use will not be encouraged in other areas in order to limit fragmentation and disturbance.

6.1 Management Roles

The Islands Trust Conservancy is the sole landholder of the Lower Mount Erskine Nature Reserve and monitors the Reserve annually to determine any management concerns. The Nature Conservancy of Canada (NCC) and the Habitat Acquisition Trust (HAT) hold a conservation covenant on the title of the land. Annual monitoring to ensure compliance with the terms of the conservation covenant are the responsibility of the covenant holders.

The Islands Trust Conservancy had a management agreement with the Salt Spring Trail and Nature Club which is in effect from 2001-2026 (Ferris 2005). The Salt Spring Trail and Nature Club have not been involved in active management in the last few years and connections should be renewed to help maintain the Jack Fisher trail and protect against erosion, vegetation trampling and soil disturbance.

Table 18. Partners involved in management of MENR.

Partner	Role
Island Trust Conservancy	Land holder
Nature Conservancy of Canada	Covenant Holder
Habitat Acquisition Trust	Covenant Holder
Salt Spring Trail and Nature Club	Trail management

6.2 Permitted and Prohibited Uses

The public is invited to use the existing Jack Fisher trail for hiking and nature appreciation. Dogs should be on-leash.

The following activities by the public are prohibited[7]:

- Hunting[8]
- Use of motorized vehicles
- Bicycling
- Horseback riding
- Camping
- Fires
- Forestry
- Livestock grazing
- Trail development
- Tree cutting
- Collection of plants, animals or fungi[9]

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 NCC and HAT offers an additional layer of protection for lands within the Lower Mount Erskine Nature Reserve to help ensure they are being managed effectively for conservation purposes. If an issue is found to be in violation of the terms of the covenant, the covenant holders will work in cooperation with ITC to find an appropriate remedy or management solution.

[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.

Trail Use

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

Boundaries, Encroachment

It is recommended to monitor the property boundaries, in particular where the Reserve abuts privately-managed land. In particular, the northern, eastern and southwestern boundary should be monitored for encroachments such as tree cutting and unauthorized trail development.

Species & Habitat (Biological) Monitoring

Species at risk surveys and monitoring are encouraged during appropriate times of year to assess which species are present. Monitoring of invasive species spread is advisable over time so that control measures can be taken as required.

6.4 Public Access

Access to the park is via the Jack Fisher trail that connects Collins Road west of the Reserve to Mount Erskine Provincial Park in the south. Mount Erskine is one of the most popular hiking destinations on Salt Spring and the park receives heavy visitor traffic including many off-leash dogs. It is unclear how frequently the trail is used by mountain bikes but their use is recorded in the previous management plan (Ferris 2005). There are several well-used unauthorized trails in the Reserve.

Photo 12. Unauthorized trail along old logging road to privately-managed property to the north. Photo: L. Matthias

6.5 Signage

The trailhead at Collins Road is signed as follows: a wooden Jack Fisher Trail sign is attached to a tree; a Nature Conservancy of Canada conservation covenant sign, a multi-agency sign requesting people keep their dogs on leash and a trail map are

Photo 13. Islands Trust Conservancy Nature Reserve Boundary sign on the northern property boundary. Photo: C. Maslovat

mounted on a wooden post; and an Islands Trust Conservancy sign requesting that visitors stay on the trail is attached to a second wooden trail post.

The Jack Fisher trail route is marked with small diagonal orange metal tags that are nailed into the trees. The trees are beginning to grow around some of the tags.

There is a BC Parks boundary sign where the trail crosses into Mount Erskine Provincial Park to the south.

The northern boundary of the Reserve is signed with two Islands Trust Conservancy boundary signs and the border has been signed with metal covenant boundary stakes. The boundary of the Reserve is signed where a second unauthorized trail enters the Reserve along southern part of the western boundary.

As part of reconciliation ITC may discuss signage and naming with First Nations.

6.6 Trail Use, Maintenance and Development

Jack Fisher "Assault Route" trail leads from Collins Road to the west of the Reserve to the summit of Mount Erskine on the adjacent provincial park. The trail is frequently used by hikers and dogs (many of which are off leash).

