

MOUNT TREMATON NATURE RESERVE MANAGEMENT PLAN



MAY 22, 2007

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Approved by the Trust Fund Board
(Resolution # TFB 07/922)

NOTE

The original version of this management plan, dated May 22, 2007, was completed by Doug Hopwood RPF, under contract to the Islands Trust Fund. Any later versions may have been altered and are not the responsibility of the original author.

EXECUTIVE SUMMARY

The Islands Trust Fund's Mount Trematon Nature Reserve on Lasqueti Island, British Columbia was established in 2006. The property is approximately 57 hectares (140 acres) in area. It includes the summit of Mount Trematon, which is the highest point on Lasqueti Island (330 m elevation) and a unique geological feature. The property is physically rugged and steep, spanning an elevation range of over 200 m. It is generally forested, and has approximately 15 ha of original old-growth forest. The remainder of the property has been logged and approximately 10 ha remain deforested. The property was donated by the Gordon family to the Islands Trust Fund in 2006 to be managed as a nature reserve.

The Islands Trust Fund (ITF) is a conservation land trust established in 1990 to preserve and protect unique ecological or cultural properties in the Islands Trust Area. Islands Trust Fund policy requires that a management plan be developed for all properties that it owns or manages. The purpose of this Management Plan is to:

- Provide a description of the biophysical attributes of the property;
- Identify key conservation values;
- Identify management issues; and
- Recommend actions or strategies to address management issues.

The main objectives for management of the Mount Trematon Nature Reserve include:

- Conservation of the key natural ecosystem values of the reserve;
- Allowing natural ecological processes to function without human interference, except in the case of wildfire;
- Ensuring that permitted uses do not significantly impair the natural condition of the land or impact on special features; and
- Allowing, but not promoting, minimal impact use of the reserve for hiking, nature appreciation and similar activities.

The key conservation values of the Mount Trematon Nature Reserve are associated with the following features:

- Old growth forest belonging to red-listed ecological communities, in relatively undisturbed, late-seral condition;
- Occurrence of the red-listed plant species hairy gumweed (*Grindelia hirsutula* var. *hirsutula*), the only recorded occurrence of this species in British Columbia;
- Trematon Creek and associated riparian areas which includes elements of one red-listed and one blue-listed ecological community, currently in moderately degraded condition due to logging, but with good potential for recovery either naturally over time or through ecological restoration;
- Mount Trematon, as a unique geological feature including its plateau summit, cliffs and talus deposits, and the associated vegetation and wildlife habitats on these specific landforms;
- The situation of nature reserve in terms of being part of a large contiguous natural area within the CDFmm subzone.

Other “features of significance” within the Mount Trematon Nature Reserve that are worthy of note include:

- Arbutus-dominated forest in red-listed ecological communities, in moderately disturbed, early-seral condition;
- Regenerating second-growth Douglas-fir dominated forest in red-listed ecological communities, in moderately disturbed, early-seral condition;
- Rock outcrops which include diverse lichen and bryophyte communities, and some spring-flowering plants, although these are severely impacted by the feral sheep;
- Several plants typical of higher elevation occurring at relatively low elevation, including fir clubmoss (*Huperzia occidentalis*) and spotted saxifrage (*Saxifraga bronchialis*); and
- Exceptional views from the summit of Mount Trematon, and hiking opportunities throughout the nature reserve.

The management issues identified for Mount Trematon Nature Reserve include:

- Red- and Blue-Listed Plant Species
- Feral Sheep
- Restoration Opportunities
- Local Community Involvement
- Wildfire Hazard Management
- Fire-fighting Access
- Visitor Parking
- Visitor Access
- Unwanted Promotion
- Recreational Use Impacts
- Acceptable and Unacceptable Activities
- Hiking Routes
- Public Safety and ITF Liability
- Signage
- Boundary Marking
- Beaver Dam Management
- Monitoring Program

Recommended short and long-term management actions and strategies are provided with respect to these issues.

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1 INTRODUCTION

This document is a management plan for the Islands Trust Fund's Mount Trematon Nature Reserve, established in 2006. The property is approximately 57 hectares (140 acres) in area. It includes the summit of Mount Trematon, which is the highest point on Lasqueti Island (330 m elevation) and a unique geological feature. The property is physically rugged and steep, spanning an elevation range of over 200 m. It is generally forested, and has approximately 15 ha of original old-growth forest. The remainder of the property has been logged and approximately 10 ha remain deforested.

1.1 PROPERTY LOCATION AND LEGAL DESCRIPTION

The Mount Trematon Nature Reserve is located on Lasqueti Island, British Columbia, at 49° 28' North and 124° 17' West. The legal description of the property is Section 18, Nanaimo Land District, Lasqueti Island, the South East ¼ of Section 18, except the South ½ of the South East ¼ of the South East ¼ of Section 18. The PID is 769-16686000.

1.2 THE ISLANDS TRUST FUND

The Islands Trust Fund (ITF) is a conservation land trust established in 1990 to preserve and protect unique ecological or cultural properties in the Islands Trust Area. As one of British Columbia's leading conservation trusts, the ITF works with the community to protect special places in perpetuity through voluntary land donations, conservation covenants, land acquisition and public education. The ITF currently has 65 protected areas established and carefully managed for conservation. More than \$22 million worth of land and cash has been donated and protected properties now exist on 12 of the 13 main islands within the Islands Trust Area. The mission of the ITF, as an active regional land trust, is to protect special places by encouraging, undertaking and assisting in the voluntary conservation initiatives within the Islands Trust Area. More information on the Islands Trust Fund is available at www.islandstrustfund.bc.ca.

1.3 PURPOSE OF THIS PLAN

Islands Trust Fund policy requires that a management plan be developed for all properties that it owns or manages. The purpose of this Management Plan is to:

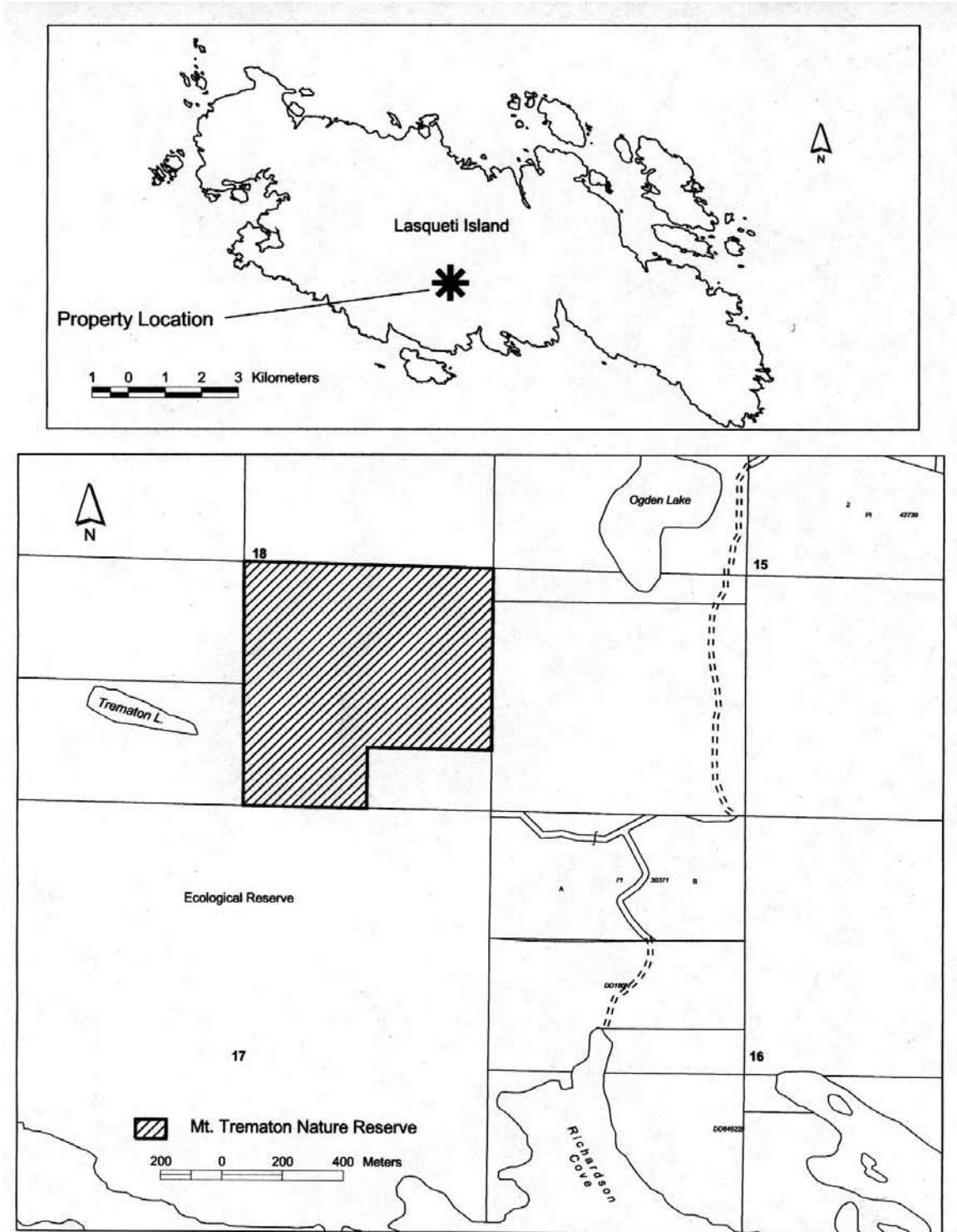
- Provide a description of the biophysical attributes of the property;
- Identify key conservation values;
- Identify management issues; and
- Recommend actions or strategies to address management issues.

1.4 LEGAL ACCESS

Legal road access to the Mount Trematon Nature Reserve is via Lake Road. According to BC Ministry of Transportation, Lake Road is a public road as far west as the east boundary of Section 18 (see Maps 2 and 3, and Appendix 2).

Beyond the east boundary of Section 18, road access continues through an 8-hectare private land lot (the South ½ of the South East ¼ of the South East ¼ of Section 18) and provides access to the nature reserve. This access exists by right of a legal easement

Map 1. Property Location



through the South ½ of the South East ¼ of the South East ¼ of Section 18 (Appendix 1). This easement is a “general easement”. In other words, access is granted across the entire 8-ha lot rather than through a defined or mapped easement corridor. Nonetheless, as a matter of courtesy to the owners of the private lot, the ITF and all visitors to the nature reserve should ordinarily restrict their use to traveling on the built roads that pass through the property and avoid entering residential areas and forest that lie beyond the road. The owners of the private lot keep monkeys as pets, and they require all visitors passing through their property who bring a dog to keep the dog on leash at all times.

The hiking routes to and within the nature reserve are discussed in Section 3.2.12. Map 2 shows the road access to the nature reserve and old logging roads and hiking routes within the nature reserve.

1.5 LOCAL GOVERNMENT AND PLANNING

Lasqueti Island is within the Islands Trust Area. Local planning and land use bylaws are adopted by the Lasqueti Island Local Trust Committee.

1.5.1 Conservation Objectives

Establishment of a nature reserve is compatible with all applicable regulations and policies of the Lasqueti Island Land Use Bylaw, and is specifically supported by the Lasqueti Island Official Community Plan Bylaw # 77 (2005), which states in Objective 6, under Section 3.4., Community Stewardship, that “The Community aims to ensure that 12% of the land base of Lasqueti Island is preserved and protected with appropriate representation of all ecosystems in the area.”

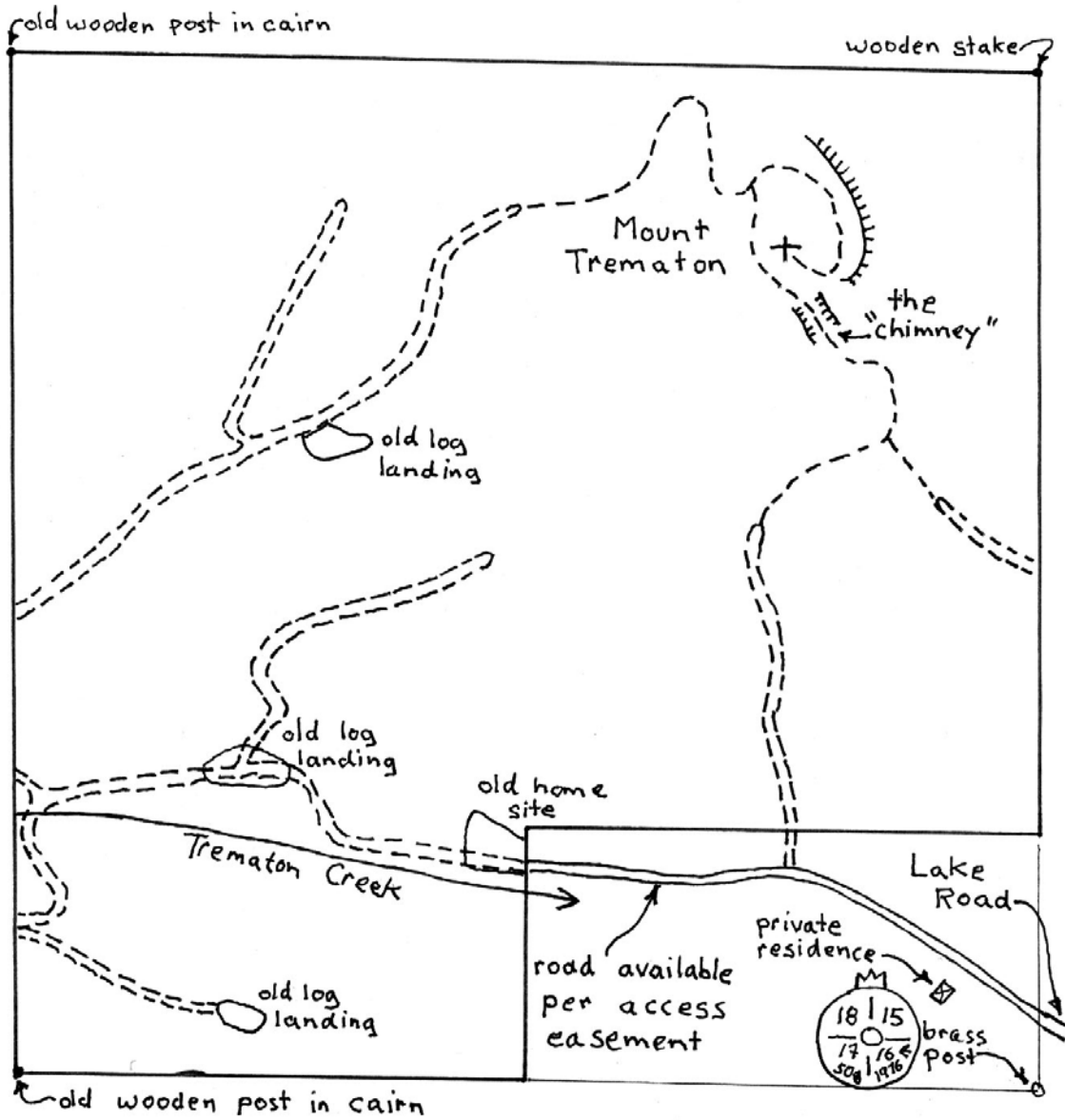
Establishment of a nature reserve is also compatible with the following goals of the Islands Trust Fund Regional Conservation Plan (Islands Trust Fund Board, 2006):

- To protect at least two parcels of land of at least 50 ha within the Bowen Island Municipality, Gambier or Lasqueti Local Trust Area;
- To work with partners to achieve at least 15% protection of the total area of each local trust area and island municipality, including modified ecosystems on islands with few natural areas; and
- To protect at least four properties adjacent to protected areas.

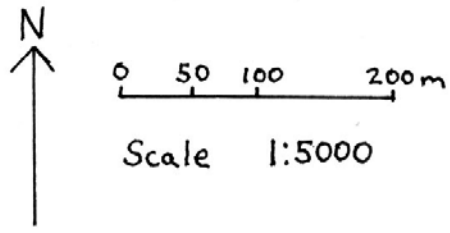
1.5.2 Local Designation and Zoning

ITF policy 4.2.24 states that “The Board will request, where necessary, that the local Trust Committee or Island Municipality redesignate and rezone Trust Fund Board lands to the most appropriate designation and zone for nature protection when it is reviewing its Official Community Plan and/or Land use Bylaw and will work with the Local Trust Committee to determine the most appropriate designation and zone.” See Section 3.2.18 for details of the current local designations and zoning and more discussion of this management issue.

Map 2. Access and Main Features



Road: 2-wheel drive OK	
De-activated logging road	
Unimproved hiking route	



1.6 HISTORY

Until fairly recently it was widely believed that there was no permanent First Nations presence on Lasqueti Island prior to European contact, although there is a report of a “potlatch house Lasqueti owned by the Pentlatch Indians” (Mason 1976). Smallpox and other epidemics which began in the 1770s or earlier had caused drastic population declines in First Nations in the Strait of Georgia by 1800, whereas the earliest recorded settlement on Lasqueti by Europeans did not occur until the 1860’s, so it is likely that all First Nations settlements had been abandoned for some time before white settlers arrived.

Current archaeological opinion is that several permanent settlements were located on Lasqueti in coastal areas with high-value marine resources such as clam beds and accessible beaches for launching canoes. Little is known about First Nations use of Mount Trematon, but it is safe to assume that First Nations visited the summit of Mount Trematon in connection with spiritual practices, and may have also hunted and harvested plants in the vicinity. No archaeological features are known within the nature reserve.

Wild fires occurred periodically during the pre-European settlement era, as evidenced by charcoal on the bark of many of the older Douglas-fir trees. Some fires may have been set by First Nations as part of indigenous land management strategies, or they may have been started by lightning strikes.

Lasqueti Island was originally surveyed into “Sections” (parcels of land approximately one-mile square) and “Quarter-sections” in 1875 (Mason 1976). Logging has been the main use of the Mount Trematon property since the time of European settlement. A small portion of the property in the valley of Trematon Creek was logged prior to World War II. A significant area on the east side of the nature reserve and on the lower slopes of the property was logged around 1956, by “cat-logging”, in which logs were pulled out of the woods to a central landing with a heavy crawler tractor. Around 1978, and again in the late 1980s most of the remainder of the property was logged, this time using rubber-tired skidders to remove logs. Approximately 10 to 15 ha of original old-growth forest remain, including areas with very large old Douglas-fir and cedar. Most of the logged areas have regenerated from trees that were left standing and from natural seedlings. Approximately 10 ha of logged areas have not regenerated well. Browsing by feral sheep is preventing natural regeneration of the forest in some areas.

An agricultural homestead was developed around a wetland meadow in the South East corner of Section 18. The homestead portion of the quarter-section is within a 8-hectare lot that was subdivided off from the quarter-section in about 1997, and thus is not part of the nature reserve. A private home was built on the property in the early 1980s near the point where the main access road enters the property from the east. This house and associated out-buildings were demolished in 2006.

The property was donated by the Gordon family to the Islands Trust Fund in 2006 to be managed as a nature reserve. See Appendix 8 for more information about this donation.

1.7 LOCAL CONTEXT

The Mount Trematon Nature Reserve is located in the central part of Lasqueti Island, an area with significant large blocks of Crown land. Most of the private land in the vicinity is still in large parcels and there is relatively little residential or other development. Its boundaries with adjacent lands are as follows. Starting at the North West corner and going clockwise, it shares about 1200 m of boundary to the east and southeast with private land (the South West $\frac{1}{4}$ of Section 15, and the South $\frac{1}{2}$ of the South East $\frac{1}{4}$ of the South East $\frac{1}{4}$ of Section 18). It shares approximately 400 m of boundary on the south with BC Ecological Reserve # 4, which is roughly 201 hectares in area. To the west, it shares about 400 m of boundary with a 32-ha private property that encompasses Trematon (Soapy Smith) Lake (the South $\frac{1}{2}$ of the South West $\frac{1}{4}$ of Section 18). Also to the West, and then to the North, it shares about 1200 m of boundary with vacant provincial Crown land. (the North $\frac{1}{2}$ of the South West $\frac{1}{4}$ of Section 18, and the North East $\frac{1}{4}$ of Section 18.)

The Mount Trematon Nature Reserve forms a “bridge” or connection between two large blocks of Crown land with high natural diversity values. To the north is a block of Crown land in Sections 18 and 19 that is roughly 324 ha in area, and to the South is Ecological Reserve # 4. The three properties taken together constitute roughly 582 ha of contiguous public land, much of which has natural or semi-natural ecosystems with significant conservation values. Map 3 illustrates the local context of the nature reserve.

