

---

---

**BASELINE DOCUMENTATION REPORT  
OF THE  
MOORECROFT COVENANT**

---

---



**NATURE CONSERVANCY OF CANADA**

**FEBRUARY 2011**

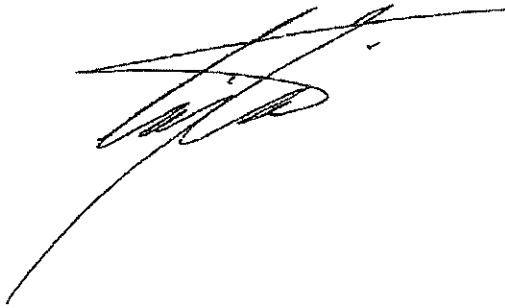




# Moorecroft Covenant Baseline Documentation Report 2011

Approval delegated by the Regional Vice President, B.C. Region to:

**Tim Ennis, Director of Stewardship, B.C. Region, Nature Conservancy of Canada**



February 24<sup>th</sup>, 2011

Signature

Date

**Tom Osborne, General Manager, Recreation and Parks, Regional District of Nanaimo**



MARCH 2, 2011

Signature

Date



**1.0 TABLE OF CONTENTS**

**1.0 TABLE OF CONTENTS ..... I**

**2.0 LIST OF TABLES .....II**

**3.0 LIST OF FIGURES .....III**

**4.0 LIST OF PHOTO PLATES .....III**

**5.0 ACKNOWLEDGEMENT ..... 1**

**6.0 INTRODUCTION..... 1**

6.1 PROJECT NAME ..... 1

6.2 CONTACT INFORMATION ..... 2

*Landowner Contact Information*..... 2

*Covantee Contact Information* ..... 2

6.3 SURVEYORS..... 2

6.4 FIELD STUDY DATES AND WEATHER..... 2

6.5 PROPERTY DESCRIPTORS ..... 3

6.6 TENURES, LEASES AND ENCUMBRANCES ..... 5

*Rights of Way*..... 5

*Foreshore Leases* ..... 6

6.7 ADMINISTRATIVE FRAMEWORK ..... 6

**7.0 OBJECTIVES..... 7**

**8.0 ECOLOGICAL DESIGNATION..... 8**

**9.0 OTHER STUDIES ..... 8**

**10.0 SUMMARY OF COVENANT RESTRICTIONS, RESERVED RIGHTS AND STATUTORY RIGHT OF WAY 9**

**11.0 CULTURE/HISTORY ..... 11**

11.1 FIRST NATIONS ..... 11

11.2 HISTORY AND CURRENT LAND USE..... 11

11.3 FUTURE USE..... 12

11.4 MANAGEMENT ..... 12

11.5 ANTHROPOGENIC FEATURES ..... 14

11.6 ADJOINING LANDS ..... 15

11.7 POTENTIAL FOR ENCROACHMENT OR DISTURBANCE..... 15

**12.0 ECOLOGICAL FEATURES ..... 16**

12.1 CLIMATE..... 16

12.2 LANDSCAPE AND PHYSICAL FEATURES ..... 16

12.3 GEOLOGY AND SOILS..... 16

12.4 AQUATIC ..... 17

12.5 MARINE ..... 17

12.6 BIOGEOCLIMATIC UNITS AND CONSERVATION CONTEXT ..... 17

12.7 WILDLIFE FEATURES ..... 20

12.8 RARE SPECIES AND ECOLOGICAL COMMUNITIES..... 21

12.9 EXOTIC SPECIES ..... 23

12.10 NATURAL DISTURBANCES..... 23

12.11 ANTHROPOGENIC DISTURBANCES ..... 23

**13.0 ECOLOGICAL SIGNIFICANCE ..... 24**

**14.0 BIODIVERSITY TARGETS ..... 24**

**15.0 PROCEDURES.....26**

15.1 ECOLOGICAL UNIT DELINEATION .....26

15.2 ECOLOGICAL MONITORING SITE SELECTION .....26

15.3 PHOTOSTOPS .....26

15.4 PHOTOGRAPHS .....26

15.5 SITE PINS AND REFERENCE MARKERS:.....27

15.6 EQUIPMENT .....27

15.7 GIS DATA.....27

15.8 DATA STORAGE .....27