Due to the steepness of the trail, thin soils and high level of use, erosion is occurring in some areas. At the trail entrance at Collins Road and in the upper portion of the Reserve, the trail has become significantly eroded and is funneling water during heavy rain events (Drake 2019). The erosion has moved fine soils downslope and has impacted vegetation along the trail edge (Drake 2019).

Photo 14.Well-worn trail showing erosion next to tree roots. Photo: L. Matthias

There are several unauthorized trails in the park. The most well-travelled trail leads from the main trail in a side loop through adjacent private property to the south and west of the Reserve. It is recommended that this trail be closed by installing split rail fences at either end that are well signed

Photo 15. Trail braiding on the Jack Fisher trail. Photo: L. Matthias

to explain the trail closure (Drake 2019). A second less frequently used trail leads from the main trail to the adjacent private property to the south along an old skid road. There are other small desire line trails to scenic lookouts including one small loop trail. All unauthorized trails should be closed by scattering debris over the trails where they connect with the main trail and should be signed appropriately.

In some locations, the trail has become very wide and/or braided as people seek safe footing in steep sections of trail. These areas could be restored by placing large woody debris and rocks on the surface. In lookout areas, planting with native plants may be necessary.

Photo 16. Trampled area at lookout and no native vegetation remaining. Photo: L. Matthias

The trail is marked with small metal reflective tags that are nailed into trees and in some locations the trees are growing over the route markers. The route is better marked on the way down than on the way up. The metal trail markers could be removed and replaced with a lower impact system that does not damage the trees. An option is non-toxic, high visibility orange paint applied with a diamond stencil, installed in both directions along the trail.

The adjacent trail in Mount Erskine provincial park has a number of fairy doors both next to the trail and off trail. These fairy doors encourage desire line trail and also encourage people to place objects next to them.

6.7 Protection Initiatives for Sensitive Ecosystems and Species and Ecosystems at Risk

There are no known rare species in the Reserve although it is likely some occur in Lower Mount Erskine Nature Reserve given the high number of species at risk on the adjacent property. Surveys are recommended to identify locations of species at risk to aid management planning. Protection initiatives for sensitive ecosystems include trail maintenance and restoration and invasive species removal.

6.8 Ecological Restoration Options

Ecological restoration options should focus on the rehabilitation of the trail. This work should include the installation of split rail fences to permanently close the unauthorized loop trail that trespasses on private land at both the upper and lower junction points. Both fences should be clearly signed to explain why the trail has been closed. Coarse woody debris and finer material held in place with rocks should be placed on the trail bed to make the trail less obvious, reduce erosion and encourage soil accumulation (Drake 2019).

Trail creep can be addressed by placing logs or rocks along the lower edge of the trail to define the trail edge and allow silt and debris to accumulate, aiding soil deposition (Drake 2019).

In areas where water is channeled over the trail bed and is causing erosion, it is recommended that measures be taken to slow the flow of water while providing stepping-stones where necessary to provide safe footing for hikers (Drake 2019).

To restore desire line trails and trampling next to viewpoints, it is recommended that woody debris and rocks be placed in the area to limit trampling. If this is not effective, it may be necessary to install split rail fences or plant and cage native trees or shrubs (Drake 2019). Plantings should be monitored annually and cages removed once the trees have grown to a suitable size to be able to withstand some browsing by deer. Species chosen for restoration planting should be those currently found within the Reserve (Appendix A).

6.9 Scientific Research/Education Opportunities

No research has been conducted to date in the Reserve. Possible future research could include species at risk surveys and monitoring during peak season for a variety of species, such as rare plants, mosses and lichens, bats, birds, gastropods, reptiles and amphibians.

Photo 17. Small English Holly plant next to trail that has re-sprouted after being cut. Photo: L. Matthias

6.10 Exotic and Invasive Species Management

The Reserve is notable for its lack of exotic and invasive species. A few small English holly (*Ilex aquifolium*) plants were noted scattered throughout the Reserve and they should be removed as soon as possible before they become well established. Holly will re-sprout from cut stems so ongoing treatment may be necessary. There are small patches of young Scotch broom (*Cytisus scoparius*) that should be removed before they spread into other areas of the Reserve.