1.8 PROVINCIAL CONSERVATION SIGNIFICANCE

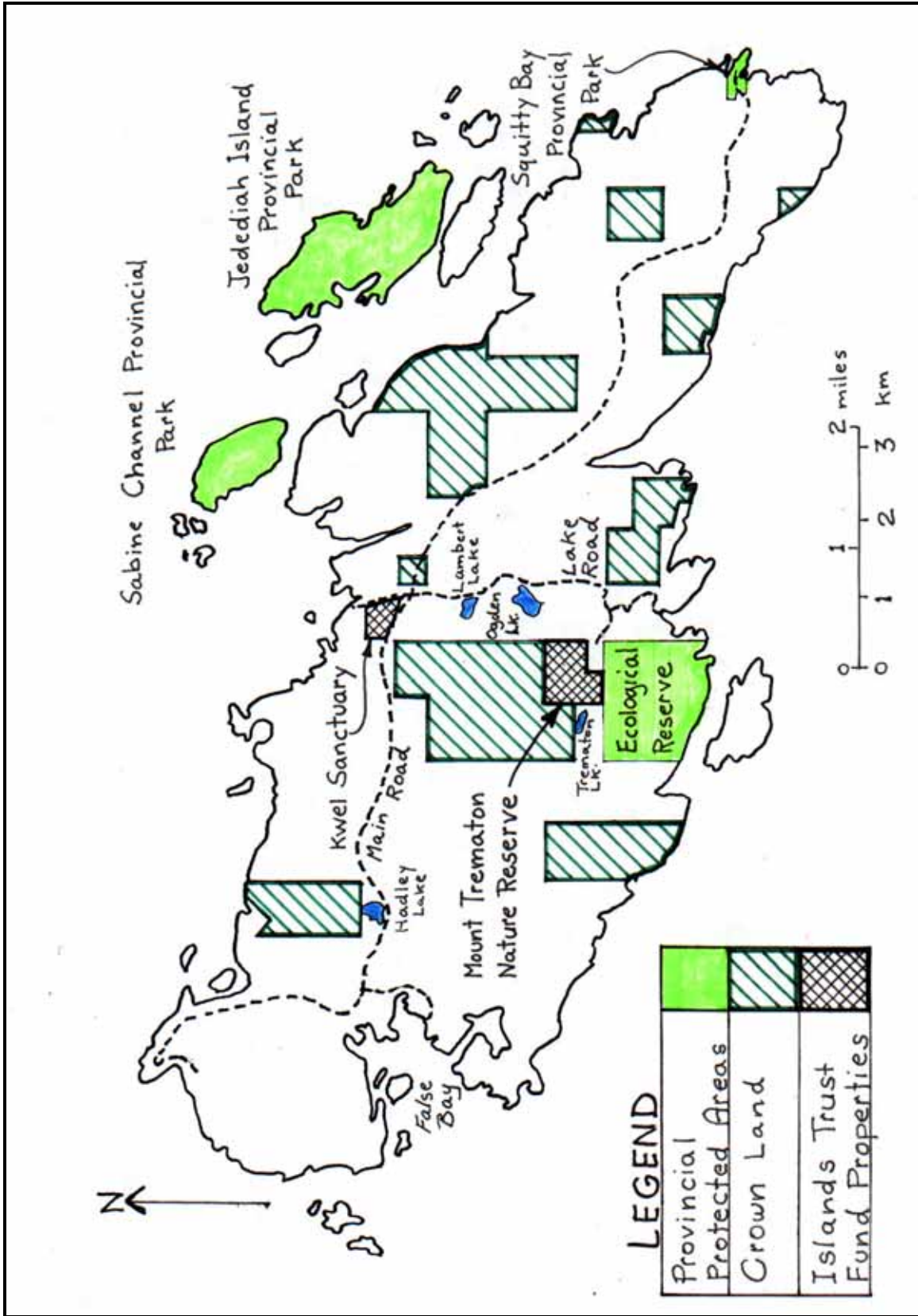
Of the 14 biogeoclimatic zones of British Columbia, the degree to which natural ecosystems have been altered and destroyed is highest in three zones: the Coastal Douglas-fir (CDF) zone on the Coast, and the Ponderosa Pine and Bunchgrass zones in the Interior. Approximately half of the CDF zone has been converted to uses such as agriculture and residential development that permanently remove the natural ecosystems (primarily forests, but also wetlands, grasslands, estuaries, etc.). Only about one percent of the original extent of old growth forest on the CDF zone remain uncut. Approximately 5.5 percent of the CDF zone is in Protected Areas, compared to the provincial goal of 12 percent. Only a few hundred hectares of old growth forest of the CDF zone is in Protected Areas.

There are several provincially significant conservation values present in the Mount Trematon Nature Reserve, including:

- the presence of the undisturbed old growth forest belonging to a red-listed natural plant community (See Section 2.6)
- the size of the reserve, (57 ha) which is relatively large for a natural area in the CDF zone; and

the occurrence within the nature reserve of a red-listed plant species, *Grindelia hirstutula* (See Section 2.9).

Map 3. Local Context



1.9 MANAGEMENT OBJECTIVES

The following objectives for the Mount Trematon Nature Reserve were derived by a synthesis of statements from the following sources:

- Discussions with members of the Gordon family (donors of the property);
- Statements included in the Islands Trust Fund Plan 2003-2007, including statements of the vision, mission, 5-year priorities, related goals and specific and general policies;
- Consultation with members of the Lasqueti Island community;
- Communication with Islands Trust Fund staff; and
- Lasqueti Island Official Community Plan

The main objectives for management of the Mount Trematon Nature Reserve include:

- Conservation of the key natural ecosystem values of the reserve;
- Allowing natural ecological processes to function without human interference, except in the case of wildfire;
- Ensuring that permitted uses do not significantly impair the natural condition of the land or impact on special features; and
- Allowing, but not promoting, minimal impact use of the reserve for hiking, nature appreciation and similar activities.



Red-Flowering Currant (*Ribes sanguineum*) in the Mount Trematon Nature Reserve

2 ECOLOGICAL DESCRIPTION AND ASSESSMENT

2.1 GEOLOGY, LANDFORMS, AND SOILS

Geologically, most of Lasqueti Island is derived from Upper Triassic basalts and pillow lavas of the Karmutsen group, about 205 million years old. The underlying landforms of Lasqueti Island are rugged and irregular, dominated by many rocky hills (dome-shaped or oblong ridges) with steep sides and rounded tops. There are many narrow, steep valleys between the rocky hills.

The Gulf of Georgia region was covered by glaciers from about 29,000 to about 12,000 years ago. During glaciation, the weight of the ice depressed the land surface so that Lasqueti Island was below sea level. As the glaciers retreated and the land rebounded, marine and coastal processes eroded loose materials from the higher and steeper parts of the island and laid down finer-textured soil parent materials on many of the lower-lying and more gently sloping areas of the island.

Soils on the sides and tops of the hills vary from bare rock to morainal deposits (mixed material deposited by the glaciers), typically shallow and rapidly drained. Soils are somewhat deeper in the narrow steep valleys, and deepest, with the most water-holding capacity, in the broader lowland valleys and coastal plains. The Mount Trematon Nature Reserve has predominantly the rocky and steep landforms with shallow, coarse-textured soils. In particular, Mount Trematon is a dramatic geologic feature with its rounded plateau-like summit and steep cliffs on the north and east sides. Significant coarse colluvial deposits occur at the toes of these steep slopes and cliffs. The area at the northeast corner of the reserve is unique on Lasqueti, having colluvial deposits of boulders up to several metres across. Medium to deep marine soils of medium to fine texture occur on the gentler lower slopes and in the vicinity of Trematon Creek.

2.2 CLIMATE

Lasqueti Island lies within the Coastal Douglas-fir (CDF) biogeoclimatic zone, an area of mild semi-Mediterranean climate centred in the southern Strait of Georgia, and encompassing most of the Gulf Islands. The climate of this zone is strongly influenced by the rain shadow effect of the Vancouver Island Ranges. In the summer, periods of drought and high temperatures over 4 weeks long are common. Winters are typically rainy and mild. Snow rarely remains on the ground for more than a week, and some winters have no snow. Table 1 provides a summary of climate data from the Merry Island lighthouse, located 21 kilometres east of Lasqueti, which probably has a very similar climate to that of Lasqueti.

In winter the prevailing winds are from the southeast. Winter storms often involve winds up to 30 or 40 knots, which can blow for several days at a time. In summer, warm fair weather is usually associated with steady northwesterly winds, although southeasters can blow in summer too. Lasqueti is somewhat sheltered from the force of cold winter “outflow winds” by the mass of Texada Island to the northeast. The Mount Trematon Nature Reserve, particularly in the higher elevation areas, is exposed to both northwest

Map 4. Orthophoto with 20 m Contour Intervals (Scale 1:5000)



and southeast winds that blow along the axis of the Strait of Georgia, and the occasional southwest “Qualicum” winds that occur during unsettled weather.

Table 1. Summary of Climate (Data for the Merry Island lighthouse station (49° 28’N, 123°55’W, 0.8 m a.s.l.; data from Atmospheric Environment Service 1954 to 1990.)

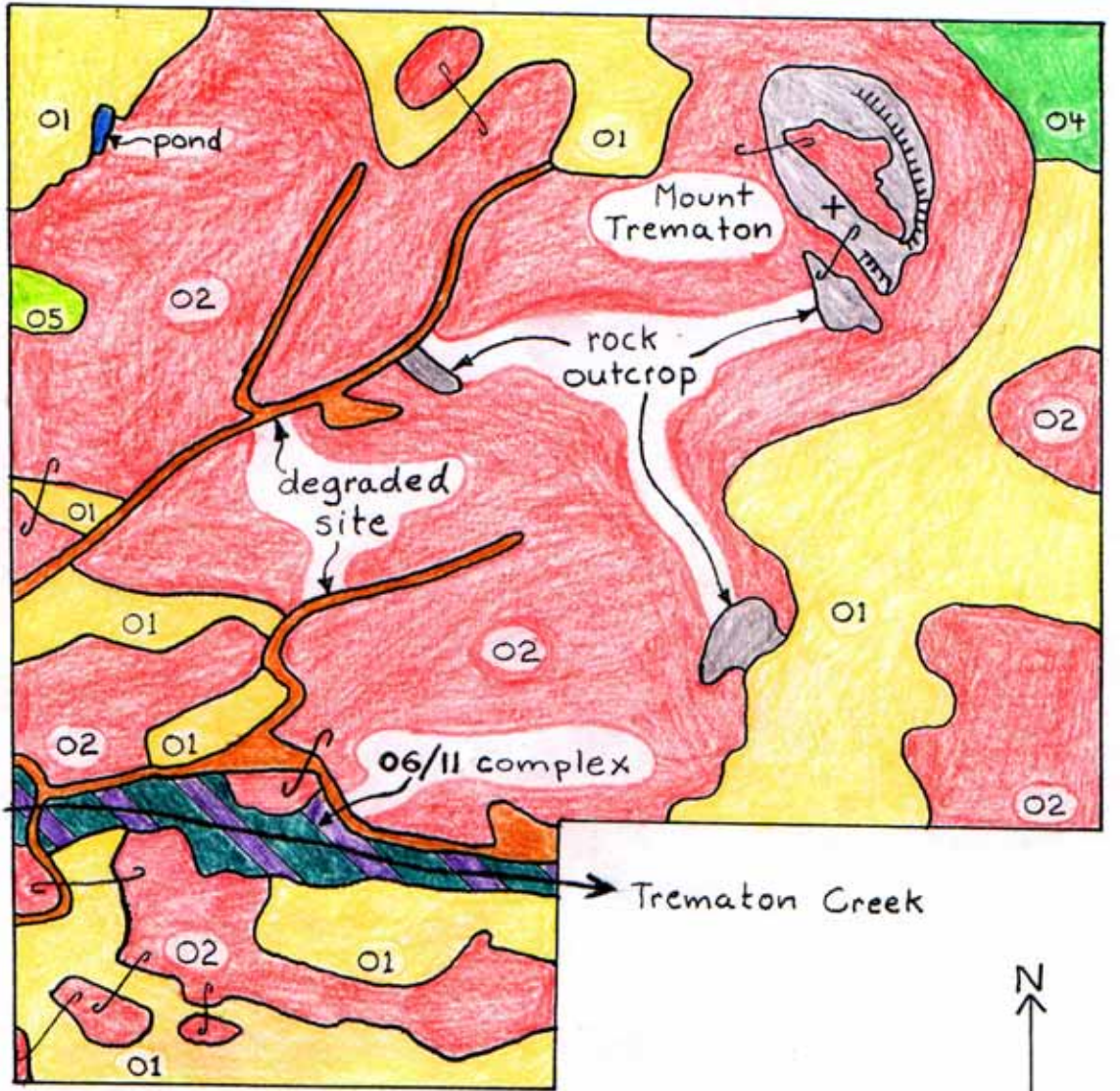
Mean annual precipitation	1028 mm
Mean precipitation of the driest month (August)	38 mm
Mean precipitation of the wettest month (December)	151 mm
Mean precipitation April – September	305 mm
Mean snowfall	33 cm
Mean annual temperature	10.5 ° C
Mean temperature of the warmest month (August)	17.8° C
Mean temperature of the coldest month (January)	4.3° C
Number of months with mean temperature over 10°C	6
Mean wind speed	18 km/h
Maximum hourly wind speed	100 km/h
Most frequent wind direction	East

Due to global climate change, the local climate on Lasqueti Island is expected to become warmer during coming decades. Climate change may lead to significant long-term changes in the ecosystems of the Mount Trematon Nature Reserve. Warmer temperatures and changes in precipitation patterns may lead to death of some trees and other plants due to moisture stress. There may also be an increased risk of wildfire, plant diseases and epidemics of insects that attack plants. The precise course of such changes is unpredictable, and as such is not easily amenable to specific management strategies to reduce the risks. A more general management strategy to reduce the risks associated with climate change is to maintain the overall diversity and integrity of ecosystems. This strategy is essentially equivalent to the management objectives for the reserve stated in Section 1.9.









2.3 SITE SERIES

In ecological terminology, a *site* is defined as an area of land that is relatively uniform in climate, topography, soils, and other critical aspects of the physical environment. Site Series, as shown on Map 5 are portions of the land that have similar physical characteristics, and are thus able to support a certain characteristic community of plants and animals, and to undergo certain characteristic patterns of ecological change. More information about site classification, and about the site series that occur on the Mount Trematon Nature Reserve, is provided in Appendix 3. As Map 5 illustrates, the nature reserve includes a diverse range of sites and hence, supports a wide variety of plants and animals. However, it is the drier and more nutrient-poor site series that predominate. The pattern of site series on the reserve can be considered permanent and fixed, although in the very long term (many thousands of years) sites may be altered by processes such as glaciation and weathering of bedrock.

Map 5. Biogeoclimatic Site Series



LEGEND CDFmm site series

01	Douglas-fir - Salal	
02	Douglas-fir - Shore pine - Arbutus	
04	Douglas-fir - Grand fir - Oregon grape	
05	Redcedar - Douglas-fir - Kindbergia	
06	Redcedar - Grand fir - Foamflower	
11	Redcedar - Skunk cabbage	
	Degraded sites	
	Rock outcrops and cliffs	

0 50 100 200m
Scale 1:5000

2.4 FRESHWATER RESOURCES

The major freshwater feature within the Mount Trematon Nature Reserve is about 400 lineal metres of the course of Trematon Creek. Within the nature reserve, most of the creek flows at moderate gradient (5 – 10 %). The stream bed is mostly one to three metres wide. The stream flows most of the year, but some reaches lack any surface water during the driest months (June - October) of some years. The stream provides habitat for native amphibians and aquatic invertebrates, and likely has a few individuals from the population of Three Spine Sticklebacks that is documented to occur in Trematon Lake (the source of Trematon Creek). Trematon Creek does not support resident or anadromous salmonid populations, probably because the summer and autumn flow levels are low, and the stream has a steep gradient starting close to the mouth.

There is an area of marshy “beaver pond” wetland beyond the east end of Trematon Lake that was created in the 1990s by the construction of a dam by beavers. This new flooding represents a significant eastward increase in the wetted area of the lake. Many older maps, which show the east end of Trematon Lake lying about 100 m to the west of the current extent of flooded area, were made before the beaver dam was created. The exact boundary of the nature reserve in the vicinity of Trematon Lake has not been determined by legal survey. Based on field methods using a compass and hand-held GPS it appears that the current location of the beaver dam that determines the extent and level of Trematon Lake lies within about 5 m of the boundary between the nature reserve and the private property to the west. (See Section 3.2.15 for a discussion of boundary marking issues, and 3.2.16 for a discussion of management issues related to the beaver dam).

There is one small human-made pond, constructed in the 1980s, which has developed natural pond and wetland characteristics. There are also several ephemeral stream channels which have flowing water only during times of heavy precipitation. Many of these channels have been altered or re-directed by construction of logging-related roads and trails, and some are subject to minor degrees of erosion during heavy run-off.

The fish populations of Trematon Lake were surveyed in the 1980s by scientists from the University of British Columbia. Three-Spine Sticklebacks are present in Trematon Lake and Trematon Creek. According to Rick Taylor of the UBC Department of Zoology, the Trematon Lake sticklebacks “are BIG, look like superbenthics with huge heads and (according to Don [McPhail, UBC Department of Zoology]) many gill rakers. Steep sided lake so they have GR [gill rakers] like limnetics, but body of benthics!! No sign of pairs. We did their DNA and we have a morph sample here.”

The “pairs” mentioned in the above quote is a reference to the benthic and limnetic “species pair” that were found in Hadley Lake on Lasqueti Island. Similar species pairs were found in several other lakes in the Strait of Georgia region. In 2000, the BC Conservation Data Centre declared the Hadley Lake sticklebacks extinct. It is believed that the cause of their extinction was the introduction of catfish by humans. The key measures to conserve the Trematon Lake sticklebacks would be to avoid water pollution, introduction of other fish species, or major alterations of water levels, temperature, etc.

The BC Government’s online Land and Resources Data Warehouse indicates that there are no licensed water wells or points of diversion within the nature reserve.

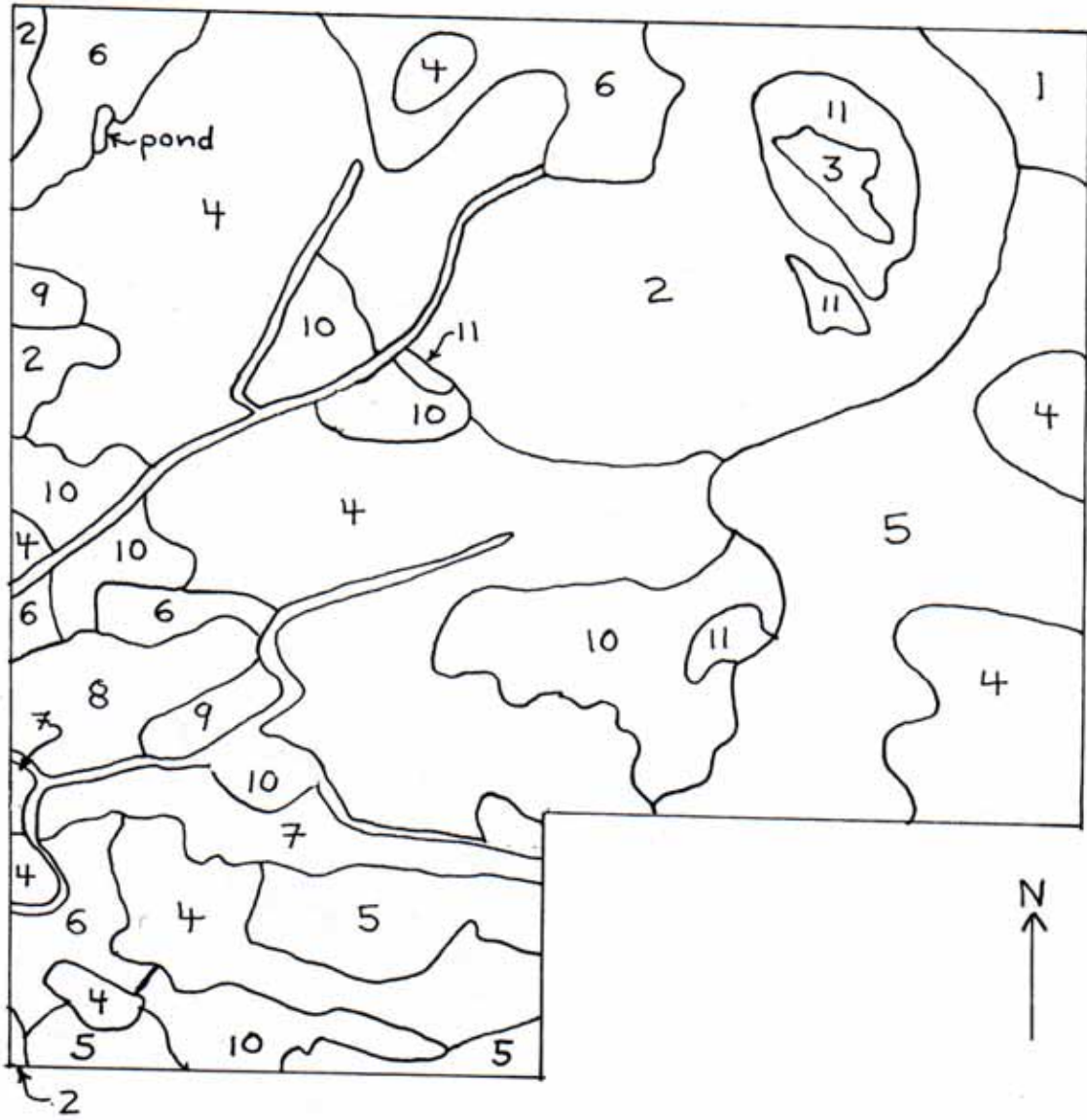
2.5 VEGETATION TYPES

Eleven distinct Vegetation Types were delineated within the nature reserve. Each Vegetation Type is unique with respect to at least one of the following criteria: the species, age, or height of the dominant trees, or the species of understory plants. Tree ring cores were taken from some of the second growth trees to establish stand ages. Cores were not taken from the larger and older trees, to avoid any risk of injuring them, so the age estimates given for the older stands are only approximate. Each Vegetation Type occurs on a limited range of Site Series. Each Vegetation Type generally has a distinctive disturbance regime, and can be expected, in future, to follow a distinct path of changes, such as growth and succession.