Photo 18. Young Scotch broom on thin soil rock outcrop next to trail. Photo: L. Matthias

6.11 Wildfire Risk Management

Wildfire and wildfire suppression can be extremely damaging to sensitive ecosystems. Fire has been excluded for a long time in traditionally fire maintained ecosystems which has resulted in landscapes that will be very dramatically altered in the event of fire and perhaps unable to return to the natural state we are trying to manage for after a high intensity fire takes place. A fire risk analysis to develop approaches for mitigating the threat of wildfire in the Reserve, particularly human-source fires, is recommended. Possible methods of controlling human sources of fire include posting notices of smoking bans, installing signs to notify the public of the fire-danger index, temporary trail closures during periods of extreme fire danger and adopting a cigarette butt disposal protocol.

Management actions, such as removing woody debris, are limited by the overarching conservation objective of minimizing disturbance to the natural environment. These actions to reduce the impact of wildfire may need to be considered for the long-term protection of the ecosystem. Developing a plan for fire management in consultation with the Salt Spring Island 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. If possible, it is preferred that saltwater or fire retardants are not used for fire suppression since both can cause ecological damage to sensitive ecosystems. Maxwell Lake or Saint Mary Lake are nearby sources of freshwater on Salt Spring that should be used for bucketing in case of a wildfire.

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 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).

Changes within the Coastal Western Hemlock biogeoclimatic zone are expected to include an increase in fire frequency, especially with warmer, drier conditions and an increase in the dominance of sitka spruce (*Picea sitchensis*) (Hebda 1997). The range of the CWH zone is expected to be significantly reduced and the zone may disappear altogether (Hebda 1997).

Western redcedar is already experiencing dieback in many areas of Salt Spring, presumably due to drought conditions associated with climate change and several young cedars have died in the Reserve.

Photo 19. Small dead western redcedar trees in shallow soils at right and left of photo. Photo: L. Matthias

Ensuring ongoing protection and connectivity between large areas of protected ecosystems will aid the dispersal of species into new habitats and across elevations as vegetation patterns shift. These protected area matrices will provide potential reservoirs for dispersal into suitable habitats in adjacent areas as climate change shifts the distribution of these ecosystem types (McCloskey et al. 2009).

7.0 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 the western boundary of the unauthorized trail to limit further use onto private property.
5. Replace trail markers that have damaged trees with a lower impact system for trail marking. Non-toxic, high visibility orange paint applied with a diamond stencil has been used effectively in other Nature Reserves as wayfinding markers. Markers should be installed in both directions along the trail.
6. Monitor trail conditions on Jack Fisher trail and implement a trail maintenance program.
7. Remove non-native Scotch broom and English holly from the Reserve before these invasive plants become more established.

7.2 Short term Actions (3-5 years)

1. Identify opportunities for cooperative management with First Nations.
2. Conduct a fire risk analysis that mitigates the threat of wildfire in the Reserve, particularly human-source fires, and reduces the impact of a wildfire, while also considering the forest ecology.

3. Develop and implement a trail decommissioning and restoration plan for the unofficial trail in the western portion of the Reserve where it is within Lower Mount Erskine Nature Reserve.

7.3 Long term Actions (5+ years)

1. Conduct surveys for species at risk and other wildlife (e.g. birds, amphibians, bats) to provide a better understanding of the natural values of the Reserve.
2. Monitor trail restoration work if implemented.

7.4 Ongoing or Annual Action Items

1. Conduct annual monitoring to identify management concerns, including off-trail public use, invasive species, use by mountain bikes, installation of fairy doors and off-leash dogs.
2. Conduct ongoing maintenance of signs.
3. Continue to inform the general public of the natural values of the site and the permitted and prohibited uses through information placed in local publications.

8.0 Conclusion

Lower Mount Erskine Nature Reserve is an important protected area in the Coastal Douglas-fir biogeoclimatic zone and on Salt Spring Island. Although impacted by logging, over time the land will develop into a mature forest. The Reserve provides important connectivity for wildlife habitat with Mount Erskine Provincial Park and Manzanita Ridge Nature Reserve and is an important recreation area for the Salt Spring community.

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

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10.0 Appendices

Appendix A. Vegetation found in Lower Mount Erskine Nature Reserve.

*Noted in baseline inventory but not observed during 2019 surveys.

** listed in management plan but not observed during 2019 surveys.

Common Name	Latin Name	Status
Abies grandis	Grand fir	
Acer macrophyllum	Bigleaf maple	
Achlys triphylla	Vanilla-leaf	
Adenocaulon bicolor	Pathfinder	
Aira caryophyllea	Silver hairgrass	Introduced
Aira praecox	Early hairgrass	Introduced
Alnus rubra	Red alder	
Anisocarpus madioides	Woodland tarweed	
Arbutus menziesii	Arbutus	
***Arctostaphylos columbiana*	Hairy manzanita	
Berberis aquifolium	Tall Oregon-grape	
Berberis nervosa	Dull Oregon-grape	
Boschniakia hookeri	Vancouver groundcone	
Bromus vulgaris	Columbia brome	
Campanula scouleri	Scouler's harebell	
Cardamine sp.	Bittercress	
***Chimaphila umbellata* ssp. *umbellata*	Common pipsissewa	
Claytonia rubra	Redstem springbeauty	
Clinopodium douglasii	Yerba buena	
Collinsia parviflora	Small-flowered blue-eyed Mary	
Corallorhiza sp.	Coralroot	
Cytisus scoparius	Scotch broom	Introduced
Danthonia californica	California oatgrass	
Dicranum sp.	Broom moss	
Elymus glaucus	Blue wildrye	
Eurhynchium oreganum	Oregon beaked-moss	
Festuca occidentalis	Western fescue	
Fragaria vesca	Wood strawberry	
Galium aparine	Cleavers	
Gaultheria shallon	Salal	
Goodyera oblongifolia	Rattlesnake plantain	
***Hemitomes congestum*	Gnome-plant	
Hieracium albiflorum	White hawkweed	
Heuchera micrantha	Small-flowered alumroot	
Holodiscus discolor	Oceanspray	
Hylocomium splendens	Step moss	
Hypochaeris radicata	Hairy cat's-ear	Introduced
Ilex aquifolium	English holly	Introduced
Isothecium sp.	Isothecium moss	
Linnaea borealis ssp. *borealis*	Twinflower	

Lonicera ciliosa	Western trumpet	
Lonicera hispidula	Hairy honeuysuckle	
Luzula sp.	Wood-rush	
Lysimachia latifolia	Broad-leaved starflower	
Melica harfordii	Harford's melic	
Melica subulata	Alaska oniongrass	
Moehringia macrophylla	Big-leaved sandwort	
Mycelis muralis	Wall lettuce	Introduced
Osmorhiza berteroi	Mountain sweet-cicely	
Monotropa uniflora	Indian pipe	
Paxistima myrsinites	Falsebox	
Platanthera sp.	Rein orchid	
Pinus contorta var. *contorta*	Shore pine	
Polypodium glycyrrhiza	Licorice fern	
Polystichum munitum	Sword fern	
Polytrichum sp.	Haircap moss	
Pseudotsuga menziesii	Douglas-fir	
Pteridium aquilinum	Bracken fern	
Quercus garryana	Garry oak	
Racomitrium sp.	Rock-moss	
Rhytidiadelphus loreus	Lanky moss	
Rhytidiadelphus triquetrus	Electrified cat's-tail moss	
Rosa gymnocarpa	Baldhip Rose	
Rubus ursinus	Trailing blackberry	
**Salix* sp.	Willow	
Sedum spathulifolium	Broad-leaved stonecrop	
Senecio sylvaticus	Wood groundsel	Introduced
**Spirea douglasii* ssp. *douglasii*	Hardhack	
Symphoricarpos sp.	Snowberry	
Thuja plicata	Western redcedar	
Tsuga heterophylla	Western hemlock	
***Urtica dioica*	Stinging nettle	
Vicia sp.	Vetch	
Viola sempervirens	Trailing yellow violet	
Vaccinium parvifolium	Red huckleberry	
*Vulpia s*p.	Fescue	

Appendix B. Photographic Documentation.