Table 2. Vegetation Types

#	Description	Main Tree Species	Age Range	Critical factors, conservation values, and management issues
1	Old conifer forest on moderately dry to fresh sites	Cedar Douglas-fir Maple	Mostly 150 – 300 years	Red-listed ecological community in undisturbed late-seral condition. Contiguous with larger areas of similar forest on adjacent Crown and private lands.
2	Old conifer forest on very dry sites	Douglas-fir shore pine arbutus	All ages up to about 250	Old growth forest values. Red-listed ecological community in relatively undisturbed late-seral condition.
3	Dwarf conifer forest on exposed very dry site (Trematon summit)	shore pine, Douglas-fir arbutus	All ages, mostly under 50	Very high scenic recreational values due to location on Mount Trematon summit.
4	Selectively logged conifer forest on very dry sites	Douglas-fir shore pine arbutus	All ages up to about 250	Red-listed ecological community in moderately disturbed condition.
5	Immature post-logging conifer forest on moderately dry sites	Douglas-fir cedar shore pine	40 – 50 plus vets and released trees to 300	Red-listed ecological community in moderately disturbed, early seral condition.
6	Young post-logging conifer forest on moderately dry sites	Douglas-fir cedar shore pine	15 – 30 plus vets and released trees to 300	Red-listed ecological community in moderately disturbed, early seral condition.
7	Immature deciduous/conifer riparian forest	red alder cedar Douglas-fir	Mostly 40 - 50	Potential for development of a high-value riparian habitat, impacted by browsing. Red-listed ecological community in degraded early seral condition, restoration potential.
8	Young arbutus and conifers	Arbutus Douglas-fir cedar	Mostly 20 - 40	Red-listed ecological community in degraded early seral condition. Intense browsing limits understory development.
9	Poorly regenerated, salal dominated sites	Douglas-fir cedar shore pine	Under 30	
10	Lichens, mosses and herbs on rocky outcrops	n.a.	n.a.	Red-listed hairy gumweed is reported to occur within this type. Browsing by feral sheep severely impacts flowering plants.
11	Poorly regenerated areas, moderately to very dry sites, and degraded sites	n.a.	n.a.	Severely degraded ecosystems, restoration opportunity. Severe browsing by feral sheep limits regeneration.

Map 6. Vegetation Types



Map 6 shows the Vegetation Types of the Mount Trematon Nature Reserve. The abundance and vigour of plants is strongly affected by the physical environment. As a result, distinctive plant communities are often associated with different sites. However, plant communities are also affected by the particular local history of disturbance, recovery, and succession that have occurred, and may also be affected by interactions with wildlife (e.g., browsing by deer). Because these processes will continue in the future, plant communities are not necessarily permanent, although they may be stable over periods of many centuries. Plant communities are a major factor in determining the wildlife populations of an area, because plants are such a critical element of the habitats for many species. Table 2 provides a summary of these key features of the Vegetation Types. Detailed descriptions of each Vegetation Type are provided in Appendix 4.

2.6 RED AND BLUE-LISTED ECOLOGICAL COMMUNITIES

Four red-listed and one blue-listed ecological communities occur in the Mount Trematon Nature Reserve, as shown in Table 3.

Table 3. Red- and blue-listed ecological communities of the Mount Trematon Nature Reserve. (Source: BC Species and Ecosystem Explorer.)

English Name	BC Status	BEC Subzone and Site Series
Douglas-fir / arbutus	Red	CDFmm/00
Douglas-fir / dull Oregon-grape	Red	CDFmm/01
Grand fir / dull Oregon-grape	Red	CDFmm/04
Grand fir / three-leaved foamflower	Red	CDFmm/06
red alder / skunk cabbage	Blue	CDFmm/11

The red-listed Douglas-fir / arbutus ecological community occurs in an early seral, disturbed condition in Vegetation Types 4 and 8. It also occurs in late seral and undisturbed condition in Vegetation Type 2. Some of the understory species normally associated with this community are missing or under-represented in the occurrence in the Mount Trematon Nature Reserve, due to browsing impacts.

The red-listed Douglas-fir / dull Oregon grape ecological community occurs in an early to mature seral condition in Vegetation Types 5 and 6. Levels of disturbance vary from light to moderate. Some of the understory species normally associated with this community are missing or under-represented in the occurrence in the Mount Trematon Nature Reserve, due to browsing impacts.

The red-listed grand fir / dull Oregon grape ecological community occurs in a late seral (old forest) and undisturbed condition in Vegetation Type 1. Browsing impacts are minimal within Vegetation Type 1, so this can be considered an excellent example of this ecological community.

The red-listed grand fir / three-leaved foamflower ecological community occurs in an early seral, severely disturbed condition as a partial component of Vegetation Type 7. Some of the understory species typical of this community are missing or under-represented in this community in the nature reserve, due to browsing impacts.

The blue-listed red alder / skunk cabbage ecological community occurs in an early seral, severely disturbed condition as a partial component of Vegetation Type 7. Some of the understory species normally associated with this community are missing or under-represented in the occurrence in the Mount Trematon Nature Reserve, due to browsing impacts. Note that skunk cabbage is absent from Lasqueti, probably because the heavy seeds of this plant never reached Lasqueti following the last glaciation.

2.7 UNDERSTORY PLANTS

Although Vegetation Types are primarily defined in terms of the trees, there is also a great diversity of understory plants that occur in typical patterns on the various sites. Understory plants often serve as indicators of site factors such as the availability of nutrients and moisture. Also, there are many more species of understory plants than of trees, so these contribute greatly to the overall diversity of the ecosystems. There are many plant species that usually occur at low densities, even though they are not rare or endangered. In general, the understory plants within the Mount Trematon Nature Reserve are reduced in abundance and vigour due to browsing by feral sheep, relative to sites unaffected by browsing.

Some interesting understory species occur on the nature reserve, including orchids such as heart-leaved twayblade (*Listera cordata*) and rattlesnake-plantain (*Goodyera oblongifolia*), and several small woody perennials including prince's pine (*Chimaphila umbellata*), yerba buena (*Satureja douglasii*) and twinflower (*Linnaea borealis*).

The nature reserve has several areas that are too steep for the feral sheep to reach, and these areas have several plants that, although not provincially rare, are uncommon on Lasqueti, including falsebox (*Pachistima myrsinites*), saskatoon (*Amelancier alnifolia*), red-flowering currant (*Ribes sanguineum*), and white fawn lily (*Erythronium oregonum*). Flowering plants typical of the rocky outcrops, such as meadow deathcamas (*Zygadenus venenosus*) and small-flowered blue-eyed mary (*Collinsia parviflora*) are present. The summit of Mount Trematon is unusual in having several plants typical of higher elevation occurring at relatively low elevation, including fir clubmoss (*Huperzia occidentalis*) and spotted saxifrage (*Saxifraga bronchialis*).

The Mount Trematon Nature Reserve has a good diversity of moss and lichen species, particularly in the understory of drier forested sites and on rock outcrops. Older bigleaf maple trees also support a very diverse community of epiphytic mosses and lichens.

2.8 NON-NATIVE INVASIVE PLANTS

No significant occurrences of any non-native invasive plant species were noted during the field assessment. A few plants of Scotch broom were observed but do not currently pose a significant threat to native vegetation. Some non-native grasses have become established in non-forested areas, especially areas that are subject to heavy browsing by sheep. If forest cover could be re-established, these grasses would naturally be reduced in vigor and abundance, over time, due to shading by trees.

2.9 RED AND BLUE-LISTED PLANT SPECIES

Table 4 shows red- and blue-listed plant species which might potentially occur within the Mount Trematon Nature Reserve. (This list was generated in BC Species and Ecosystem Explorer by searching all red- and blue-listed plant species that occur within the Sunshine Coast Forest District and in the CDFmm subzone.)

The CDC Site Report for Mount Trematon (Appendix 5) indicates that Dr. Adolf Ceska visited Mount Trematon and found the red-listed species hairy gumweed (*Grindelia hirsutula* var. *hirsutula*), the only recorded occurrence of this species in British Columbia (Appendix 6). Dr. Ceska also noted several species of plants more commonly found at higher elevations. The field work for this management plan did not include a formal survey for red- and blue-listed plant species. Several plants of the genus *Grindelia* were found on the cliffs immediately below and to the south east of the summit of Mount Trematon. Several other plants that are uncommon on Lasqueti also occur in this area.

Table 4. Red- and blue-listed plant species that could potentially occur in the MTNR.

Scientific Name	English Name	BC Status	Habitat Type
<i>Grindelia hirsutula</i> var. <i>hirsutula</i>	hairy gumweed	Red	TERRESTRIAL
<i>Carex feta</i>	green-sheathed sedge	Red	PALUSTRINE;RIVERINE;TERRESTRIAL
<i>Rubus nivalis</i>	snow bramble	Red	TERRESTRIAL
<i>Anagallis minima</i>	Chaffweed	Blue	ESTUARINE;LACUSTRINE;PALUSTRINE;TERRESTRIAL
<i>Botrychium simplex</i>	least moonwort	Blue	PALUSTRINE;RIVERINE;TERRESTRIAL
<i>Carex scoparia</i>	pointed broom sedge	Blue	LACUSTRINE;PALUSTRINE;TERRESTRIAL
<i>Jaumea carnosa</i>	fleshy jaumea	Blue	ESTUARINE;TERRESTRIAL
<i>Malaxis brachypoda</i>	white adder's-mouth orchid	Blue	ESTUARINE;LACUSTRINE;PALUSTRINE;RIVERINE;TERRESTRIAL
<i>Nothochelone nemorosa</i>	Woodland penstemon	Blue	PALUSTRINE;TERRESTRIAL
<i>Ophioglossum pusillum</i>	northern adder's-tongue	Blue	LACUSTRINE;PALUSTRINE;RIVERINE;TERRESTRIAL
<i>Toxicodendron diversilobum</i>	poison oak	Blue	TERRESTRIAL
<i>Agrostis pallens</i>	dune bentgrass	Blue	PALUSTRINE;TERRESTRIAL
<i>Allium amplexans</i>	slimleaf onion	Blue	TERRESTRIAL
<i>Heterocodon rariflorum</i>	Heterocodon	Blue	PALUSTRINE;RIVERINE;TERRESTRIAL
<i>Isoetes nuttallii</i>	Nuttall's quillwort	Blue	PALUSTRINE;RIVERINE;TERRESTRIAL
<i>Sagina decumbens</i> ssp. <i>Occidentalis</i>	western pearlwort	Blue	ESTUARINE;PALUSTRINE;RIVERINE;TERRESTRIAL
<i>Senecio macounii</i>	Macoun's groundsel	Blue	ESTUARINE;TERRESTRIAL
<i>Woodwardia fimbriata</i>	giant chain fern	Blue	PALUSTRINE;RIVERINE;TERRESTRIAL

Dr. Ceska was contacted by email in March 2006 to ask for further information relevant to the conservation management of Mount Trematon, and Dr. Ceska replied as follows:

“*Grindelia hirsutula*: there are a few plants on the very top of Mount Trematon. The whole top should be somehow preserved from trampling and any development, since it has some other interesting species, such as *Saxifraga bronchialis* or *Huperzia occidentalis*. I guess this is the only locality of *Grindelia hirsutula* in BC. There has been some other specimens in the Royal BC Museum annotated as such by a woman who did her Ph.D. thesis on this genus, but I do not understand her annotations and some of them are obviously wrong. I contacted her and she is now working for some UNESCO organization and she is not interested in *Grindelia* anymore”

See Appendix 5 for the Conservation Data Centre (CDC) site report for Mount Trematon and Appendix 6 for the CDC Element occurrence report on hairy gumweed. See Section 3.2.1 for a discussion of management issues related to red- and blue-listed plant species.

2.10 WILDLIFE AND HABITATS

The main wildlife mammal species occurring on Lasqueti include Black-tailed Deer, Raccoons, Mink, River Otter, Beaver, Mice, Shrews, and Voles. Black-tailed Deer make use of a range of habitat feature on the reserve, including browsing on understory plants and tree seedlings. Deer browsing can have an impact on regeneration of trees, especially western redcedar, but their impact is much less severe than that of the feral sheep.

Beaver can play a significant role in shaping the ecosystem in the vicinity of ponds, lakes and streams. When beaver dams raise water levels, trees are often killed, creating an open marshy wetland ecosystem with standing dead trees. These ecosystems can support a broad diversity of aquatic plants as well as insects and birds. Beavers also kill trees as a food source, by girdling or by felling, mostly in proximity to fresh water.

Numerous bird species, migratory and resident, are found in the area. Four species of cavity excavators nest in the area: Pileated Woodpecker, Hairy Woodpecker, Downy Woodpecker and Northern Flicker. These species perform a keystone role in the wildlife community, in that the holes they excavate are used by secondary cavity nesters, such as the Western Screech Owl. The continued presence of these species depends on an ongoing supply of standing dead trees (snags) of sufficient diameter for their use. At present, snags are in adequate supply. Many large Douglas-fir and cedar snags are present in Vegetation Types 1 and 2, while some also occur remaining from the original forest in other Vegetation Types. The large veteran Douglas-fir trees are a valuable habitat feature in the forest and may be selected for nest trees by Ospreys or Bald Eagles. They also serve as perch trees for Ospreys, Bald Eagles, Red-tailed Hawks, and other species. Mature and old growth conifer stands are valuable habitat for resident songbirds including Golden-crowned Kinglets and Chestnut-backed Chickadees.

Migratory birds that have been observed using specific habitat features in the Mount Trematon Nature Reserve include Turkey Vultures which are seen seasonally, and may nest in inaccessible cliff locations within the nature reserve. Large concentrations of Varied thrushes have been observed in cold sunny weather in winter, feeding on arbutus

berries. The Mount Trematon landform generates up-draft wind currents that are used for soaring by Bald Eagles, Turkey Vultures, Red-tailed Hawks and Ravens.

2.11 RED- AND BLUE-LISTED ANIMALS

The Mount Trematon Nature Reserve has not been formally surveyed for red- and blue-listed animal species. Table 5 shows red- and blue-listed animal species which might potentially occur there. (This list was generated in BC Species and Ecosystem Explorer by searching all red- and blue-listed animal species that occur within the Sunshine Coast Forest District and in the CDFmm subzone.) Of the species in Table 5, Red-legged Frogs have been observed in the Mount Trematon Nature Reserve. Band-tailed Pigeons have been observed on Lasqueti Island, and probably use habitats within the nature reserve.

Table 5. Red- and blue-listed animal species potentially occurring on MTNR.

English Name	Class	BC Status	Habitat Type
Marbled Murrelet	Birds	Red	ESTUARINE; LACUSTRINE; MARINE; TERRESTRIAL
Northern Goshawk, <i>laingi</i> subspecies	Birds	Red	TERRESTRIAL
Peregrine Falcon, <i>anatum</i> subspecies	Birds	Red	ESTUARINE; TERRESTRIAL
Threaded Vertigo	Gastropods	Red	TERRESTRIAL
Band-tailed Pigeon	Birds	Blue	PALUSTRINE; TERRESTRIAL
Canada Goose, <i>occidentalis</i> subspecies	Birds	Blue	LACUSTRINE; PALUSTRINE; TERRESTRIAL
Dun Skipper	Insects	Blue	PALUSTRINE; TERRESTRIAL
Great Blue Heron, <i>fannini</i> subspecies	Birds	Blue	ESTUARINE; LACUSTRINE; PALUSTRINE; RIVERINE; TERRESTRIAL
Pacific Sideband	Gastropods	Blue	TERRESTRIAL
Peregrine Falcon, <i>pealei</i> subspecies	Birds	Blue	ESTUARINE; LACUSTRINE; MARINE; RIVERINE; TERRESTRIAL
Purple Martin	Birds	Blue	ESTUARINE; LACUSTRINE; PALUSTRINE; TERRESTRIAL
Red-legged Frog	Amphibians	Blue	LACUSTRINE; PALUSTRINE; RIVERINE; TERRESTRIAL
Scarletback Taildropper	Gastropods	Blue	TERRESTRIAL
Townsend's Big-eared Bat	Mammals	Blue	PALUSTRINE; SUBTERRANEAN; TERRESTRIAL
Western Screech-Owl, <i>kennicotii</i> subspecies	Birds	Blue	PALUSTRINE; TERRESTRIAL

2.12 KEY CONSERVATION VALUES

The key conservation values of the Mount Trematon Nature Reserve are associated with the following features, all of which are “features of significance” as listed in ITF Policy 4.1.4.

- Old growth forest in Vegetation Types 1 and 2, both of which are red-listed ecological communities, in relatively undisturbed, late-seral condition.
- Occurrence of the red-listed plant species hairy gumweed (*Grindelia hirsutula* var. *hirsutula*), the only recorded occurrence of this species in British Columbia.
- Trematon Creek and associated riparian areas in Vegetation Type 7 which includes elements of one red-listed and one blue-listed ecological community, currently in moderately degraded condition due to logging impacts, but with good potential for recovery either naturally over time or through ecological restoration including tree-planting and protection.
- Mount Trematon, as a unique geological feature including its plateau summit, cliffs and talus deposits, and the associated vegetation and wildlife habitats on these specific landforms.
- The situation of Mount Trematon Nature Reserve in terms of being part of a large contiguous natural area within the CDFmm subzone.

Other “features of significance” within the Mount Trematon Nature Reserve that are worthy of note include:

- Arbutus-dominated forest in Vegetation Types 4 and 8, both of which are red-listed ecological communities, in moderately disturbed, early-seral condition;
- Regenerating second-growth Douglas-fir dominated forest in Vegetation Types 5 and 6, both of which are red-listed ecological communities, in moderately disturbed, early-seral condition;
- Rock outcrops in Vegetation Type 10, which include diverse lichen and bryophyte communities, and some spring-flowering plants, although these are severely impacted by the feral sheep;
- Several plants typical of higher elevation occurring at relatively low elevation, including fir clubmoss (*Huperzia occidentalis*) and spotted saxifrage (*Saxifraga bronchialis*); and
- Exceptional views from the summit of Mount Trematon, and hiking opportunities throughout the Mount Trematon Nature Reserve.

3 MANAGEMENT PLAN

3.1 COMMUNITY CONSULTATION PROCESS

ITF policy 4.2.20 states that “ Opportunities will be provided for island residents to take part in the planning and management of lands owned by the Islands Trust Fund on their island.” In keeping with this policy, a community consultation process was undertaken for Lasqueti Island residents to participate in setting objectives, identifying issues, and proposing strategies for inclusion in this Management Plan. A notice was published in the February 2007 issue of the local newsletter (Our Isle & Times) inviting community members to attend a consultation meeting, or if unable to attend, to contact the contractor by telephone to discuss any concerns or issues.

The community consultation meeting was held on February 17, 2007 at the Lasqueti Arts Centre and was attended by approximately 12 community members (Appendix 7). Lisa Dunn, Islands Trust Fund Manager, presented an overview of the ITF and its objectives for the nature reserve. Doug Hopwood presented an overview description of the nature reserve. A “Fact Sheet” of background information was also provided. An informal discussion followed, in which community members asked questions and expressed their views. Participants were invited to fill out a one-page questionnaire. Four completed questionnaires were returned (Appendix 7). All issues identified at the meeting and in the questionnaires are addressed in this Plan.

3.1.1 Adjacent Landowners

During February 2007, the contractor telephoned all of the landowners of adjacent private properties. Their comments have been incorporated into this Management Plan. Adjacent landowners were also provided with a Review Draft of the Management Plan and invited to comment. The results of this review process are summarized in Appendix 9.

The contractor consulted with the Integrated Land Management Bureau as the agency responsible for the vacant crown land to the north of Mount Trematon Nature Reserve. The following response was provided by email by Mark Harvey: “I have checked our status records and find no issues. No concerns. I presume the probable access route is the existing road shown on the map which ends in the SW1/4 of 18?”

The contractor consulted by telephone with Drew Chapman of BC Parks as the agency responsible for the Ecological Reserve to the south of Mount Trematon Nature Reserve. Mr. Chapman indicated no identified issues and requested the opportunity to review the Draft Management Plan. After reviewing the draft plan, Mr. Chapman indicated by email that BC Parks has no objection to the Management Plan.