PHOTO STATION	LOCATION (UTM Coordinates)	DIRECTION	PHOTO-GRAPHER	DATE YYYY-MM-DD	DESCRIPTION
Anthropogenic Features as noted on Figure 2					
P2	458984 5411632	70°	CM	2019-09-19	Collins Road trailhead signs and beginning of trail
P3	459634 5411314	223°	LM	2019-08-30	Parks boundary sign at southern boundary
P4	459117 5411622	205°	LM	2019-08-30	Orange reflective marker on tree
P12	459579 5411677	310°	LM	2019-08-30	Unauthorized trail to the north along old logging road
P13	459452 5411723	0°	CM	2019-08-30	Islands Trust Conservancy boundary sign on northern boundary
P14	459033 5411672	110°	LM	2019-08-30	Well-worn trail showing erosion next to tree roots
P15	459145 5411647	120°	LM	2019-08-30	Trail braiding on Jack Fisher trail
P16	459261 5411519	235°	LM	2019-08-30	Trampled area at lookout
Natural Features as noted on Figure 3					
P1	459040 5411638	40°	CM	2019-09-19	Maturing second growth forest with Douglas-fir, arbutus trees and bedrock outcroppings
P5	459660 5411413	260°	LM	2019-08-30	Ecological Community 1 with pole/sapling Douglas-fir
P6	459337 5411346	188°	LM	2019-08-30	Ecological Community 2 with steep bank
P7	459518 5411655	280°	LM	2019-09-12	Ecological Community 3 with young Douglas-fir and arbutus
P8	459374 5411641	100°	LM	2019-09-12	Ecological Community 4 showing steep gully

P9	459111 5411697	70°	CM	2019-09-19	Ecological Community 5 showing steep slope of Douglas-fir / Dull Oregon-grape
P10	459040 5411638	220°	CM	2019-09-19	Ecological Community 6 showing mixed Douglas-fir, arbutus with rock outcrops
P11	459312 5411586	170°	LM	2019-08-30	Large diameter Douglas-fir wildlife tree with many cavities
P17	459296 5411451	70°	LM	2019-08-30	Re-sprouting English holly plant
P18	459217 5411581	90°	LM	2019-08-30	Scotch broom
P19	459050 5411667	350°	LM	2019-08-30	Dead western redcedar trees

* LM=Laura Matthias
CM=Carrina Maslovat

Appendix C. Letter to Neighbours.

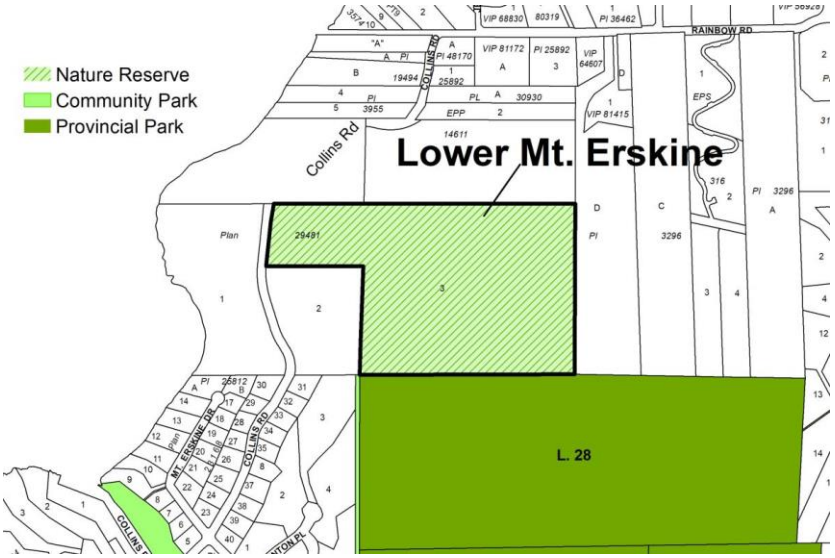
ISLANDS TRUST CONSERVANCY
Protecting Canada's Islands in the Salish Sea

November 29, 2019

Dear Neighbour,

The Islands Trust Conservancy is updating the management plan to guide management of the Lower Mt. Erskine Nature Reserve for the next 10 years and we are interested in hearing from you.

The Lower Mt. Erskine Nature Reserve (PID 001-384-333, Lot 3, Section 2, Range 1 and 2 West, North Salt Spring Island, Cowichan District, Plan 29481) is an 22-hectare (54 acre) protected area located on the northwest slopes of Mount Erskine between Booth Bay and Erskine Point on the northwestern part of Salt Spring Island.



Lower Mount Erskine Nature Reserve serves as an important green space, part of a 150 ha (372 acre) contiguous protected area when combined with Mount Erskine Provincial Park and the Salt Spring Island Conservancy managed Manzanita Ridge Nature Reserve. The diversity of elevations, aspects, moisture regimes, forest ages and habitat types in the reserve support a range of plant and animal species. The Islands Trust Conservancy works to manage the property to protect its natural values, sensitive ecosystems, and threatened species.