3.1.2 First Nations Consultation

According to the Lasqueti Island Official Community Plan Bylaw # 77, “Lasqueti Island is within the original territory of the Tla’ amin (Sliammon) First Nation. The Tla’ amin (Sliammon) people referred to the island as Kweh et ey (means Yew Tree).” The Sliammon First Nation is located just outside of the town of Powell River, BC 130 km

northwest from Vancouver. Sliammon has a population of approximately 1000 members. The Sliammon Treaty Society is the organization responsible for overseeing the treaty negotiations process for the Sliammon First Nation. A letter has been sent by ITF staff to the Sliammon First Nation asking for any information related to First Nations values or uses of the nature reserve that should be considered in the Management Plan. No reply was received as of May 2007. However, the Islands Trust Fund remains open to discussion with First Nations of issues related to management of the nature reserve.

A portion of the Mount Trematon Nature Reserve also lies within (or very near to) the area delineated in the Statement of Interest for treaty negotiations of the Nanoose First Nation (Snaw-naw-AS First Nation). The Nanoose First Nation is located on the east coast of Vancouver Island, adjacent to Lantzville, approximately 10 km north of Nanaimo, and has 217 registered members. The Te'mexw Treaty Society is the organization responsible for overseeing the treaty negotiations process for the Nanoose First Nation. A letter has been sent by ITF staff to the Te'mexw Treaty Society asking for any information related to First Nations values or uses of the nature reserve that should be considered in the Management Plan. No reply was received as of May 2007. However, the Islands Trust Fund remains open to discussion with First Nations of issues related to management of the nature reserve.

3.1.3 Review Process

A Review Draft version of the management plan was circulated for comment in early May 2007 to First Nations, BC Parks, adjacent landowners, and the community members who completed questionnaires during the initial public consultation process. The results of the review process are summarized in Appendix 9.

3.2 MANAGEMENT ISSUES

The management issues identified for Mount Trematon Nature Reserve include:

- Red- and Blue-Listed Plant Species
- Feral Sheep
- Restoration Opportunities
- Local Community Involvement
- Wildfire Hazard Management
- Fire-fighting Access
- Visitor Parking
- Visitor Access
- Unwanted Promotion
- Recreational Use Impacts
- Acceptable and Unacceptable Activities
- Hiking Routes
- Public Safety and ITF Liability
- Signage
- Boundary Marking
- Beaver Dam Management
- Monitoring Program

3.2.1 Red- and Blue-Listed Plant Species

The BC Conservation Data Centre Site Report for Mount Trematon (Appendix 5) indicates that the botanist Adolf Ceska visited Mount Trematon and recorded the occurrence of the red-listed species hairy gumweed (*Grindelia hirsutula* var. *hirsutula*). This is the only recorded occurrence of this species in British Columbia (Appendix 6). The field work for this management plan did not include a formal survey for red- and blue-listed plant species. Several plants of the genus *Grindelia* were found on the cliffs immediately below and to the south east of the summit of Mount Trematon. Several other plants that are uncommon on Lasqueti also occur in this area, as the steep ground provides a refugium from browsing by sheep. There is a good possibility of finding additional plant occurrences of conservation interest in this area.

With respect to management for conservation rare plants on Mount Trematon, Dr. Ceska recommended that “the whole top should be somehow preserved from trampling and any development.” It appears that most of the plants of greatest conservation interest occur on the steep cliffs where hiker do not go, so conservation of these plants is probably compatible with continued use of Mount Trematon by local hikers, provided the volume of hiking traffic remains low.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

If sufficient funds are available, the ITF should contract a botanist with suitable qualifications and experience to conduct a rare plants survey of the Mount Trematon Nature Reserve. The first task should be to locate the hairy gumweed occurrence, assess any risks to the plants, and make management recommendations for conservation. The second task should be to conduct a survey for rare plants in the following areas listed in order of priority:

- Habitat refugia (cliffs and other sites inaccessible to sheep),
- Vegetation Type 10, particularly on the summit of Mount Trematon,
- Vegetation Types 1 and 2 (old forest), and
- Vegetation Type 7 (riparian areas).

Management of recreational use of the nature reserve in general, and hiking access to the summit of Mount Trematon in particular, should be aimed at avoiding any substantial increase in the volume of hiking traffic on and near the Mount Trematon summit, in keeping with the objective of minimizing risks to rare plants due to trampling. Other management actions and strategies in this plan are consistent with this objective.

3.2.2 Feral Sheep

Sheep were first introduced to Lasqueti over a hundred years ago by the early settlers. Since that time various flocks have been abandoned and there is now a feral population, estimated very roughly at about 500 animals. Their preferred foods are grasses and herbs, but there is inadequate pasture available, so the sheep spend much of their time in the forests browsing shrubs and tree seedlings. Although the effects of logging are more striking to the eye, the long-term impacts of browsing on the forest are also significant. In some parts of the Mount Trematon Nature Reserve the sheep have almost completely

eliminated the understory vegetation. Tree regeneration is equally inhibited, especially arbutus, cedar, and Douglas-fir. The density of sheep populations is unevenly distributed on Lasqueti. Some local areas have very high populations that cause severe impacts on vegetation. At present, the sheep in the Mount Trematon Nature Reserve are concentrated in disturbed areas. It appears sheep do not enter Vegetation Type 1. Some species of flowering plants have been reduced in abundance or eliminated altogether by the many decades of sheep browsing on the Mount Trematon Nature Reserve, as has occurred in many areas on Lasqueti.

The options to reduce the impacts of feral sheep are limited. Fences can work, but are expensive to build and require frequent inspection and diligent maintenance. Some private landowners protect the forest and plants on their properties by hunting the sheep to keep their numbers down to levels where their impact is not excessive. However, the Islands Trust Fund is not well equipped to implement a program of this kind.

Recommended Management Actions or Strategies

Long term (5 - 10 years)

- See Restoration Opportunities.
- If budgets are available for both construction and long-term maintenance, consider constructing a fence to exclude sheep from a significant portion of the Mount Trematon Nature Reserve, with an emphasis on Vegetation Types 2,3 ,4 8, and 11.

3.2.3 Restoration Opportunities

There are opportunities to undertake restoration of natural ecosystem conditions in the Mount Trematon Nature Reserve. The main restoration measures that are both feasible and effective involve planting and protecting trees to restore tree cover in logged areas that have not regenerated, particularly in Vegetation Type 11, as well as some areas in Vegetation Type 4, and in old roads and landings. Another priority area for planting would be Vegetation Type 7, adjacent to Trematon Creek. Although the area is well stocked with trees, they are mostly young alders, and it would be desirable to establish conifers, especially western redcedar, to help develop a more natural old growth riparian forest in the long run.

In many cases there are existing conifer seedlings that are prevented from growing by repeated and intense browsing. Such trees develop a bush form in response to browsing, but they can recover and grow as trees if protected from browsing. The most effective tree protection method is surrounding the tree with a cage made of stucco wire, 30 cm diameter and 1 m tall and anchored with a heavy wooden stake driven into the ground. In areas where no seedlings are present, planting could be undertaken, and seedling protection would also be needed. Any trees planted in riparian areas would likely require protection from beavers as well as from sheep.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

- Action would be initiated if a local volunteer group approaches the ITF with a proposal to undertake restoration measures.
- If this occurs, ITF staff should work with volunteers to develop a restoration plan that is consistent with Mount Trematon Nature Reserve management objectives.

3.2.4 Local Community Involvement

The opportunity exists for Lasqueti community members to become involved in management of the Mount Trematon Nature Reserve. In particular, the ecosystem restoration activities described above would be well suited to local volunteer efforts. The ITF is generally very supportive of local involvement. Community members wishing to become involved should contact ITF staff. A group of Lasqueti community members are currently in the process of forming a conservancy organization. This group could be a candidate to assume responsibilities as a local management group for the nature reserve.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

- Action would be initiated if a local volunteer group approaches the ITF with a proposal to become involved in Mount Trematon Nature Reserve management.
- If this occurs, ITF staff should work with the community members to develop co-management or other working agreement.

3.2.5 Wildfire Hazard Management

As in all forested areas of Lasqueti Island, there is a significant risk of wildfire within the Mount Trematon Nature Reserve. Some of the younger forests on south-facing slopes have high fuel loads on the ground (small branches, needles, etc.) and moderately high vertical and horizontal fuel continuity, indicating the potential for a high severity ground and crown fire during the hot dry weather that typically occurs in late summer. There are significant natural and man-made fire-breaks (features that may slow or stop the spread of fires) including the moist area along Trematon Creek, old logging roads, and rock bluffs, so it is unlikely that a single fire would affect the whole Mount Trematon Nature Reserve area.

According to ecological principles, it might be desirable to have a policy of allowing any fire that occurs in the Mount Trematon Nature Reserve to burn. However, such a policy would not be practical because there are homes in the area, so property and personal safety of community members would be at risk if the fire spread. Also, the old growth forest in the nature reserve is now a rare ecosystem, and should be protected from disturbance. In any case, if a fire occurs in the nature reserve, it is almost certain that local or Provincial fire-fighters would respond quickly without taking the time to consult the ITF or any Management Plan. So it can be assumed that the effective policy will be to act quickly to extinguish any fires that occur in the Mount Trematon Nature Reserve.

The Lasqueti Island Volunteer Fire Department (LVFD) is supported by funding from the Powell River Regional District. For current contact numbers and information concerning The LVFD, contact Powell River Regional District.

Recommended Management Actions or Strategies

- See Fire-fighting Access.

3.2.6 Fire-Fighting Access

There is an old logging road that passes through the nature reserve in an east-west orientation. Prior to the ITF's acquisition of the property, this road was rendered impassible to regular vehicles by digging a trench across the road. Historically, this road was used for access to the private land parcel to the west (the South ½ of the South West ¼ of Section 18) although no easement or legal right of access exists.

During the community consultation process it was suggested that it would be wise to restore and maintain this road in a condition that it could be used by fire-fighting vehicles, in order to provide better access to fight fire on the nature reserve and on the private and crown lands to the west, portions of which which lack other effective access. It would also provide vehicle access to Trematon Lake which would be a logical water source for fire-fighting in the vicinity.

At the public review stage of the planning process, an alternative view was expressed questioning the need for a road for fire-fighting purposes, stressing the risks and disadvantages of restoring the road, and arguing against any move to restore the road to driveable condition.

A potential disadvantage to keeping this road open is that it might be used for unauthorized vehicle access, which could in turn increase the risk of impacts related to unauthorized uses such as camping and recreational 4-wheel-driving, and, paradoxically, an increased risk of human-caused fire. However, this risk is probably not high. Perhaps because Lasqueti does not have a car ferry, there is generally not much problem with unauthorized vehicles accessing back roads on private or Crown land. There would probably be no increased risk of ATV use if the ditch was removed, since ATV users can generally find their way around obstacles put in their way in any case. These risks might be substantially mitigated by installing a locked gate. According to Drew Chapman (BC Parks) the cost of installing a lockable gate would likely be in the range of \$2000 to \$2500. To ensure that the road would be useable in the event of a fire, keys to the gate would need be provided to adjacent property owners, local residents and the Lasqueti Volunteer Fire Department.

With respect to fire-fighting, it could be an advantage to have road access through the nature reserve to lands beyond, but in most foreseeable circumstances the advantage would not be critical. The Lasqueti Volunteer Fire Department is equipped with lightweight portable pumps and hoses which could readily be carried by a person on foot beyond the barrier in the road as far as the lake in a matter of a few minutes, possibly less time than it would take to find the key to the gate lock. Emergency use of the road could also be slowed down by the need to remove trees which will likely fall across the road over time. BC Ministry of Forests fire-fighting crews are equipped to fight forest fires in remote and rugged terrain by helicopter access, so for their purposes road access is not necessary.

Another potential risk is that restoring the road and installing a gate could expose the ITF to higher monitoring and management costs. For example, if the gate is vandalized or damaged, repairs would be costly. Or if a key found its way into unauthorized hands, the ITF might have the cost of changing the lock and providing new keys to the authorized parties.

Finally, there is a risk that opening the road and providing other parties with keys could cause the ITF to lose some measure of legal autonomy with respect to management of the nature reserve. Having once provided access to other parties, the ITF might be at risk of losing full autonomy with respect to restricting or revoking those rights if such actions were found to be necessary for protecting the ecological integrity of the nature reserve or preventing vandalism or unacceptable uses.

From the point of view of the ITF, the risks and disadvantages of restoring the road appear to outweigh the potential benefit.

During the public review of the draft management plan, the following alternative to road access was suggested as a strategy to enhance fire-fighting capability on the nature and adjacent lands. A weather-proof box containing a pump, hoses, and other basic fire-fighting gear could be installed near the beaver dam at the eastern end of Trematon Lake.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

- At this time it is not recommended to restore the east-west road through the nature reserve to useable condition.
- If either an adjacent landowner or the Lasqueti Volunteer Fire Department petitions the ITF to restore the road, the ITF should request an analysis by a qualified specialist in wild-land fire-fighting that quantifies the advantage of the requested road access for fire-fighting purposes. The alternative strategy of placing a box with pump and hoses near the beaver dam should be considered.
- Prior to restoring road access, the ITF should seek a legal opinion as to any risks of loss of legal autonomy to restrict or deny access through the nature reserve as may be necessary to pursue conservation and management objectives.
- If the ITF considers restoring road access, options for cost-sharing with other parties, such as adjacent landowners, should be investigated.
- If the road is restored, a heavy-duty lockable gate with steel posts set in concrete should be installed. A locked chain across the road is generally an unsatisfactory option as it can be cut more easily than a gate, and it must be fitted with reflectors to avoid creating a hazard to cyclists and operators of ATVs and motorcycles.

3.2.7 Visitor Access

Results of the community consultation process show that Lasqueti Community members access the Mount Trematon Nature Reserve via a number of routes. The most popular route is via Lake Road as described in Section 1.4. Visitors using Lake Road mostly park within the adjacent private land (See Section 3.2.8, Visitor Parking) then proceed on foot

by one of several old logging roads towards the base of Mount Trematon summit. Alternatively, some visitors park near the intersection of Lake Road and Richardson Road, and access the Mount Trematon Nature Reserve on foot via an old logging road that runs roughly northwest through private land (the South West ¼ of Section 15). In the past, visitors using this route have not created any nuisance for the landowners, and the landowners do not object to continued use of this route, provided there is no noticeable impact, or vandalism of any sort. However, there is no legal right of access for the public via this route, and it is the responsibility of persons who use access across private land to obtain permission from the landowner.

In addition to Lake Road, hiking access is feasible through Crown land via Forbes Road and the Lasqueti land-fill site. This is an un-marked route through hazardous terrain and should only be used by hikers with back-country experience.

Recommended Management Actions or Strategies

- Current access situation is considered satisfactory.
- See “Signage”

3.2.8 Visitor Parking

Most visitors arriving by vehicle park alongside the road at one of several points within the adjacent private land lot (the South ½ of the South East ¼ of the South East ¼ of Section 18). The landowners do not object to continuation of this practice, and it is consistent with the uses permitted under the terms of the access easement (See Section 1.4 and Appendix 1.) There is an option to create parking spaces within the Mount Trematon Nature Reserve near the point where the access road enters from the east, on land that is already cleared and level, near the site of the recently demolished residence. This potential parking area has been made inaccessible by placing a line of large boulders across the drivable surface. This line of boulders could be re-positioned further west to create parking room for half a dozen vehicles. However, at current levels of visitor traffic, creation of additional parking spaces appears unnecessary.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

- Annual monitoring should include monitoring the impacts of visitor parking.
- The affected landowners (owners of South ½ of the South East ¼ of the South East ¼ of Section 18) should be advised to contact ITF staff if unacceptable impacts on private land occur due to visitor parking.

3.2.9 Unwanted Promotion

During the community consultation process it was mentioned Mount Trematon has recently been promoted as a hiking destination in a number of venues, including Pacific Yachting Magazine, and a website listing hiking trails for boaters in coastal British Columbia and Alaska. ITF staff have undertaken to contact the webmaster in question and ask to have the Mount Trematon trail information removed. There is little that can be done to prevent this kind of unwanted promotion. So far, the availability of such information has not caused excessive numbers of visitors to arrive.

Recommended Management Actions or Strategies

Ongoing or Annual

- Lasqueti community members are requested to keep an eye out for published information that promotes use of the Mount Trematon Nature Reserve, and report it to ITF staff.
- ITF staff should contact the publishers and distributors of such information and request that it be deleted or removed.
- ITF staff may consider briefing the crew of the Lasqueti Island ferry, and requesting that they not direct visitors to Mount Trematon.

3.2.10 Recreational Use Impacts

During the community consultation process, concern was expressed that recreational uses in general, and mountain biking in particular, might lead to impacts on sensitive sites. During the field surveys for this Management Plan, most of the Mount Trematon Nature Reserve was covered. No impacts attributable to mountain biking were observed.

Recommended Management Actions or Strategies

Ongoing or Annual

- The routine annual monitoring process which the ITF undertakes on all properties will be sufficient to detect any unacceptable impacts of recreational use if they occur in the future.
- See Section 3.2.14 ,“Signage”.

3.2.11 Acceptable and Unacceptable Activities

All permitted uses of the Mount Trematon Nature Reserve must be compatible with the management objectives. In other words, permitted uses should not have an adverse impact on the natural ecosystems of the Mount Trematon Nature Reserve. The main permitted uses that are anticipated are hiking, nature appreciation and related activities (e.g., photography) and any restoration activities approved by the ITF. Unacceptable activities include marijuana cultivation, commercial recreation in guided groups, camping, partying, mountain biking other than for access purposes and on established roads, rock climbing that involves use of climbing aids, tree cutting, hunting, fishing, and removal or alteration of any vegetation.

Recommended Management Actions or Strategies

Ongoing or Annual

- The routine annual monitoring process which the ITF undertakes on all properties will generally be sufficient to detect any unacceptable activities if they occur in the future.
- Members of the Lasqueti community are encouraged to report observations of any unacceptable activities to the ITF.
- See Section 3.2.14 ,“Signage”.

3.2.12 Hiking Routes

The summit of Mount Trematon is one of the more popular hiking destinations on Lasqueti for the local community. The outstanding view is one of the major attractions. It is difficult to estimate how many hikers visit the Mount Trematon Nature Reserve, but it is probably fewer than a hundred visits in a year. A number of hiking routes exist within the Nature Reserve, leading to the summit of Mount Trematon. Many of the approach routes follow old logging roads. However, the routes for the final access to the summit are all rough, unimproved, and not maintained. Some minor marking of routes with flagging tape has occurred, but there is no clearly marked or constructed trail to the summit. All of the possible routes involve some steep and potentially hazardous terrain. From the consultation process, it seems that members of the Lasqueti community are generally satisfied with these informal and unimproved routes. There is no identified need for the ITF to mark, construct or improve hiking access. Any actions that may increase the number of visitors to the top of Mount Trematon should be avoided as incompatible with conservation objectives for rare plants.

A short piece of rope has been installed in one steep area known as “the chimney”. The rope is not a standard climbing rope, and it is not certain whether the person or persons who installed it intend to monitor it for safety and replace it when it becomes weak due to age and weathering. The ITF regards such improvements as inconsistent with the management objectives for the nature reserve, and also views them as potential liability issue for the ITF. If the ITF is aware of “improvements” of this nature and tacitly accepts them, the ITF could be held liable if someone were injured while using the climbing rope. For this reason, the ITF will instruct the annual monitoring contractor to remove fixed ropes or other unauthorized trail improvements of this nature.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

- In order to minimize risks to rare plants on the summit of Mount Trematon, the ITF will accept, but in no way promote, informal use of the nature reserve by hikers.
- See also Section 3.2.13, “Public Safety and Liability”.

3.2.13 Public Safety and ITF Liability

As mentioned above, all of the possible hiking routes to the summit of Mount Trematon involve some steep and potentially hazardous terrain. However, the only instance of an injury occurring on Mount Trematon within the memory of community members occurred when a hang-glider launched himself into the air from the summit in unfavourable conditions and crashed, sustaining non-life-threatening injuries.

Recommended Management Actions or Strategies

Ongoing or Annual

- In order to minimize liability risks associated with ownership of the Mount Trematon Nature Reserve, and allowing public access, the ITF will accept, but in no way promote, informal use of the Mount Trematon Nature Reserve by hikers.

Trail “improvements” such as fixed ropes will be removed by the annual monitoring contractor.

- No signage or maps will direct hikers to any possible routes.
- The Islands Trust Fund should advise any persons who visit the nature reserve on behalf of the Islands Trust Fund to take all standard safety precautions for back-country wilderness hiking and for hiking in steep and hazardous terrain.

3.2.14 Signage

The community consultation process brought forward several schools of thought regarding the desirability of signs on the Mount Trematon Nature Reserve. While some people felt that posting a sign might help to discourage unacceptable uses, others felt that there is currently no problem with unacceptable uses, and that one of the special features of Lasqueti is the general absence of signs that “tell you what you can and can’t do.” At this point, there is no identified need for a sign identifying the Mount Trematon Nature Reserve.