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

The Islands Trust Conservancy will work in partnership with the Salt Spring Trail and Nature Club for trail management, and the Nature Conservancy of Canada and the Habitat Acquisition Trust who hold a conservation covenant on the nature reserve. There are restrictions on the use of the property, outlined in the conservation 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 next Lower Mt. Erskine 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 at https://www.surveymonkey.com/r/LowerMtErskine or through our website: http://www.islandstrustconservancy.ca ;
- returned by mail to the Victoria office at 200 – 1627 Fort Street, Victoria, BC V8R 1H8; or,
- dropped off in person at the Islands Trust office on Salt Spring Island at 1 – 500 Lower Ganges Road.

The deadline to complete the survey is January 20, 2019.

If you would like to share your input in person, I will be at the Saturday Market at Centennial Square, December 14th, 2019 from 10:30am to 12:30pm to ask for input about the Lower Mt. Erskine Nature Reserve, as well as the Deep Ridge Nature Reserve, management planning process.

Thank you for taking the time to share your ideas regarding management of the Lower Mt. Erskine 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

PHONE: (250) 405-5151 · FAX: (250) 405-5155 · 200-1627 FORT ST, VICTORIA, BC, V8R 1H8
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Appendix D. Questionnaire sent to Neighbours and Available Online.

Lower Mount Erskine Nature Reserve Questionnaire

Lower Mount Erskine Nature Reserve, established in 1996, is located on the northwest slopes of Mount Erskine between Booth Bay and Erskine Point on the northwestern part of Salt Spring Island. The Reserve is 22.5 hectares and consists of a steeply sloping forested area with rocky bluffs and outcroppings. The reserve is a popular hiking destination and there is a well-used trail that leads to the summit of Mount Erskine in the adjacent provincial park. Lower Mount Erskine Nature Reserve along with the adjacent Mount Erskine Provincial Park is an important, large (150 hectares), contiguous natural area in the Coastal Douglas-fir (CDFmm) and Coastal Western Hemlock (CWHxm) biogeoclimatic zones on Salt Spring Island.

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 the Lower Mount Erskine Nature Reserve.

1. Are you a resident of Salt Spring Island?

- ◯ Yes, I live on north Salt Spring Island
- ◯ Yes, I live mid-island
- ◯ Yes, I live on south Salt Spring Island
- ◯ No, but I own property on Salt Spring Island
- ◯ No, I'm a visitor

2. Have you ever visited Lower Mount Erskine 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 Lower Mount Erskine 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 Lower Mount Erskine 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 Lower Mount Erskine 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 Lower Mount Erskine Nature Reserve.

9. 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.

10. 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:

Thank you for your time spent helping us plan the future of Lower Mount Erskine Nature Reserve.

Appendix E. Letter to First Nations.

December 2, 2020

Dear Chief and Council,

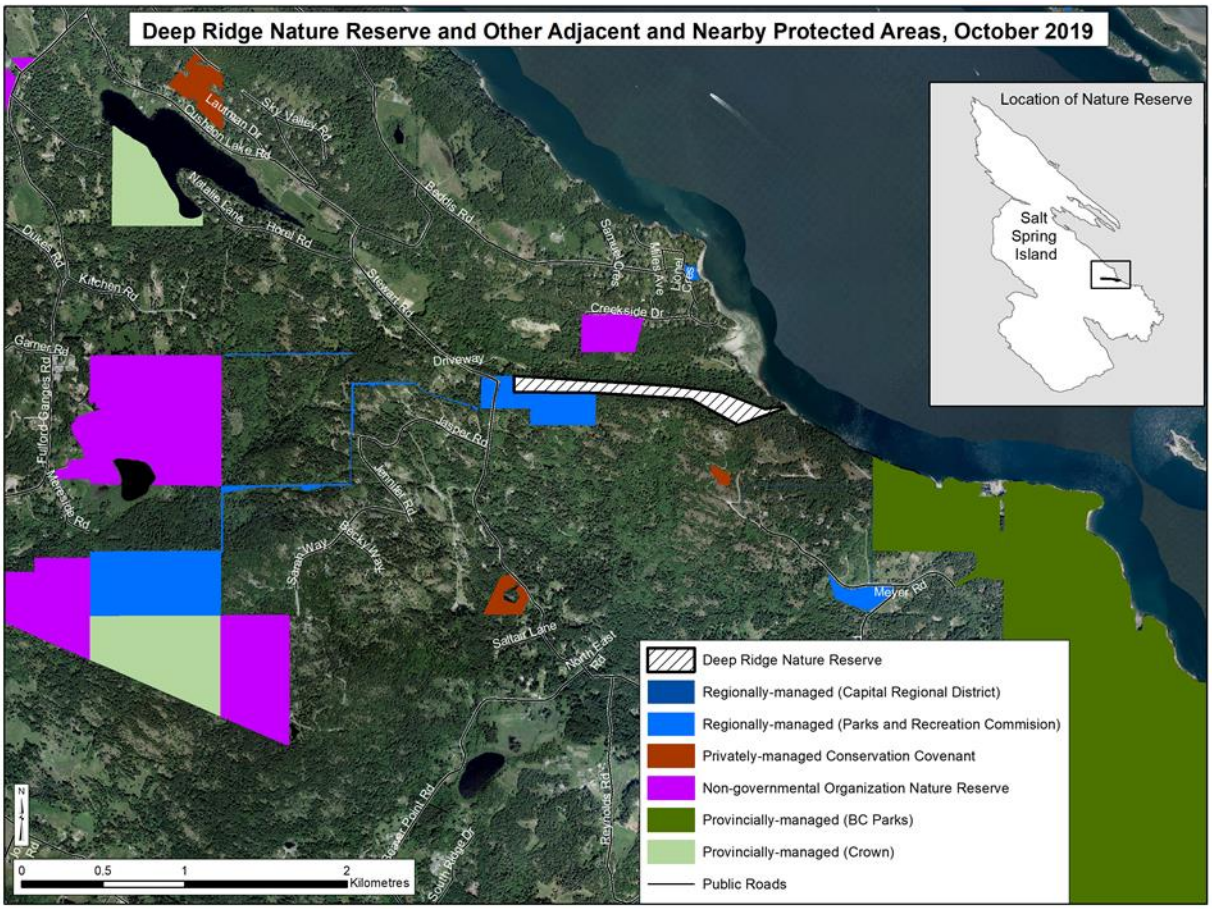
Re: Islands Trust Conservancy Nature Reserves on Salt Spring Island

The Islands Trust Conservancy, through its work as a land trust, is drafting management plans for the Deep Ridge Nature Reserve and the Lower Mount Erskine Nature Reserve on Salt Spring Island.

The nature reserves are within your First Nations treaty and/or territorial lands and waters and we want to ensure that the direction of the management plans is reflective of both reconciliation and conservation goals. At this time, ITC would like to work with you to understand the cultural significance and traditional 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.