The owners of the adjacent private property to the east, through which the legal access via Lake Road passes have expressed a wish for a sign informing visitors of the need to leash their dogs, for the safety of their pet monkeys. As a courtesy, the ITF could pay for a sign for this purpose. It would not necessarily need to refer to the ITF or the Mount Trematon Nature Reserve.

One of the owners of the adjacent private property to the west has expressed concern that visitors to the Mount Trematon Nature Reserve may inadvertently stray on to their private land, and they have expressed a wish to have signs posted, at appropriate locations, that will inform hikers when they are about to leave the reserve and enter private property.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

- At this time, it is recommended that the ITF should not post a general sign identifying the Mount Trematon Nature Reserve.
- It is recommended that ITF staff discuss directly with the landowners in question the details of their specific signage requests. Both of these requests can be considered to be consistent with the Mount Trematon Nature Reserve management objectives, provided the signs are kept small and unobtrusive.

3.2.15 Boundary Marking

As part of the field survey for the Management Plan, the contractor located all relevant survey markers on the ground, defining the four corners of the South East ¼ of Section 18. The lot that was subdivided out of the parent quarter-section (the South ½ of the South East ¼ of the South East ¼ of Section 18) was never legally surveyed on the ground. However, an individual with surveying experience flagged the boundaries. These flags are still visible, and were replaced with new flagging. The locations of the remaining boundaries were found with Silva compass and hand-held GPS and marked

with new flagging. These methods are ordinarily accurate to within 5 m on a property line of this length (800 m) between survey markers.

While this level of accuracy in boundary marking is ordinarily adequate for the purposes of nature reserve management planning, it happens that the beaver dam at the western end of Trematon Lake lies within the area of uncertainty. One of the owners of the private property to the west has written to ITF staff expressing dissatisfaction with the level of accuracy and certainty provided by the methods described above, and requesting that the ITF contract a registered land surveyor to determine the exact location of the property boundary between the Mount Trematon Nature Reserve and their private property.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

- The ITF should investigate the option of obtaining a legal property survey. It may be an option to survey only the western boundary. If it is within the ITF's budget, a legal survey is the best option to resolve any possible issue concerning the western boundary. Logistical assistance may be available from adjacent landowners. However, the cost of a legal survey may be beyond ITF's current budget allocations. If any adjacent private or Crown properties are surveyed in the future, the ITF should consider the option of having the Mount Trematon Nature Reserve boundaries surveyed at that time, reducing the total cost to the ITF.
- An alternative could be to post the private property signs referred to in Section 3.2.14 approximately 10 to 15 m east of the estimated property line location, in order to have a high degree of certainty that they are well within the Mount Trematon Nature Reserve boundaries.

3.2.16 Beaver Dam Management

As discussed in Sections 2.4 and 3.2.15, it is not certain where the beaver dam at the west end of Trematon lake lies with respect to the east boundary of the nature reserve. Since it appears that only a very small portion of the beaver pond lies within the Mount Trematon Nature Reserve, or perhaps none at all, there are limited opportunities to conserve or manage its resource values within the Mount Trematon Nature Reserve. The main impact that might occur would be if there was any alteration of the beaver dam, which could raise or lower the lake level. It is unlikely that the current owners of the Trematon Lake property or the Islands trust Fund will wish to alter the beaver dam in any way.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

- It is not recommended that the ITF undertake any active management of the beavers or the beaver dam.
- Given the uncertainty about the exact location of the boundary relative to the beaver dam, in the event that either the ITF or any current or future owner of the Trematon Lake property wishes to alter the beaver dam in any way, a legal survey of the property boundary should be obtained first.

3.2.17 Monitoring Program

The ITF undertakes a program of annual monitoring on all of its properties.

Recommended Management Actions or Strategies

Ongoing or Annual

The routine monitoring process will be sufficient to detect any impacts or issues that are likely to occur. The monitoring route should include visiting the following areas annually:

- The usual public access route via Lake Road
- Parking areas
- Common hiking route
- Former home site
- Summit of Mount Trematon
- Main east-west access road

In addition, at least once every five years, the monitoring procedure should include visiting the property corners, walking the property boundaries, and renewing the flagging marking the corners and boundaries.

3.2.18 Local Government Designation and Zoning

ITF policy 4.2.24 states that “The Board will request, where necessary, that the local Trust Committee or Island Municipality redesignate and rezone Trust Fund Board lands to the most appropriate designation and zone for nature protection when it is reviewing its Official Community Plan and/or Land use Bylaw and will work with the Local Trust Committee to determine the most appropriate designation and zone.”

Under the Lasqueti Island Official Community Plan Bylaw # 77 there are three land use designations on Lasqueti Island: Marine (includes all marine areas), Land Based (includes all private land) and Crown Land (includes all Crown land). The Mount Trematon Nature Reserve is currently within the Land Based designation. This appears to be the most appropriate designation for the Nature Reserve. It might be thought that the Crown land designation would be more appropriate given that the ITF is a public body, and the Mount Trematon Nature Reserve is thus a kind of public land. However, the Lasqueti OCP contains the following policy with respect to access on and across crown land:

“Policy 5. Where an existing road on Crown land is currently in regular use for vehicle access to private lands and where no other legal land access exists, the community supports the granting of secure, long term permission for landowners to continue such use and to maintain the road in drivable condition. Landowners should continue to maintain such roads in a condition that is compatible with conservation and community values.”

If the Mount Trematon Nature Reserve were designated as Crown land, this policy could be interpreted to support providing road access through the nature reserve, which would be incompatible with ITF objectives for its management.

Under the Lasqueti Island Land Use Bylaw # 78 (2005) the Mount Trematon Nature Reserve is within the Land Based (LB) zone. The LB zone is a general zone that encompasses the majority of Lasqueti's private land. The main permitted uses include Residential, Agriculture and Forestry. It appears that most appropriate zone that currently exists within the Lasqueti Island Land Use Bylaw # 78 (2005) is the Watershed Protection (WP1) zone, in which no buildings or structures of any kind may be constructed or erected.

Recommended Management Actions or Strategies

Short Term (1 - 5 years)

It is recommended that the ITF consider requesting that the Lasqueti Island Local Trust Committee rezone the Mount Trematon Nature Reserve to the Watershed Protection (WP1) zone.



View looking Northeast from Mount Trematon summit

3.3 SUMMARY OF RECOMMENDED MANAGEMENT ACTIONS OR STRATEGIES

3.3.1 Short Term Actions or Strategies (1 - 5 years)

Red- and Blue-Listed Plant Species

- If sufficient funds are available, the ITF should contract a botanist with suitable qualifications and experience to conduct a rare plants survey of the Mount Trematon Nature Reserve. The first task should be to locate the hairy gumweed occurrence, assess any risks to the plants, and make management recommendations for conservation. The second task should be to conduct a survey for rare plants in the following areas listed in order of priority:
 - Habitat refugia (cliffs and other sites inaccessible to sheep),
 - Vegetation Type 10, particularly on the summit of Mount Trematon,
 - Vegetation Types 1 and 2 (old forest), and
 - Vegetation Type 7 (riparian areas).
- Management of recreational use of the nature reserve in general, and hiking access to the summit of Mount Trematon in particular, should be aimed at avoiding any substantial increase in the volume of hiking traffic on and near the Mount Trematon summit, in keeping with the objective of minimizing risks to rare plants due to trampling. Other management actions and strategies in this plan are consistent with this objective.

Restoration Opportunities

- Action would be initiated if a local volunteer group approaches the ITF with a proposal to undertake restoration measures.
- If this occurs, ITF staff should work with volunteers to develop a restoration plan that is consistent with Mount Trematon Nature Reserve management objectives.

Local Community Involvement

- Action would be initiated if a local volunteer group approaches the ITF with a proposal to become involved in Mount Trematon Nature Reserve management.
- If this occurs, ITF staff should work with the community members to develop co-management or other working agreement.

Fire-Fighting Access

- At this time it is not recommended to restore the east-west road through the nature reserve to useable condition.
- If either an adjacent landowner or the Lasqueti Volunteer Fire Department petitions the ITF to restore the road, the ITF should request an analysis by a qualified specialist in wild-land fire-fighting that quantifies the advantage of the requested road access for fire-fighting purposes. The alternative strategy of placing a box with pump and hoses near the beaver dam should be considered.
- Prior to restoring road access, the ITF should seek a legal opinion as to any risks of loss of legal autonomy to restrict or deny access through the nature reserve as may be necessary to pursue conservation and management objectives.

- If the ITF considers restoring road access, options for cost-sharing with other parties, such as adjacent landowners, should be investigated.
- If the road is restored, a heavy-duty lockable gate with steel posts set in concrete should be installed. A locked chain across the road is generally an unsatisfactory option as it can be cut more easily than a gate, and it must be fitted with reflectors to avoid creating a hazard to cyclists and operators of ATVs and motorcycles.

Visitor Parking

- Annual monitoring should include monitoring the impacts of visitor parking.
- The affected landowners (owners of South ½ of the South East ¼ of the South East ¼ of Section 18) should be advised to contact ITF staff if unacceptable impacts on private land occur due to visitor parking.

Hiking Routes

- In order to minimize risks to rare plants on the summit of Mount Trematon, the ITF will accept, but in no way promote, informal use of the nature reserve by hikers.

Signage

- At this time, it is recommended that the ITF should not post a general sign identifying the Mount Trematon Nature Reserve.
- It is recommended that ITF staff discuss directly with the landowners in question the details of their specific signage requests. Both of these requests can be considered to be consistent with the Mount Trematon Nature Reserve management objectives, provided the signs are kept small and unobtrusive.

Boundary Marking

- The ITF should investigate the option of obtaining a legal property survey. It may be an option to survey only the western boundary. If it is within the ITF's budget to pay for a legal survey, this is the best option to resolve any possible issue concerning the western boundary. However, the cost of a legal survey may be beyond ITF's current budget allocations. If any adjacent private or Crown properties are surveyed in the future, the ITF should consider the option of having the Mount Trematon Nature Reserve boundaries surveyed at that time, reducing the total cost to the ITF.
- An alternative could be to post the private property signs referred to in Section 3.2.14 approximately 10 to 15 m east of the estimated property line location, in order to have a high degree of certainty that they are well within the Mount Trematon Nature Reserve boundaries.

Beaver Dam Management

- It is not recommended that the ITF undertake any active management of the beavers or the beaver dam.
- Given the uncertainty about the exact location of the boundary relative to the beaver dam, in the event that either the ITF or any current or future owner of the

Trematon Lake property wishes to alter the beaver dam in any way, a legal survey of the property boundary should be obtained first.

Local Government Designation and Zoning

- It is recommended that the ITF consider requesting that the Lasqueti Island Local Trust Committee rezone the Mount Trematon Nature Reserve to the Watershed Protection (WP1) zone.

3.3.2 Ongoing or Annual Actions or Strategies

Unwanted Promotion

- Lasqueti community members are requested to keep an eye out for published information that promotes use of the Mount Trematon Nature Reserve, and report it to ITF staff.
- ITF staff should contact the publishers and distributors of such information and request that it be deleted or removed.
- ITF staff may consider briefing the crew of the Lasqueti Island ferry, and requesting that they not direct visitors to Mount Trematon.

Recreational Use Impacts

- The routine annual monitoring process which the ITF undertakes on all properties will be sufficient to detect any unacceptable impacts of recreational use if they occur.

Acceptable and Unacceptable Activities

- The routine annual monitoring process which the ITF undertakes on all properties will generally be sufficient to detect any unacceptable activities if they occur in the future.
- Members of the Lasqueti community are encouraged to report observations of any unacceptable activities to the ITF.

Public Safety and ITF Liability

- In order to minimize liability risks associated with ownership of the Mount Trematon Nature Reserve, and allowing public access, the ITF will accept, but in no way promote, informal use of the Mount Trematon Nature Reserve by hikers. Trail “improvements” such as fixed ropes will be removed by the annual monitoring contractor.
- No signage or maps will direct hikers to any possible routes.
- The Islands trust Fund should advise any persons who visit the nature reserve on behalf of the Islands Trust Fund to take all standard safety precautions for back-country wilderness hiking and for hiking in steep and hazardous terrain.

Monitoring Program

- The routine monitoring process will be sufficient to detect any impacts or issues that are likely to occur. The monitoring route should include visiting the following areas annually:

- The usual public access route via Lake Road
- Parking areas
- Common hiking route
- Former home site
- Summit of Mount Trematon
- Main east-west access road
- In addition, at least once every five years, the monitoring procedure should include visiting the property corners, walking the property boundaries, and renewing the flagging marking the corners and boundaries.

3.3.3 Long Term Actions or Strategies (5 - 10 years)

Feral Sheep

- If budgets are available for both construction and long-term maintenance, consider constructing a fence to exclude sheep from a significant portion of the Mount Trematon Nature Reserve, with an emphasis on Vegetation Types 2,3 ,4 8, and 11.



Icicles and Moss – Mount Trematon

4 REFERENCES

Mason, Elda Copley. 1976. Lasqueti Island: History and Memory. Lantzville B.C.

Islands Trust Fund Board. 2006. Islands Trust Fund Regional Conservation Plan.
Available on-line at <http://www.islandstrustfund.bc.ca>.

APPENDICES

LIST OF APPENDICES

- Appendix 1. Access Easement
- Appendix 2. Letter from Ministry of Transportation re. Lake Road
- Appendix 3. Description of Site Series
- Appendix 4. Descriptions of Vegetation Types
- Appendix 5. CDC Site Report for Mount Trematon
- Appendix 6. CDC Element Occurrence Report on Hairy Gumweed
- Appendix 7. Lasqueti Community Consultation Fact Sheet and Questionnaire
- Appendix 8. News Articles on Nature Reserve Donation
- Appendix 9. Summary of Public Review Process

APPENDIX 1. ACCESS EASEMENT

BC OnLine - LTO Search by Title

MOUNT TREMATION Page 1 of 2
Search Results

Land Title System

For: [PB21278] [DASHWOOD, BARBARA (P)]

May 17, 2006

As Of: 06/05/17 13:40:28

Check for Prints

01:40:29 PM

Main Menu	Return			Search Again	Help ?
Print Only Current Title Info.			Print Current & Cancelled Title Info.		

Folio:

Search by Title Displaying Current Information

Title Displayed

VICTORIA LAND TITLE OFFICE TITLE NO: EW57204
DECLARED VALUE 29000 FROM TITLE NO: BC17398

APPLICATION FOR REGISTRATION RECEIVED ON: 12 MAY, 2004
ENTERED: 29 MAY, 2004

REGISTERED OWNER IN FEE SIMPLE:

CARL MICHAEL WEISS, ARTIST
LAKE ROAD
LASQUETI ISLAND, BC
V0R 2J0
AS TO AN UNDIVIDED 1/2 INTEREST

NANCY JANE WEISS, MODEL
LAKE ROAD
LASQUETI ISLAND, BC
V0R 2J0
AS TO AN UNDIVIDED 1/4 INTEREST

VALERIE DE REGE THESAURO, ARTIST
GENERAL DELIVERY
LAKE ROAD
LASQUETI ISLAND, BC
V0R 2J0
AS TO AN UNDIVIDED 1/4 INTEREST

TAXATION AUTHORITY:

PORT ALBERNI ASSESSMENT AREA

DESCRIPTION OF LAND:

PARCEL IDENTIFIER: 008-287-376
THE SOUTH 1/2 OF THE SOUTH EAST 1/4 OF THE SOUTH EAST 1/4 OF SECTION 18,
LASQUETI ISLAND, NANAIMO DISTRICT

LEGAL NOTATIONS: NONE

CHARGES, LIENS AND INTERESTS:

NATURE OF CHARGE
CHARGE NUMBER DATE TIME

EASEMENT

L42607 1982-06-22 09:05

REMARKS: APPURTENANT TO THE SOUTH EAST 1/4 OF SECTION 18
LASQUETI ISLAND, NANAIMO DISTRICT EXCEPT THE
SOUTH 1/2 OF THE SOUTH EAST 1/4 OF THE SOUTH
EAST 1/4 OF SAID SECTION 18

"CAUTION - CHARGES MAY NOT APPEAR IN ORDER OF PRIORITY. SEE SECTION 28, L.T.A."

3

CF
J8975
FCV

1
FORM 17
APPLICATION

L 42607

1/3

NOTE: Before submitting this application applicants should check and satisfy themselves as to the tax position, including taxes of the Crown Provincial, a municipality, and improvement, water and irrigation districts.

Nature of Interest:

True Value: N/A

Charge by way of Easement

Full name, address and telephone number of person presenting application:

Herewith Fees of: 10.00

c/o Culliffe & Culliffe,
Box 116, Nanaimo, B. C. V9R 5K4

FORM 1

Telephone: 754-6301

(Section 36)

Applicant

W.M. Warner

MEMORANDUM OF REGISTRATION

Registered on application received on the day and time written hereon

THIS INDENTURE made this 4th day of June, A. D. 1982⁵ HOOPER, Registrar of the
New Land Title Office *BB*

BETWEEN:

82 JUN 22
GLENN ARTHUR METZ, Leatherworker, 5903 Larch Street,
Vancouver, British Columbia, V6M 4E3, and ARTHUR CHARLES
HOUSTEN, Photographer, of Galiano Island, British
Columbia, V0N 1P0

(hereinafter called "the Grantor")

A N D:

82 JUN 22

OF THE FIRST PART

22-82 409797 L&S 3

1000 66

GLENN ARTHUR METZ, Leatherworker, 5903 Larch Street,
Vancouver, British Columbia, V6M 4E3, and ARTHUR CHARLES
HOUSTEN, Photographer, of Galiano Island, British
Columbia, V0N 1P0

(hereinafter called "the Grantee")

OF THE SECOND PART

WHEREAS the Grantor is the registered owner of the lands described as situate, lying and being in the Alberni Assessment District, in the Province of British Columbia, and being more particularly known and described as:

ST

The South 1/2 of the South East 1/4 of the South East 1/4 of Section 18, Lasqueti Island, Nanaimo District

AND WHEREAS the Grantee is the registered owner of the lands described as situate, lying and being in the Alberni Assessment District, in the Province of British Columbia, and being more particularly known and described as:

05

*AA
82 JUN 22*

The South 1/2 of the South East 1/4 of the South East 1/4 of Section 18, Lasqueti Island, Nanaimo District, EXCEPT the South 1/2 of the South East 1/4 of the South East 1/4 of said of Sectio 18, Lasqueti Island, Nanaimo District

AND WHEREAS the Grantee has requested the Grantor to grant

- 2 -

and whereas the Grantor has agreed to grant to the Grantee as owner of the dominant tenement an Easement on, over and across the land hereinafter described for the purposes hereinafter set forth:

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the sum of ONE DOLLAR (\$1.00) and other good and valuable consideration, now paid by the Grantee to the Grantor (the receipt whereof is hereby acknowledged), the Grantor doth grant and convey unto the Grantee, their heirs, successors and assigns, the full, free and uninterrupted right and liberty in perpetuity on, over or across the land described as lying and being in the Alberni Assessment District, Province of British Columbia, and being more particularly known and described as:

The South 1/2 of the South East 1/4 of the South East 1/4 of Section 18, Lasqueti Island, Nanaimo District

NOW THEREFORE the parties hereto agree that the aforesaid Easement shall forever be and remain an Easement for the purposes of obtaining access over the said lands and the Grantor doth hereby agree to grant to the Grantee, their heirs and assigns, the right and authority for them and their servants or agents and all persons duly authorized by them and their servants or agents and all persons duly authorized for that behalf from time to time and at all times hereafter at his and their will and pleasure to pass and re-pass over and across the said property either with or without motor vehicles, implements and other things which the Grantee may reasonably require to move across the lands of the Grantor:

PROVIDED HOWEVER, and it is hereby understood and agreed, that this agreement shall be construed as a covenant running with the land and that no part of the fee of the soil shall be vested in the Grantee by these presents:

AND FURTHER PROVIDED that the Grantee hereby covenants and agrees with the Grantor to indemnify and save harmless the Grantor

3

from all claims, demands, actions, cause of action, costs, damage and expenses whatsoever arising out of or in connection with the construction, maintenance and operation of any said road across the said property by the Grantor;

THIS AGREEMENT shall be binding upon and enure to the benefit of the parties hereto, their successors and assigns.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals the day and year first above written.

SIGNED, SEALED and DELIVERED by the Grantor GLENN ARTHUR METZ in the presence of: A Notary Public in and for the Province of Alberta
No 418, 10325 BONAVENTURE DR SE
CALGARY, ALBERTA

Glenn Arthur Metz
Glenn Arthur Metz

SIGNED, SEALED and DELIVERED by the Grantor ARTHUR CHARLES HOUSTEN in the presence of: J. DOUGLAS O. MACFARLANE Barrister & Solicitor P.O. BOX 118 82 COMMERCIAL ST NANAIMO, B.C. V9R 5M4

Arthur Charles Houston
Arthur Charles Houston

SIGNED, SEALED and DELIVERED by the Grantee GLENN ARTHUR METZ in the presence of: A Notary Public in and for the Province of Alberta
No 418, 10325 BONAVENTURE DR SE
CALGARY, ALBERTA

Glenn Arthur Metz
Glenn Arthur Metz

SIGNED, SEALED and DELIVERED by the Grantee ARTHUR CHARLES HOUSTEN in the presence of: J. DOUGLAS O. MACFARLANE Barrister & Solicitor P.O. BOX 118 82 COMMERCIAL ST NANAIMO, B.C. V9R 5M4

Arthur Charles Houston
Arthur Charles Houston

APPENDIX 2. LETTER FROM MINISTRY OF TRANSPORTATION RE LAKE ROAD



Our File: Lake Road

April 13th, 2007

Doug Hopwood
Lennie Road
Lasqueti Island BC V0R 2J0

RE: Lake Road – Section 18, Nanaimo District, Lasqueti Island

In response to your recent letter, our information indicates Lake Road is public for a total distance of 3.8 km, commencing at intersection with Main Road and terminating at approximately the easterly boundary of Southeast ¼ of Section 18.

Should you have any questions, please do not hesitate to contact me at (250) 751-3263 (office), (250) 714-9009 (cell) or via e-mail at Nick.Vandermolen@gov.bc.ca.

Yours truly,

Nick Vandermolen
Deputy Approving Officer

NV/vf/Lake Road

Please quote our file number when corresponding with this office.

**Ministry of
Transportation**

Vancouver Island District
South Coast Region

Mailing Address:
3rd Flr. 2100 Labieux Road
Nanaimo BC V9T 6E9
Telephone: 250 751-3246
Fax: 250 751-3289

www.gov.bc.ca/tra

APPENDIX 3. BIOGEOCLIMATIC ECOSYSTEM CLASSIFICATION AND DESCRIPTION OF SITE SERIES

Ecosystem classification, using the Biogeoclimatic Ecosystem Classification (BEC) system, provides the basis for describing the ecological diversity of the Mount Trematon Nature Reserve in this plan, and for identifying ecosystems of particular conservation significance (i.e. red- and blue-listed natural plant communities). The BEC Regional and Local levels of classification are used in this plan.

REGIONAL LEVEL

The regional level of classification is based on regional climate, as inferred from characteristic plant communities and soil/vegetation relationships. A **subzone** has a distinct climax plant association on zonal sites (sites that are neither strongly water-shedding nor water-receiving, thus reflecting the influence of the regional climate.)

All of Lasqueti Island falls within the Coastal Douglas-fir moist maritime subzone (CDFmm). In this subzone, the climate is strongly affected by the rainshadow effect of Vancouver Island. In the summer, periods of drought over 4 weeks are common. High temperatures and the lack of precipitation combine to cause moisture deficits, especially on south-facing slopes, coarse-textured or shallow soils, and upper slopes. The maritime influence moderates seasonal temperature ranges. In the CDFmm, Douglas-fir behaves as a rather shade-tolerant species, forming self-replicating climax stands on zonal sites, and tolerating some shading by deciduous and coniferous species on fresh to moist sites.

LOCAL LEVEL

Within an area having a uniform regional climate (such as the CDFmm subzone), local features such as topography, soils, aspect, and slope act together to create an environment with a certain potential to support plants. A forest **site** is defined as an area of the landscape that is relatively uniform in climate, topography, soils, etc., and so has the potential to support a certain characteristic plant community.

A **site series** is the group of all sites within a subzone that have similar physical properties, and the same vegetation potential. For example, all sites in the CDFmm subzone with the potential to develop a climax community dominated by Douglas-fir with an understory of salal and other characteristic species would belong to the **CDFmm/Douglas-fir - Salal** site series. (Since all of Lasqueti is in the CDFmm, this is shortened to **Douglas-fir - Salal** (or **Fd - Salal**) for convenience.

VEGETATION TABLE

Table A3 - 1 shows the main plants present, and their relative abundance, in the typical climax plant community that occurs on each site series within the CDFmm subzone. Note that the tree species or understory plant for which the site is named may be absent from the site if the vegetation is not at late seral or climax conditions. For example, sites in the **Western redcedar - grand fir - foamflower** site series are often dominated by red alder originating after logging, while foamflower may be absent due to browsing by feral sheep or other circumstances.

Table A3 - 1. Vegetation Summary Table for the CDFmm Subzone

* Site Series		02	03	01	04	05	06	10*	11	* Less than 4 plots.
TREE LAYER	<i>Pseudotsuga menziesii</i>	■	■	■	■	■	■			Douglas-fir
	<i>Quercus garryana</i>	■	■							Garry oak
	<i>Arbutus menziesii</i>	■								arbutus
	<i>Acer macrophyllum</i>			■	■		■		■	bigleaf maple
	<i>Thuja plicata</i>			■	■	■	■			western redcedar
	<i>Abies grandis</i>			■	■		■			grand fir
	<i>Comus nuttallii</i>			■	■		■			western flowering dogwood
	<i>Pinus contorta</i>			■	■		■		■	shore/lodgepole pine
										salal
	SHRUB LAYER	<i>Gaultheria shallon</i>	■		■	■	■	■		
<i>Mahonia nervosa</i>		■		■	■	■	■			baldhip rose
<i>Rosa gymnocarpa</i>		■		■	■	■	■			ocean spray
<i>Holodiscus discolor</i>		■		■	■	■	■			western trumpet honeysuckle
<i>Lonicera ciliosa</i>		■		■	■	■	■			snowberry
<i>Symphoricarpos</i> spp.		■		■	■	■	■			hairy honeysuckle
<i>Lonicera hispidula</i>		■		■	■	■	■			falsebox
<i>Paxistima myrsinites</i>		■		■	■	■	■			Labrador tea
<i>Ledum groenlandicum</i>								■		Indian-plum
<i>Oemleria cerasiformis</i>									■	salmonberry
<i>Rubus spectabilis</i>									■	red elderberry
<i>Sambucus racemosa</i>									■	swamp fern
HERB LAYER		<i>Polystichum munitum</i>	■		■	■	■	■		
	<i>Melica subulata</i>	■		■	■	■	■			big-leaved sandwort
	<i>Moehringia macrophylla</i>	■		■	■	■	■			Pacific sanicle
	<i>Sanicula crassicaulis</i>	■		■	■	■	■			purple peavine
	<i>Lathyrus nevadensis</i>	■		■	■	■	■			broad-leaved shootingstar
	<i>Dodecatheon hendersonii</i>	■		■	■	■	■			nodding trisetum
	<i>Trisetum cernuum</i>			■	■	■	■			vanilla leaf
	<i>Achlys triphylla</i>			■	■	■	■			bracken
	<i>Pteridium aquilinum</i>			■	■	■	■			three-leaved foamflower
	<i>Tiarella trifoliata</i>			■	■	■	■			lady fern
	<i>Athyrium filix-femina</i>			■	■	■	■			skunk cabbage
	<i>Lysichiton americanum</i>			■	■	■	■			false lily-of-the-valley
	<i>Maianthemum dilatatum</i>			■	■	■	■			electrified cat's tail moss
MOSS LAYER	<i>Rhytidiadelphus triquetrus</i>	■	■	■	■	■	■			Oregon beaked moss
	<i>Kindbergia oregana</i>	■	■	■	■	■	■			step moss
	<i>Hylocomium splendens</i>	■	■	■	■	■	■			lichen
	<i>Cladonia</i> spp.	■	■	■	■	■	■			palm tree moss
	<i>Leucolepis menziesii</i>	■	■	■	■	■	■			sphagnum moss
	<i>Sphagnum</i> spp.	■	■	■	■	■	■			
	<i>Kindbergia praelonga</i>	■	■	■	■	■	■			

EDATOPIC GRID

A terrestrial ecosystem is composed of vegetation, animals, microorganisms, and their physical environment. The physical environment (the site) can be conceptually simplified into three main elements: climate, soil moisture regime, and soil nutrient regime. Within a subzone, climate is relatively uniform. Therefore, the two main variables that describe local differences in forest sites are soil moisture regime and soil nutrient regime. The relation between these two variables can be drawn on a graph, called an **edatopic grid**, illustrating how soil moisture and nutrient regimes vary among the different site series (Figure A3-1). Typically, these two soil properties tend to vary together. In other words, dry sites are often poor in nutrients, and moist sites are much richer. For example, the very dry and nutrient poor sites (FdPI - Arbutus) occur much more often than the very dry, nutrient-rich site series (Fd - Oniongrass). Similarly, the slightly dry to fresh, nutrient-poor site series (CwFd - Kindbergia); and the wet, nutrient-poor site series (Pl - Sphagnum) are rather rare.

In addition to the main edatopic grid, a special grid is needed to illustrate the sites affected by a strongly fluctuating water table (also in Figure A3-1). Because of the pronounced summer drought in the CDF zone, there are very few sites that remain moist or wet throughout the summer. Typically, sites in low-lying flat areas or depressions have a water table that fluctuates strongly with the seasons, being at or near the surface in winter, but dropping or drying up altogether in summer.

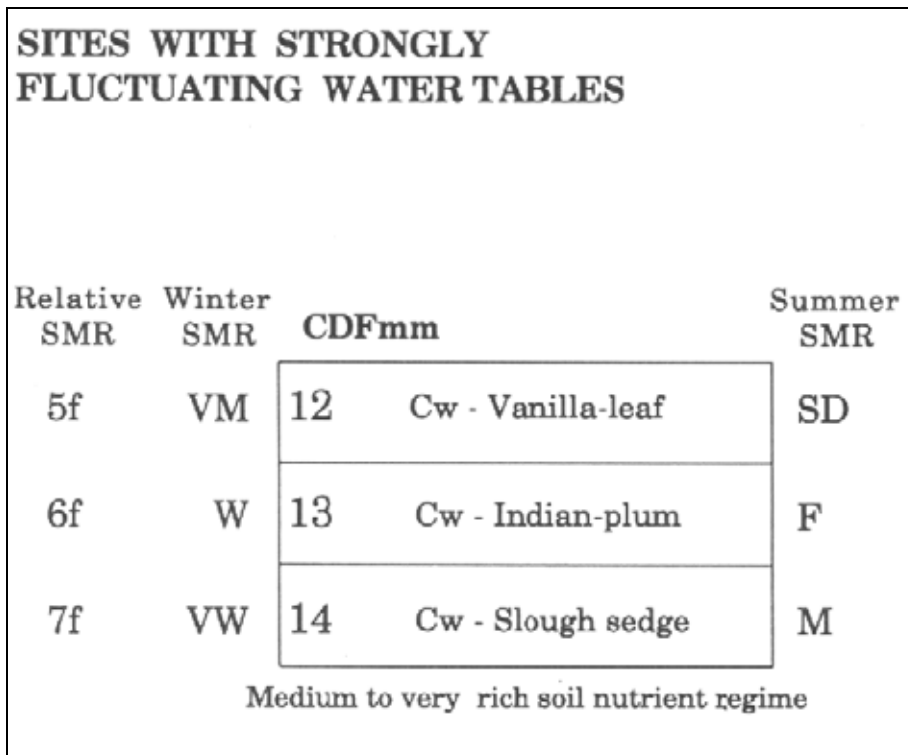
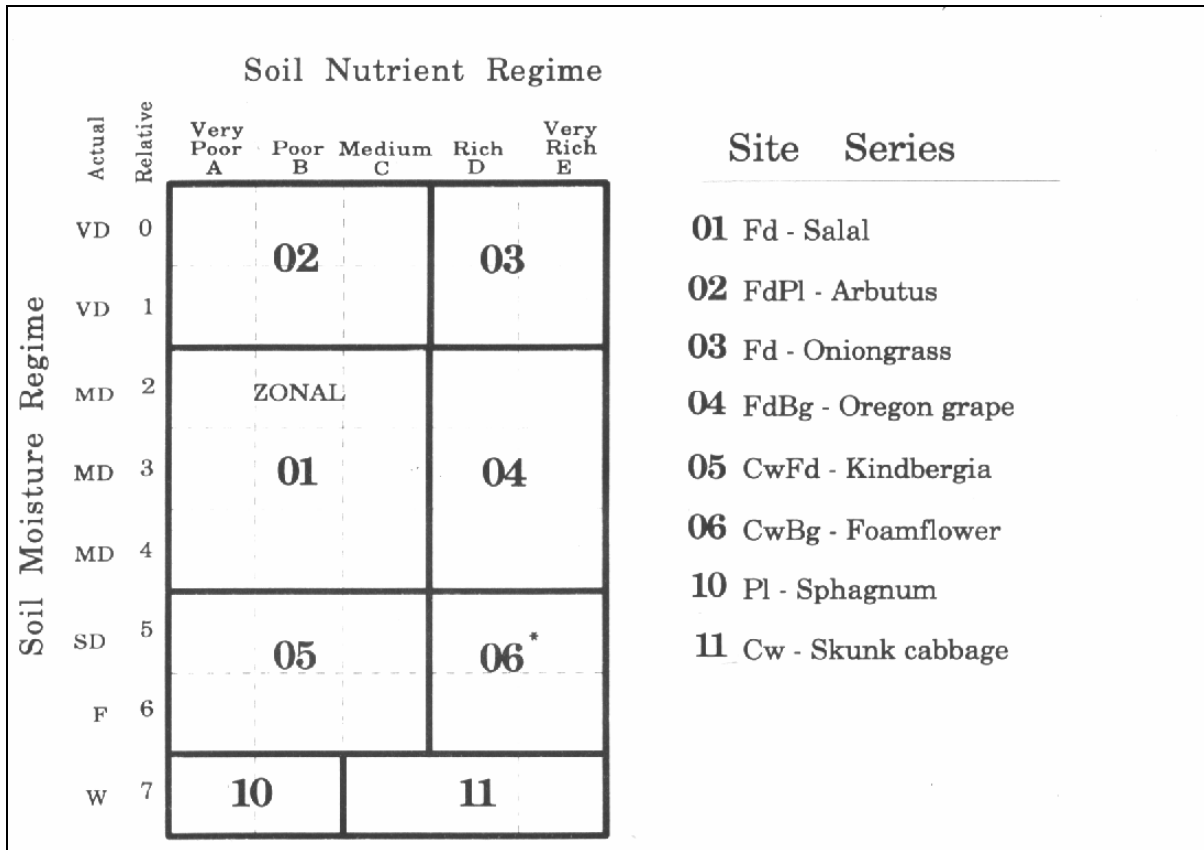


Figure A3-1. Edatopic Grids for the CDFmm subzone.

TOPOGRAPHIC CROSS-SECTION

The site series recognised within a subzone cover the range and diversity of ecosystems found in the landscape. These ecosystems usually occur in a somewhat predictable pattern on the landscape. For example, drier, “water-shedding” sites often occur on ridges and upper slopes while moister “water-receiving” sites usually occur on lower slopes, flats, or depressions. Figure A3-2 shows a typical topographic sequence on Lasqueti Island, and the usual topographic locations of some of the more common site types.

SITE SERIES DESCRIPTIONS

Douglas-fir - Shore pine - Arbutus site series

(02; FdPl - Arbutus)

This site series has a very dry soil moisture regime, and a very poor to medium (but most commonly poor) soil nutrient regime. The tree canopy is discontinuous because of frequent rock outcrops and patches of very shallow soil. The tree canopy is dominated by Douglas-fir, with shore pine and arbutus present as minor components. Western redcedar may be present in pockets of deeper soil, but it is not vigorous. Trees seldom reach over 15 metres in height, although some old Douglas-firs may be over a meter in diameter and achieve a certain venerable and gnarled magnificence. Rocky mountain juniper is an occasional species on sunny, exposed sites near the ocean. The sparse shrub layer may include ocean spray, baldhip rose, and red huckleberry. The moss layer is well developed in places, and includes *Polytrichum juniperinum*, *Hylocomium splendens*, *Pleurozium schreberii*, and *Homalathecium megaptillium*. In some areas on Lasqueti or the neighbouring islands, a variety of spring wildflowers such as blue-eyed Mary, poison camas, and sea blush are found in the FdPl - Arbutus site series. However, these open spaces are favoured by the feral sheep. When browsing is excessive, the vegetation is kept cropped very close to the ground, and the herb layer is dominated by unpalatable exotic species such as foxglove and mullein.

This site series occurs on hilltops, ridges, upper slopes, and rocky shoreline areas, where soils are shallow and coarse textured, and rock outcrops are common. Sites in this series often have very high aesthetic value, but the moss, lichen, and herbaceous communities developed on shallow soils are sensitive to heavy recreational use.

Critical site factors: Shallow soil, rocky terrain, slow growth, regeneration difficulties, conservation value, high aesthetic and recreational values, sensitive to heavy traffic.

Major tree species: Douglas-fir, shore pine, arbutus.

Douglas-fir - Salal site series

(01; Fd - Salal) This is the zonal site series. In other words, it is neither a strongly water-receiving nor a watershedding site, so its climax plant community reflects the effects of the regional climate. It has a moderately dry soil moisture regime and a very poor to medium nutrient regime. The vegetation on these sites is usually dominated by Douglas-fir as the major tree species with minor amounts of shore pine, western redcedar, and western hemlock. The understory is dominated by salal, although it is not always very vigorous. Other common shrubs include red huckleberry, baldhip rose, and sometimes ocean spray. The moss layer is well developed in some areas, and includes *Kindbergia oregana* and *Hylocomium splendens* as the major species, with *Rhytidiadelphus triquetris* and *Pleurozium schreberii* also occurring.

This site series occurs on gentle to steep upper and middle slopes. The soils are shallow deposits overlying bedrock (less than 50 cm deep) derived primarily from morainal and colluvial deposits, and are well-drained, with sandy to loamy textures and variable coarse fragment content. On this site series, Douglas-fir behaves as a shade-tolerant tree

species, capable of regenerating under the small canopy gap created by the death of a single tree. In the undisturbed condition, Douglas-fir can form uneven-aged stands with many age classes represented, from fire-scarred veterans to young seedlings. Trees may reach heights of 30 metres or more, and some older Douglas-firs may reach diameters over one metre. Tree growth is usually fairly slow, due to the pronounced growing season moisture deficit. Regeneration can be impeded by droughty conditions, especially on south and west aspects, or by excessive browsing. Understory vegetation tends to be patchy and not very vigorous, although these sites can support vigorous growth of salal.

Critical site factors: Shallow soils, slow growth, rough terrain, regeneration difficulty, high aesthetic value.

Major tree species: Douglas-fir

Minor tree species: shore pine and arbutus

Douglas-fir - Grand fir - Oregon-grape site series

(04; FdBg - Oregon-grape)

This site series has a moderately dry moisture regime and a rich to very rich nutrient regime. Douglas-fir is usually the dominant tree species, and variable amounts of western redcedar and grand fir are usually present. This site series can include a range of soil and terrain conditions, from steep to very gentle slopes. This site series occurs on gentle middle to lower slopes or on steep slopes at the base of hills and rock outcrops. The soils are derived from marine deposits of sandy texture, with a variable coarse fragment content, and sometimes an overlying veneer of colluvial materials, particularly where the site is on a toe slope beneath a steep cliff.

Temporary seepage, or fine-textured marine soils may be present and forest productivity is quite high. Common tree species in the original forest included Douglas-fir, with moderate components of western redcedar and grand fir. These sites are often occupied by seral stands of red alder that regenerated after logging, or sometimes mixed alder and conifer stands. Red alder does not attain its most vigorous growth on these sites. These sites favour the growth of some fine large specimens of bigleaf maple. Understory vegetation includes shrubs such as salal (usually associated with decaying wood) Oregon-grape, sword fern, and red huckleberry. Herbs such as broad-leaved starflower and sweet-scented bedstraw are sometimes present. The patchy moss layer may include *Kindbergia oregana*, *Plagiomnium insigne*, *Rhizomnium glabrescens*, and *Leucolepis menziesii*.

Critical site factors: Medium to good productivity and growth. May include sites with steep unstable slopes. Presence of colluvial veneer or blanket may pose difficulties for tree regeneration.

Major tree species: Douglas-fir, western redcedar.

Minor species: Grand fir, western hemlock, red alder, bigleaf maple, Pacific yew.

**Western redcedar - Grand fir - Foamflower site series
(06; CwBg - Foamflower)**

This site series has a slightly dry to fresh soil moisture regime, and a rich to very rich soil nutrient regime. The original forest on these sites included very large Douglas-fir and western redcedar trees over 2 metres in diameter, as well as variable amounts of grand fir, western hemlock, and bigleaf maple. Douglas-fir is unlikely to grow well beneath an intact forest canopy on this site series, and probably depended on periodic fire or windstorm disturbances to create good conditions for its regeneration. Western redcedar occurs as a tolerant understory species, and its growth is slow until an opening occurs in the canopy above. In some cases these sites are now occupied by successional stands of red alder which regenerated after logging. Alder grows well on these sites and can reach large dimensions. Conifer species may occur under the alder canopy. In this case, the conifers rely heavily on photosynthesis in winter when the alders are bare. Conifer growth is slow under an alder canopy. In other cases these sites may regenerate to nearly pure stands of Douglas-fir after logging.