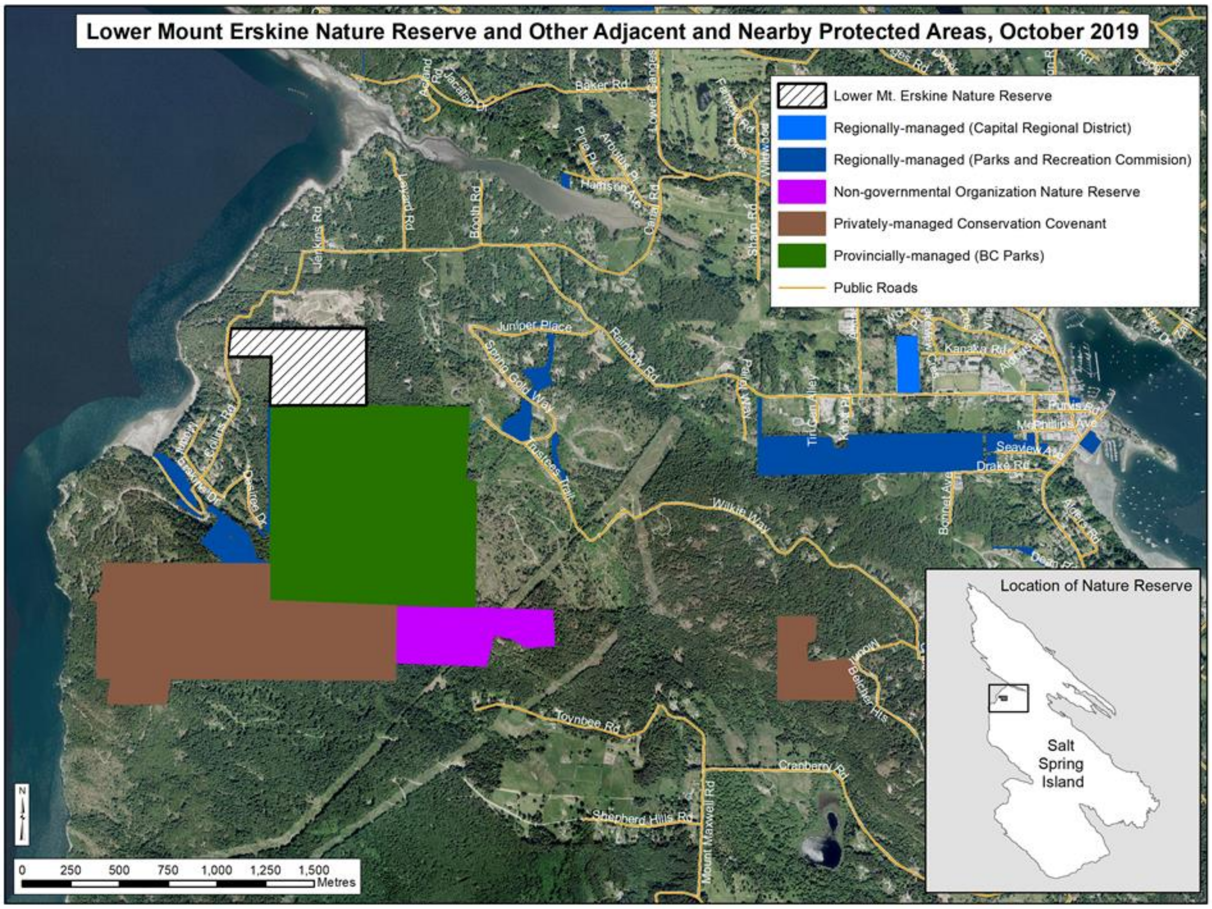
Deep Ridge Nature Reserve (PID 018-031-552, Lot 3, Sections 75 and 76, South Salt Spring Island, Cowichan District, Plan VIP55669) is a 14.2-hectare (35 acre) protected area located on the southeast coast of Salt Spring Island, south of Cusheon Creek and adjacent to the Capital Regional District managed Peter Arnell Park.

The reserve was logged in the past and is currently a steeply sloping young forest, which will likely mature into a red-listed ecological community. There are a number of wildlife trees, primarily small diameter standing dead trees. Two species at risk have been observed on the land: leafless wintergreen and Northern Red-legged Frog.



Lower Mount Erskine Nature Reserve (PID 001-384-333, Lot 3, Section 2, Range 1 and 2 West, North Salt Spring Island, Cowichan District, Plan 29481) is a 22-hectare (54 acre) protected area located on the northwest slopes of Mount Erskine between Booth Bay and Erskine Point on the northwestern part of Salt Spring Island.

Lower Mount Erskine Nature Reserve serves as an important green space, part of a 150 ha (372 acre) contiguous protected area when combined with Mount Erskine Provincial Park and the Salt Spring Island Conservancy managed Manzanita Ridge Nature Reserve. The diversity of elevations, aspects, moisture regimes, forest ages and habitat types in the reserve support a range of plant and animal species. ITC works in partnership with Nature Conservancy of Canada and Habitat Acquisition Trust, who hold a conservation covenant on this land to conserve its unique natural and ecological value.



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 your Nation to protect and manage the area and any cultural heritage sites in these nature reserves 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.

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,

N. Murphy

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 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, səl̓ilwətaʔɬ, SEMYOME, shíshálh, Snaw-naw-as, Snuneymuxw, Sḵwx̱wú7mesh, STÁUTW̱, Stz'uminus, Tla'amin, scəẃaθən məsteyəxʷ, We Wai Kai, Wei Wai Kum, W̱JOŁEŁP, W̱SIḴEM, and xʷməθkʷəy̓əm territories in which we live and work.