This site series occurs on gentle lower slopes and undulating or level bottomlands. Soils are usually derived from stratified marine deposits, often with an impermeable clay layer in the lower profile, creating imperfect drainage. Textures in the upper horizon are generally loamy or silty, with few coarse fragments. These sites are very productive for tree growth.

Ordinarily these sites have a vigorous and dense cover of sword fern. The herb layer includes three-leaved foamflower and trailing blackberry. The moss layer is not well developed but may include *Leucolepis menziesii* and *Plagiomnium insigne*. Under extreme browsing pressure the understory can become completely bare.

Critical site factors: High productivity, moderate soil compaction hazard, moderate brush competition hazard, high conservation value, potentially high aesthetic value of large diameter trees.

Major tree species: Western redcedar, Douglas-fir, red alder.

Minor tree species: Grand fir, western hemlock, bigleaf maple, Pacific yew.

**Shore pine - sphagnum site series
(10; Pl - Sphagnum)**

This site series is distinguished by a build-up of undecomposed or partially decomposed organic material, often derived from sphagnum moss, but also from other wetland plants. The soil nutrient regime is very poor to poor and the soil moisture regime is wet.

Although water is abundantly present, it does not move through the soil on these sites to any great degree. As a result, plants on these sites must depend largely on the nutrients available in rain water, plus what small amounts become available through litterfall and decomposition, animal droppings, etc. The low nutrient input combined with the acidifying properties of sphagnum moss make for an unusual habitat, occupied by a distinctive plant community. The plant community is dominated by shrub plants such as salal, labrador tea, and swamp laurel. The discontinuous and stunted tree layer consists primarily of shore pine, with lesser amounts of western hemlock, western redcedar, and

very occasionally white pine. The deep, spongy moss layer includes *Sphagnum girgensohnii*, *Rhytidiadelphus loreus*, *Hylocomium splendens* and other species. In some cases sundews and bog cranberry may be present.

This site series occurs in flats or depressions away from the influence of nutrient rich seepage water. The soils consist of deep organic deposits, and the growth of trees is extremely slow. These sites have high aesthetic values, especially in spring when the labrador tea and swamp laurel are in bloom. They also have high conservation value, as the habitat of a number of plant species that are restricted to this kind of site. These ecosystems are sensitive to alterations in water table or water flows. Draining or flooding is likely to lead to a shift to a more common form of plant community.

Critical site factors: saturated soils (will not support machinery), high aesthetic and conservation value, very slow growth, sensitive to hydrologic change.

Major tree species: shore pine.

Minor tree species: western redcedar, western hemlock, western white pine.

Redcedar –Douglas-fir – Kindbergia site series (05; CwFd – Kindbergia)

This site series has a slightly dry to fresh soil moisture regime, and a very poor to medium soil nutrient regime. This is a relatively uncommon site series that typically occurs on gentle mid slopes or flats where minor accumulation of soil moisture occurs, but nutrient rich run-off or seepage is not present. Vegetation is dominated by Douglas-fir and western redcedar in the tree canopy. Salal, red huckleberry, and deer fern are common understory plants.

Critical site factors: Moderate productivity, moderate soil compaction hazard, moderate brush competition hazard, high conservation value, potentially high aesthetic value of large diameter trees.

Major tree species: Western redcedar, Douglas-fir.

Minor tree species: shore pine, red alder.

Redcedar – Skunk cabbage (11; Cw – Skunk cabbage)

This site series has a wet soil moisture regime, and a medium to very rich soil nutrient regime. This is a relatively uncommon site series that typically occurs in depressions and streamside areas subject to year-round seepage or high water table, often close to a stream or other water body. The soils are generally of alluvial origin and may include significant accumulation of organic material. Vegetation is dominated by and western redcedar in the tree canopy, or red alder where the climax vegetation has been removed. Note that skunk cabbage is not found on Lasqueti Island.

Critical site factors: High productivity, high soil compaction hazard, high brush competition hazard, high conservation value, potentially high aesthetic value of large diameter trees. Often associated with streams or other wetlands.

Major tree species: Western redcedar.

Minor tree species: red alder, grand fir, bigleaf maple

APPENDIX 4. VEGETATION TYPES

Vegetation Type # 1	Old conifer forest on moderately dry to fresh sites
Main Tree Canopy	Western redcedar, Douglas-fir, bigleaf maple
• <i>Age range</i>	Mostly 150 – 300 years
• <i>Height and dbh range</i>	20 – 40 m; 60 – 150 cm.
• <i>Canopy cover</i>	50 – 80 %
Secondary Layers	Western redcedar, western hemlock grand fir
• <i>Age range</i>	All ages to about 80 years
• <i>Height and dbh range</i>	0.5 – 20.0 m; 1 – 30 cm.
• <i>Canopy cover</i>	10 – 25 %
Understory layers: Height, cover %, species	Shrubs: 0.5 – 1.5 m, 5 – 25 %, Salal, red huckleberry Ferns: < 1 m, 5- 15 %, sword fern, deer fern
Variability	Some canopy gaps, high vertical diversity
Site series	04, 06, 01
Wildlife habitat features	Snags and wildlife trees, large old trees, complex canopy, down logs, small “caves” in coarse talus, healthy understory.
History	Natural old forest.
Natural disturbance factors	Infrequent stand replacement by fire and wind disturbance. Gap dynamics. Occasional rockfall.
Expected changes	Gradual loss (over several centuries) of old Douglas-fir trees due to mortality, to be replaced by western redcedar, western hemlock and grand fir. Continued old growth forest character in the absence of major disturbance.
Critical factors, conservation values, and management issues	Superb area of natural old-growth forest, unaffected by logging or grazing. Red-listed ecological community in undisturbed late-seral condition. Contiguous with larger areas of similar forest on adjacent Crown and private lands.



Photo A4-1. Vegetation Type 1



Photo A4-2. Vegetation Type 1

Vegetation Type # 2	Old conifer forest on very dry sites
Main Tree Canopy	Douglas-fir, shore pine, arbutus
• <i>Age range</i>	Uneven-aged; all ages up to about 250
• <i>Height and dbh range</i>	1.0 – 25 m; 2.0 - 120 cm.
• <i>Canopy cover</i>	20 – 50 %
Secondary Layers	n.a.
• <i>Age range</i>	n.a.
• <i>Height and dbh range</i>	n.a.
• <i>Canopy cover</i>	n.a.
Understory layers: Height, cover %, species	Shrubs: 0.5 – 1.0 m, 1 – 10 %, Salal, red huckleberry Moss: 25 – 100 %, <i>Hylocomium splendens</i> , <i>Rhytidia alphas triquetris</i> , <i>Homalathecium megaptillium</i>
Variability	Many canopy gaps
Site series	02, 01
Wildlife habitat features	Some snags and wildlife trees, open understory allows easy movement for deer. Potential habitat for northern alligator lizard in gaps with south-facing talus or rock.
History and natural disturbance factors	Natural forest. Gap dynamics by disease and wind. Infrequent fire.
Expected changes	Continued old growth forest character. Sheep browse may lead to reduction in forest cover over the long term as dying trees are not replaced.
Critical factors, conservation values, and management issues	Old growth forest values. Red-listed ecological community in relatively undisturbed late-seral condition.

Photo A4-3.
Vegetation Type 2.



Photo A4-4.
Vegetation
Type 2.

Vegetation Type # 3	Dwarf conifer forest on exposed very dry site (Trematon summit)
Main Tree Canopy	Shore pine, Douglas-fir, arbutus
• <i>Age range</i>	All ages, mostly under 50
• <i>Height and dbh range</i>	2 – 15 m; 5 – 30 cm.
• <i>Canopy cover</i>	10 – 50 %
Secondary Layers	n.a.
• <i>Age range</i>	n.a.
• <i>Height and dbh range</i>	n.a.
• <i>Canopy cover</i>	n.a.
Understory layers: Height, cover %, species	Moss: 5 – 50 %, <i>Hylocomium splendens</i> , <i>Rhytidia alpestris</i>
Variability	Clumpy tree distribution with many gaps
Site series	02, 01
Wildlife habitat features	Clumps of conifers used by small birds.
History and natural disturbance factors	Natural forest. Increasing cover in recent decades, historically the forest may have reduced by an unknown disturbance (probably wind and/or natural fire). Site very exposed to drought, wind and lightning strikes.
Expected changes	Some increase in conifer cover and size through seeding in and growth. Some tree mortality due to density-related competition. High possibility of drought-related die-back and wind-throw as trees grow larger.
Critical factors, conservation values, and management issues	Very high scenic recreational values due to location on Mount Trematon summit.



Photo A4-5. Vegetation Type 3.

Vegetation Type # 4	Selectively logged conifer forest on very dry sites
Main Tree Canopy	Douglas-fir, shore pine, arbutus
• <i>Age range</i>	50 – 250
• <i>Height and dbh range</i>	15 – 25 m
• <i>Canopy cover</i>	5 – 40 %
Secondary Layers	Douglas-fir, shore pine, arbutus
• <i>Age range</i>	15 – 50
• <i>Height and dbh range</i>	1 – 5 m
• <i>Canopy cover</i>	10 – 50 %
Understory layers: Height, cover %, species	Shrubs: 0.5 – 1.0 m, 1 – 10 %, Salal, red huckleberry
Variability	Highly variable with gaps and dense clumps
Site series	02, 01
Wildlife habitat features	Open young conifer forest cover, few snags, abundant down logs
History and natural disturbance factors	Light to medium selective logging, natural regeneration and release of leave trees.
Expected changes	Increasing conifer forest cover due to tree growth, but still fairly open structure and smaller trees due to site limitations. Slow development of old forest characteristics.
Critical factors, conservation values, and management issues	Red-listed ecological community in moderately disturbed condition.



Photo A4-6.
Vegetation Type 4.

Photo A4-7.
Vegetation Type 4.



Vegetation Type # 5	Immature post-logging conifer forest on moderately dry sites
Main Tree Canopy	Douglas-fir, western redcedar, shore pine
• <i>Age range</i>	Mostly 40 – 50, some vets and released trees up to 300
• <i>Height and dbh range</i>	15 – 30 m; 15 – 60 cm.
• <i>Canopy cover</i>	30 – 70 %
Secondary Layers	n.a.
• <i>Age range</i>	n.a
• <i>Height and dbh range</i>	n.a
• <i>Canopy cover</i>	n.a
Understory layers: Height, cover %, species	Shrubs: 0.5 – 1.0 m, 1 – 10 %, Salal, red huckleberry
Variability	Fairly uniform, some gaps
Site series	01, 02, 04
Wildlife habitat features	Open immature conifer forest cover, few snags, abundant down logs
History and natural disturbance factors	Heavily logged about 1956 followed by natural regeneration and growth of leave trees. Infrequent major disturbance by fire.
Expected changes	Slow development of old forest characteristics through tree growth and development of gaps by natural mortality and wind. Some tree mortality due to density-related competition.
Critical factors, conservation values, and management issues	Red-listed ecological community in moderately disturbed, early seral condition.



Photo A4-8. Vegetation Type 5.

Vegetation Type # 6	Young post-logging conifer forest on moderately dry sites
Main Tree Canopy	Douglas-fir, western redcedar, shore pine
• <i>Age range</i>	Mostly 15 – 25, some vets and released trees up to 300
• <i>Height and dbh range</i>	3 - 10 m; 5 – 60 cm.
• <i>Canopy cover</i>	10 – 60 %
Secondary Layers	n.a.
• <i>Age range</i>	n.a.
• <i>Height and dbh range</i>	n.a.
• <i>Canopy cover</i>	n.a.
Understory layers: Height, cover %, species	Shrubs: 0.5 – 1.5 m, 10 – 40 %, Salal, red huckleberry
Variability	Fairly uniform, some gaps and clumps of larger trees left after logging.
Site series	01, 02, 04
Wildlife habitat features	Open young conifer forest cover, few snags, abundant down logs, pockets of dense cover.
History and natural disturbance factors	Heavily logged about 1956 followed by natural regeneration and growth of leave trees. Infrequent major disturbance by fire.
Expected changes	Slow development of old forest characteristics through tree growth and development of gaps by natural mortality and wind. Some tree mortality due to density-related competition.
Critical factors, conservation values, and management issues	Red-listed ecological community in moderately disturbed, early seral condition.



Photo A4-9. Vegetation Type 6.



Photo A4-10. Vegetation Type 6.

Vegetation Type # 7	Immature deciduous/conifer riparian forest
Main Tree Canopy	red alder, western redcedar, Douglas-fir
• <i>Age range</i>	Mostly 40 – 60
• <i>Height and dbh range</i>	15 – 25 m; 20 – 50 cm
• <i>Canopy cover</i>	50 – 80 %
Secondary Layers	n.a.
• <i>Age range</i>	n.a.
• <i>Height and dbh range</i>	n.a.
• <i>Canopy cover</i>	n.a.
Understory layers: Height, cover %, species	Shrubs: 0.5 - 2.0 m, 10 - 30 %, Salmonberry Ferns: 0.5 m, 1 –15 %, sword fern
Variability	Clumpy, some pockets of conifers
Site series	06 (01, 14)
Wildlife habitat features	Proximity to stream, salmonberry (blossoms used by Rufus Hummingbirds and berries used by various songbirds)
History and natural disturbance factors	Heavily logged about 1956 or earlier. Infrequent to rare disturbance by wildfire. Occasional disturbance by flooding and related stream channel changes.
Expected changes	Red alder canopy will mature and eventually begin to die off. Heavy browsing by sheep may prevent natural development of a conifer stand (especially cedar). Degraded ecosystem, restoration opportunity.
Critical factors, conservation values, and management issues	Potential for development of a high-value riparian habitat, may be impeded by browsing. Red-listed ecological community in degraded early seral condition, with restoration potential.



Photo A4-11. Vegetation Type 7.

Vegetation Type # 8	Young arbutus and conifers
Main Tree Canopy	Arbutus
• <i>Age range</i>	Mostly 20 – 40
• <i>Height and dbh range</i>	2 – 15 m; 5 – 30 cm.
• <i>Canopy cover</i>	5 – 40 %
Secondary Layers	Douglas-fir, cedar
• <i>Age range</i>	15 – 25
• <i>Height and dbh range</i>	0.3 – 3 m
• <i>Canopy cover</i>	0 – 2 %
Understory layers: Height, cover %, species	Shrubs: 0.2 – 0.5 m, 0 – 5 %, Salal, baldhip rose
Variability	Very clumpy with un-forested gaps
Site series	02, 01
Wildlife habitat features	Arbutus canopy used seasonally by some migratory songbirds
History and natural disturbance factors	Clearcut during 1980's. Very sparse natural regeneration of Douglas-fir due to sheep browsing and very dry site. Some arbutus trees were left and some re-sprouted from stumps, leading to very open arbutus-dominated stand.
Expected changes	Growth of arbutus trees. Some Douglas-fir seedlings may escape sheep browse. Arbutus may be susceptible to disease.
Critical factors, conservation values, and management issues	Arbutus-dominated stand has conservation value. Red-listed ecological community in degraded early seral condition, with restoration potential. Intense sheep browsing limits understory development.

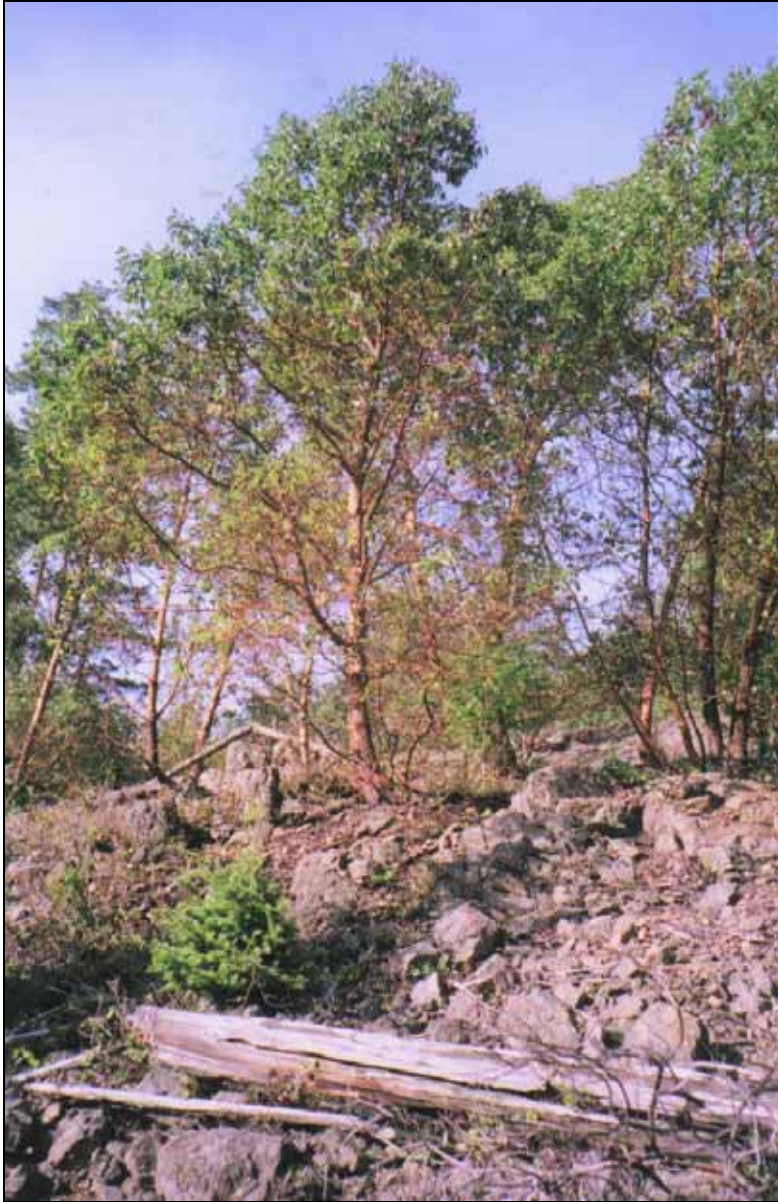


Photo A4-12. Vegetation Type 8.

Vegetation Type # 9	Poorly regenerated, salal dominated sites
Main Tree Canopy	Douglas-fir, western redcedar
• <i>Age range</i>	Under 30
• <i>Height and dbh range</i>	1 – 5 m; 2 - 15 cm
• <i>Canopy cover</i>	Less than 5 %
Secondary Layers	n.a.
• <i>Age range</i>	n.a.
• <i>Height and dbh range</i>	n.a.
• <i>Canopy cover</i>	n.a.
Understory layers: Height, cover %, species	Shrubs: 0.5 – 2.0 m; 60 – 100%, salal, trailing blackberry, baldhip rose
Variability	Mostly dense salal
Site series	01, 06, 02
Wildlife habitat features	Dense salal provides hiding, nesting cover for small birds, blossoms and berries may be used by birds, salal browsed by deer.
History and natural disturbance factors	Clearcut logging, followed by competition by salal preventing natural regeneration of trees.
Expected changes	Some trees may become established. Salal may die back or be reduced by browsing.
Critical factors, conservation values, and management issues	



Photo A4-13. Vegetation Type 9.

Vegetation Type # 10	Lichens, mosses and herbs on rock outcrops and cliffs
Main Tree Canopy	n.a.
• <i>Age range</i>	n.a.
• <i>Height and dbh range</i>	n.a.
• <i>Canopy cover</i>	n.a.
Secondary Layers	n.a.
• <i>Age range</i>	n.a.
• <i>Height and dbh range</i>	n.a.
• <i>Canopy cover</i>	n.a.
Understory layers: Height, cover %, species	Mosses: to 5 cm., 20 –100%, <i>Hylocomium splendens</i> , <i>Rhytidiadelphus triquetris</i> , <i>Polytrichum juniperinum</i> , <i>Racomitrium canescens</i> , <i>Dicranum species</i> Lichens: <i>Caldonia pertentosa</i> .
Variability	No vertical diversity, but many different species of mosses, lichens and herbs in an intricate patchwork.
Site series	Rock outcrops with very thin soil
Wildlife habitat features	Limited browsing, open sites used for sunning
History and natural disturbance factors	Natural plant community, but the grasses and spring flowers component is severely reduced by intense sheep browsing.
Expected changes	No major change expected.
Critical factors, conservation values, and management issues	Red-listed hairy gumweed is reported to occur within this type. Several plants that are uncommon on Lasqueti occur on cliffs away from sheep browsing. Browsing by feral sheep severely impacts flowering plants.



Photo A4-14. Vegetation Type 10.

Vegetation Type # 11	Poorly regenerated areas, moderately to very dry sites, and degraded sites
Main Tree Canopy	Douglas-fir, western redcedar, shore pine
• <i>Age range</i>	Mostly under 30
• <i>Height and dbh range</i>	1 – 5 m; 2 - 15 cm
• <i>Canopy cover</i>	Less than 5 %
Secondary Layers	n.a.
• <i>Age range</i>	n.a.
• <i>Height and dbh range</i>	n.a.
• <i>Canopy cover</i>	n.a.
Understory layers: Height, cover %, species	Shrubs: 0.2 – 0.5 m; 0 – 2 %, Common rush
Variability	Mostly uniform un-forested
Site series	01, 02, 04, includes some sites heavily degraded by compaction and loss of topsoil (old logging roads and landings)
Wildlife habitat features	Limited browsing, potential habitat for northern alligator lizard on talus slopes.
History and natural disturbance factors	Clearcut logging, natural regeneration prevented by soil degradation, dry site, and intense browsing by sheep
Expected changes	Very slow natural establishment of trees
Critical factors, conservation values, and management issues	Severely degraded ecosystems, restoration opportunity. Severe browsing by feral sheep limits regeneration.

Photo A4-15.
Vegetation Type 11.



Photo A4-16. Vegetation Type 12.

APPENDIX 5. B.C. CONSERVATION DATA CENTRE ELEMENT OCCURRENCE REPORT ON HAIRY GUMWEED

TREMATON MOUNTAIN, LASQUETI ISLAND

Georgia Basin Ecosystem Initiative
B.C. Conservation Data Centre Site Report
TREMATON MOUNTAIN, LASQUETI ISLAND

Identifiers and Locators

Site Name: **TREMATON MOUNTAIN, LASQUETI ISLAND**
Site Alias:
Regional District: POWELL RIVER
Ecosection: SOG
UTM (NAD 83): 10 406513 5481076
Latitude: East: 1241612W West: 1241840W
Longitude: North: 492846N South: 492815N
Air Photo:
Mapsheet: 092F/08
Directions: Lasqueti Island is accessed by foot passenger ferry from French Creek, Vancouver Island. Trematon Mountain is accessed by a trail from Lambert Lake.

Site Description

Site Description: The site has open grassland vegetation with low shrubs surrounded by forest. The NE portion of the site is older (>100 yrs) coniferous forest. The peak is the highest point on the island.

Site Significance: This site is unusual in that plants generally found at higher elevation are found here.

Key Environmental Factors:
Open, shallow soils and proximity to ocean with its strong moderating impact.

Elevation (m): Min. Max.
Site Association: CDF mm
Climate Description: Mediterranean climate with minimum precipitation in summer and rainy cool winters.

Land Use History:
Adjacent Land Use: Adjacent land is privately owned with some pastures.

Site Design

Boundary Justification: Boundaries include the open hilltop and adjacent forest.
Size (ha): 224.18

Site Significance

Biodiversity Significance Rating: **B3**

While the BCCDC currently (2000) records no rare elements from this site, the vascular plant *GRINDELIA HIRSUTULA* var. *HIRSUTULA* (hairy gumweed - G5T? - S1 - Red List) is known from this site and the plant association *PSEUDOTSUGA MENZIESII*/*GAULTHERIA SHALLON* (Douglas fir/salal - S2 - Red List) also may occur here (A. Ceska). This site is unusual as it has higher elevation plants misplaced into a relative lowland (e.g., *HUPERZIA OCCIDENTALIS* [fir clubmoss] and *SAXIFRAGA BRONCHIALIS* [spotted saxifrage]).

Other Values Rating: **V3**

This site is used for hiking as it is the highest point on the island.

Connectivity Rating:

Representativeness Rating: **R2**

This rating has been given not because the site provides good representation of the ecosystem types found at the site, but because the site is unique in that it is an excellent representation of an unusual ecosystem for its area.

Cultural/Heritage Value rating: **HU**

Protection Urgency Rating: **P3**

The current status of this site is not known but this unique site should be protected.

Management Urgency Rating:

Real Estate and Protection

Conservation Intentions:

Protection Comments:

Stewardship

Land Use Comments: This site is used for recreation and has hiking trails.

Natural Hazards Comments:

Exotics Comments: There is CYTISUS SCOPARIUS (Scotch Broom) at this site as well as some introduced grasses.

Information Needs: Inventory is required at this site to confirm the presence of rare plant associations and to collect voucher specimens of rare vascular plants.

Management Needs:

Managed Area Comments:

Additional Site Record Information:

Proponent Name or Agency: BCCDC - Adolf Ceska

Proponent Phone: 250-356-7855

Inventories: Sensitive Ecosystem Inventory polygon: T1474(OF:co)

Latest Revision: 01-01-24 Author: Ceska, Adolf

Data Sensitivity: N

Sensitivity Comments:

Supporting Materials on File:

**APPENDIX 6. B.C. CONSERVATION DATA CENTRE ELEMENT
OCCURRENCE REPORT ON HAIRY GUMWEED**

APPENDIX 7. LASQUETI ISLAND COMMUNITY CONSULTATION PROCESS FACT SHEET AND QUESTIONNAIRE RESULT

The following is a partial list of the Lasqueti Community Island community members who attended the community consultation meeting held on February 17, 2007 at the Lasqueti Arts Centre. Unfortunately, not all those who attended signed in, so this list may be incomplete.

- Aileen Collings
- Domena Diesing
- Bruce Fleming-Smith
- Alisdair Gordon
- Nancy Gordon
- Mick Hagedorn
- Mary-Jean Hagedorn
- Martha Holmes
- Peter Johnston
- Tio Macaque
- John O'Halloran
- Zbigniew Wicrzbizki

Four individuals filled out and returned the one-page questionnaire that was provided. These responses are reproduced below.

The Background "Fact Sheet" that was provided at the community consultation meeting is also reproduced at the end of this Appendix.

Mount Trematon Nature Reserve - Public Survey

Let us know what you think! Please fill out this survey on the management of the Mount Trematon Nature Reserve and return to Chris Ferris at the address below.

- 1.) Have you ever visited the Mount Trematon Nature Reserve? YES NO
• If YES, how often have you visited the reserve? 50 times
- 2.) How do you access the Mount Trematon Nature Reserve (foot, bicycle, car) and by what route? If applicable, indicate on the map on the back of this sheet.
Photography
- 3.) As a current or future visitor to the Mount Trematon Nature Reserve, please list activities that you enjoy pursuing there (e.g., walking, wildlife viewing, mountain biking, other..)
Photography
- 4.) What are the special features most important to you in the Mount Trematon Nature Reserve? Please list and indicate locations on the map on the back of this sheet.

- 5.) Are there any activities that you think are incompatible with the protection of the natural features of the Mount Trematon Nature Reserve?
Cell towers, Motor cycles, ATV's, Campsites
Broadband
Booths

- 6.) Have you viewed wildlife or special plants while visiting the Mount Trematon Nature Reserve? Please list or describe below.

Birds mostly

Please provide any additional comments, concerns or suggestions you may have about management of the Mount Trematon Reserve.

Your name and address (Optional) _____

Please return completed surveys to Chr. Ferris, Lennie Dr., ... and BC, V0R 2J0
Questions? Call Chris Ferris 333-8876

Mount Trematon Nature Reserve - Public Survey

Let us know what you think! Please fill out this survey on the management of the Mount Trematon Nature Reserve and return to Chris Ferris at the address below.

1.) Have you ever visited the Mount Trematon Nature Reserve? YES NO

- If YES, how often have you visited the reserve?

About four times

2.) How do you access the Mount Trematon Nature Reserve (foot, bicycle, car) and by what route? If applicable, indicate on the map on the back of this sheet.

3.) As a current or future visitor to the Mount Trematon Nature Reserve, please list activities that you enjoy pursuing there (e.g., walking, wildlife viewing, mountain biking, other..)

*Looking over the ground and (rock formation and falls)
View of the Lake and Georgian Street*

4.) What are the special features most important to you in the Mount Trematon Nature Reserve? Please list and indicate locations on the map on the back of this sheet.

Its connection to the 'Ecological Reserve'

5.) Are there any activities that you think are incompatible with the protection of the natural features of the Mount Trematon Nature Reserve?

*The construction of cell towers, windmills, roads, "DIAT BIKES"
"ATV'S"*

6.) Have you viewed wildlife or special plants while visiting the Mount Trematon Nature Reserve? Please list or describe below.

Please provide any additional comments, concerns or suggestions you may have about management of the Mount Trematon Reserve.

*Portions that have been logged and are slowed in
recovery could be fenced to prevent feed traps from grazing.
Would suggest a small portion as a demonstration plot.*

Your name and address (Optional)

Please return completed surveys to Chris Ferris, Lennie Road, Lasqueti Island BC, V0R 2J0
Questions? Call Chris Ferris 333-8876

Mount Trematon Nature Reserve - Public Survey

Let us know what you think! Please fill out this survey on the management of the Mount Trematon Nature Reserve and return to Chris Ferris at the address below.

1.) Have you ever visited the Mount Trematon Nature Reserve? YES NO

- If YES, how often have you visited the reserve?

~~once~~, about 6

2.) How do you access the Mount Trematon Nature Reserve (foot, bicycle, car) and by what route? If applicable, indicate on the map on the back of this sheet.

3.) As a current or future visitor to the Mount Trematon Nature Reserve, please list activities that you enjoy pursuing there (e.g., walking, wildlife viewing, mountain biking, other..)

On a foggy day at sea level, hiking to the top of Mt Trematon can lift you out of the fog, making a beautiful day.

4.) What are the special features most important to you in the Mount Trematon Nature Reserve? Please list and indicate locations on the map on the back of this sheet.

This is difficult to decide, but I do love the top, where the trees appear to be bonsai.

5.) Are there any activities that you think are incompatible with the protection of the natural features of the Mount Trematon Nature Reserve?

Mountain Biking; horseback riding, ATV's

6.) Have you viewed wildlife or special plants while visiting the Mount Trematon Nature Reserve? Please list or describe below.

Swans on the lake, watching the Turkey Vultures playing in the updrafts.

Please provide any additional comments, concerns or suggestions you may have about management of the Mount Trematon Reserve.

Your name and address (Optional) _____

Please return completed surveys to Chris Ferris, Lennie Road, Lasqueti Island BC, V0R 2J0
Questions? Call Chris Ferris 333-8876

Mount Trematon Nature Reserve - Public Survey

Let us know what you think! Please fill out this survey on the management of the Mount Trematon Nature Reserve and return to Chris Ferris at the address below.

1.) Have you ever visited the Mount Trematon Nature Reserve? YES NO

- If YES, how often have you visited the reserve?

too many to count

2.) How do you access the Mount Trematon Nature Reserve (~~foot~~, ~~by the car~~) and by what route? If applicable, indicate on the map on the back of this sheet.

through Tio + Valeria's, then up

3.) As a current or future visitor to the Mount Trematon Nature Reserve, please list activities that you enjoy pursuing there (e.g. walking, wildlife viewing, mountain biking, other..)

4.) What are the special features most important to you in the Mount Trematon Nature Reserve? Please list and indicate locations on the map on the back of this sheet.

the height, the view, the climb, the forest

5.) Are there any activities that you think are incompatible with the protection of the natural features of the Mount Trematon Nature Reserve?

any motor vehicles or generators; any buildings; many signs

6.) Have you viewed wildlife or special plants while visiting the Mount Trematon Nature Reserve? Please list or describe below.

There are several plants in the steep crevice that I haven't seen elsewhere - don't know what they are.

Please provide any additional comments, concerns or suggestions you may have about management of the Mount Trematon Reserve.

Your name and address (Optional) _____

Please return completed surveys to Chris Ferris, Lennie Road, Lasqueti Island BC, V0R 2J0
Questions? Call Chris Ferris 333-8876

Facts about the Mount Trematon Nature Reserve

Significant Features

- Approximately 56.7 hectares (140 acres).
- Contains significant areas of rare old-growth Douglas fir and Western redcedar forest.
- Includes the summit of Mount Trematon, which is the highest point on Lasqueti Island (330m elevation) and a unique geological feature.
- Contains a portion of Trematon Lake and Trematon Creek, one of the larger streams on Lasqueti.
- Located in the Coastal Douglas-fir moist maritime (CDFmm) Biogeoclimatic Sub-zone, which has many of the most rare ecosystems in BC, and is not adequately represented in BC's system of Protected Areas. (About 4% of the CDFmm is protected, compared to a provincial goal of 12% minimum).
- Contains a diversity of ecosystems and plant communities, primarily Douglas-fir, shore pine, arbutus and cedar forests as well as moss and lichen communities on rock outcrops.
- Is contiguous with Ecological Reserve #4, (approximately 210 hectares) and Crown Land "Parcel B" (approximately 320 ha), and forms a bridge between these two large blocks of Crown land with high natural diversity values.
- The summit of Mount Trematon is used as a hiking destination by members of the Lasqueti Island community, and offers exceptional views in all directions. Approaches are mostly by old logging roads. The final summit has steep and hazardous terrain, and is reached via several rough, unmarked routes.

Site History

- Portions of the property were logged in 1956, 1978, and the late 1980's.
- Approximately 10 to 15 ha of original old-growth forest remain, including areas with very large old Douglas-fir and cedar.
- Most of the logged areas have regenerated from trees that were left standing and from natural seedlings.
- Approximately 10 ha of logged areas have not regenerated well. Browsing by sheep is preventing natural regeneration of the forest in some areas.
- The property was donated to the Islands Trust Fund in 2006.

The Islands Trust Fund

- The Islands Trust Fund is a conservation land trust established in 1990 to preserve and protect unique ecological or cultural properties in the Islands Trust Area.
- As one of British Columbia's leading conservation trusts, the Islands Trust Fund works with the community to protect special places in perpetuity through voluntary land donations, conservation covenants, land acquisition and public education.
- The Islands Trust Fund currently has 65 protected areas established and carefully managed for conservation. More than \$22 million worth of land and cash has been

donated and protected properties now exist on 12 of the 13 main islands within the Islands Trust Area.

- **The mission of the Islands Trust Fund, as an active regional land trust, is to protect special places by encouraging, undertaking and assisting in the voluntary conservation initiatives within the Islands Trust Area.**

Management Planning Process

- The Islands Trust Fund has contracted Chris Ferris to develop a management plan for the Mount Trematon Nature Reserve, to be completed by March 2007. All members of the Lasqueti Island Community are encouraged to share their knowledge of the Mount Trematon area and their thoughts on how it should be managed to best conserve its unique values.

APPENDIX 8 NEWS ARTICLES ON NATURE RESERVE DONATION

1.Excerpt from Islands Trust *enews*, Summer 2006

Lasqueti Island Celebrates the Gordon Family's Gift of Mt. Trematon

On August 5th, over 50 people celebrated the Gordon family's generous gift of land to the Trust Fund Board at a potluck community picnic. The property is 57.87 hectares (143 acres) and includes the summit of Mount Trematon, Lasqueti Island's highest point of land. With an elevation of 327 meters (1073 feet), the ecologically important property has a spectacular 360 degree view of the northern portion of the Georgia Strait, Quadra and Cortez Islands, Mt. Baker in Washington State, and Mt. Arrowsmith on Vancouver Island.

Donor Alasdair Gordon of Vancouver attended the community picnic with his family, shared a specially baked cake and accepted a plaque from the Trust Fund Board showing a picture of the mountain. Since making the donation earlier this year, the family has been organizing work parties with the community to remove an old building and other hazards.



Mr. and Mrs. Gordon, donors of the Mount Trematon property on Lasqueti, with their commemorative plaque. Photo by Lisa Dunn.

The property contains undisturbed old-growth forest, with large arbutus, big-leaf maple and fire-scarred Douglas-fir trees. Many of the majestic old-growth Douglas-firs on the property are 200-500 years old and up to 1.5 meters in diameter at breast height. The property provides an important ecological buffer to the Lasqueti Island Ecological Reserve and has a year-round creek that flows out of a nearby lake.

“Generous gifts from families like the Gordons are creating a legacy of special places in the Gulf Islands,” said Lisa Dunn, Islands Trust Fund Manager.

“Donations of this type of sensitive land are especially welcome when they come from Lasqueti Island, with only 8.6% of its area protected. This donation takes Lasqueti's protected area to 9.4%, so it will take several more gifts to reach our regional conservation plan goal to protect 15% of each Local Trust Area.”

“I am thrilled,” says Rose Willow, Lasqueti Local Trustee. “In addition to many beautiful natural features, this property is part of the major watershed on Lasqueti Island. The protection of this area is of great benefit to the entire island. I have known the Gordon family for over 25 years, their children and grandchildren. They always step softly upon the island; they are always environmentally conscientious, not just here, but in their daily lives, elsewhere, as well. They demonstrate a deep love for this island and set an example for all of us.”

Lasqueti landowner donates property for preservation

Sept 25
2006

BY CAROLYN HEIMAN
Times Colonist staff

A Vancouver man who says "he's not well known — even to police" is better known now for his efforts to keep a chunk of Lasqueti Island undeveloped forever.

Alasdair Gordon donated 58 hectares of undeveloped land, which includes the summit of Mount Trematon, to the Islands Trust Fund in the hope it will stay "unspoiled for the enjoyment of islanders and visitors forever."

Gordon has a gentle sense of humour and a long connection with Lasqueti that started in the 1970s when he bought a vacation property there. He has since spent summers on the asphalt-free Island as well as making regular winter visits. His three adult children and seven grandchildren now share his love of the island.

Gordon said he brought his youngest son, Donald, to the island when he was eight and the senior Gordon credits him with organizing the purchase of the land that unexpectedly came up for sale when its owner filed for bankruptcy.

The previous owner had plans of building on the property but this move will protect it.

"We bought it about three years ago and then the big decision was who to give it up to. We wanted to keep Lasqueti the way it is. It's a unique member of the Gulf Islands. There's no car ferry. No

blacktop roads. No power supply. No water. People there are very self-sufficient and it's not overcrowded. We wanted to keep it that way."

Mount Trematon has "fantastic views from the top," said Gordon, adding he used to hike up it once a month "but I'm getting a bit long in the tooth."

Now his children and grandchildren are making the trek.

In a news release, the Islands Trust Fund noted the donation was important to Lasqueti, where only 8.5 per cent of its land is protected. The fund's goal is to protect 15 per cent of the land in each local trust area.

The property offers 360-degree views to the northern portion of Georgia Strait, Quadra and Cortez Island, Mount Baker in Washington state and Mount Arrowsmith on Vancouver Island. It has old-growth forest, arbutus, big-leaf maple and fire-scarred Douglas fir trees, some of which are estimated to be 200 to 500 years old and up to 1.5 metres in diameter at chest height.

The Islands Trust Fund acts as a regional land trust for the Islands Trust area. It has protected 63 properties with a combined value of \$20 million.

Gordon, who is in his early 80s, said: "We hope (the trust) will keep it unspoiled for the enjoyment of islanders and visitors."

And, he joked, "not grow too much marijuana on it."

APPENDIX 9. SUMMARY OF PUBLIC REVIEW PROCESS

A Review Draft version of the management plan was circulated for comment in early May 2007 to First Nations, BC Parks, adjacent landowners, and the community members who completed questionnaires during the initial public consultation process. Table A9-1 provides a list of recipients of the review draft, description of the nature of their interest, and a summary of how or whether they responded.

Name(s)	Interest Category	Response
Yvonne Gesinghaus, Te'mexw Treaty Society	On behalf of Nanoose First Nation	No comments received
Maynard Harry, Sliammon First Nation	On behalf of Sliammon First Nation	No comments received
Alisdair and Nancy Gordon	Property donor family, Lasqueti community	Via Donald Gordon
Donald and Jane Gordon	Property donor family, Lasqueti community	By phone
Domena Diesing and Bruce Fleming-Smith	Property neighbours, Lasqueti community	By email
Tio Macaque and Valeria DeRege	Property neighbours, Lasqueti community	By phone and in person
Cindy Craven and Mike Mundy	Property neighbours, Lasqueti community	No comments received
Joan and Steve Bentley	Property neighbours, Lasqueti community	No comments received
Melinda Auerbach	Lasqueti Conservancy group, Lasqueti community	No comments received
Mick and Mary-Jean Hagedorn	Lasqueti community	By phone
Sue Wheeler and Peter Johnston	Lasqueti community	By phone and email
Alfred Gaensbauer	Lasqueti community	No comments received
Drew Chapman, BC Parks	Government Agency	By email and phone

BC Parks was the only agency that responded. Drew Chapman, Qualicum Area Supervisor, responded by email indicating that BC parks had no concerns with the management plan as regards the adjacent Ecological Reserve.

For confidentiality reasons, the public review comments described below are not ascribed to particular individuals. Several members of the public made suggestions for minor changes of clarity and additional information, and these were incorporated into the final plan. Following is a brief summary of other significant issues that were raised, and changes that were made to the plan in response to the comments.

Water Licences

Comment that no mention was made of water licences under Section 2.4 in the review draft. Brief discussion added, specifying that there are no current water licenses in the nature reserve.

Beaver

Comment that no mention was made of beavers under Section 2.10 in the review draft. Brief discussion added.

Fire-fighting Access

Comments were received that stated contrasting views about the recommendations in Section 3.2.6 regarding Fire-fighting Access. This Section was substantially revised. The new text reflects a more cautious approach, giving greater consideration to potential disadvantages and risks that the Islands Trust Fund might face if considering changes that would restore the east-west road to driveable condition.

Boundary Marking

Comment concerning recommendations on Boundary Marking in Section 3.2.15. Text was revised to clarify that the option of surveying the property line should be investigated, and would be considered the best option of financially feasible.