15.9 COMPLETENESS OF SURVEY .....28

**16.0 ECOLOGICAL UNITS.....28**

16.1 ECOLOGICAL UNIT 1: DRY FOREST.....32

*Ecological Unit 1, Site 1*.....32

16.2 ECOLOGICAL UNIT 2: MESIC FOREST .....37

*Ecological Unit 2, Site 1*.....37

16.3 ECOLOGICAL UNIT 3: MOIST FOREST.....42

*Ecological Unit 3, Site 1*.....42

16.4 ECOLOGICAL UNIT 4: WETLAND AND ECOLOGICAL UNIT 9: WETLAND FOREST.....47

*Ecological Unit 4: Wetland*.....48

16.5 ECOLOGICAL UNIT 5: SMALL HYDRO-RIPARIAN SYSTEM .....54

*Ecological Unit 5, Site 1*.....54

16.6 ECOLOGICAL UNIT 6: COASTAL WOODLAND.....60

*Ecological Unit 6, Site 1*.....60

16.7 ECOLOGICAL UNIT 7: UNCONSOLIDATED INTERTIDAL .....65

16.8 ECOLOGICAL UNIT 8: CONSOLIDATED INTERTIDAL.....67

16.9 ECOLOGICAL UNIT 10: DEVELOPMENT.....69

**17.0 VISUAL DESCRIPTORS.....69**

17.1 PHOTOSTOPS .....69

*Photostop 1*.....69

*Photostop 2*.....71

*Photostop 3*.....73

*Photostop 4*.....75

*Photostop 5*.....77

*Photostop 6*.....79

*Photostop 7*.....81

*Extra Photos*.....83

**18.0 REFERENCES.....90**

**19.0 APPENDICES .....92**

19.1 COVENANT RESTRICTION MONITORING .....92

19.2 FLORA OF MOORECROFT .....92

19.3 FAUNA OF MOORECROFT.....94

19.4 EXTRA MAPS.....96

19.5 DOCUMENTATION OF DISTURBANCE .....98

**2.0 LIST OF TABLES**

TABLE 30. CDFMM CLIMATE NORMALS 1969-90 FOR SELECTED CLIMATE VARIABLES .....16

TABLE 31. STATUS OF CONFIRMED RARE SPECIES ON MOORECROFT .....21

TABLE 32. STATUS OF ECOSYSTEMS ON MOORECROFT. ....22

TABLE 33. BIODIVERSITY TARGETS.....24

**3.0 LIST OF FIGURES**

FIGURE 1. PROPERTY CONTEXT 3  
 FIGURE 2. PROPERTY LOCATOR MAP 4  
 FIGURE 3. PROPERTY CORNER MAP 5  
 FIGURE 4. BIOGEOCLIMATIC CONTEXT 8  
 FIGURE 5. MAP OF MANAGEMENT ZONES 13  
 FIGURE 6. MAP OF ANTHROPOGENIC FEATURES 14  
 FIGURE 7. COASTAL DOUGLAS-FIR BIOGEOCLIMATIC ZONE IN BRITISH COLUMBIA 18  
 FIGURE 8. DISTRIBUTION OF STRUCTURAL STAGES FOR DOUGLAS-FIR/DULL OREGON-GRAPE ECOSYSTEM IN BRITISH COLUMBIA. 19  
 FIGURE 9. ECOLOGICAL UNIT MAP 29  
 FIGURE 10. MONITORING POINTS 31  
 FIGURE 11. DRY FOREST 32  
 FIGURE 12. MESIC FOREST 37  
 FIGURE 13. MOIST FOREST 42  
 FIGURE 14. WETLAND 47  
 FIGURE 15. WETLAND FOREST 48  
 FIGURE 16. SMALL HYDRO-RIPARIAN SYSTEM, WITH EPHEMERAL STREAM 54  
 FIGURE 17. COASTAL WOODLAND UNDERSTORY 60  
 FIGURE 18. ANTHROPOGENIC FEATURE MAP WITH ORTHOPHOTO 97

**4.0 LIST OF PHOTO PLATES**

PHOTOPLATE 1. ECOLOGICAL UNIT 1, SITE 1.....36  
 PHOTOPLATE 2. ECOLOGICAL UNIT 2, SITE 1.....41  
 PHOTOPLATE 3. ECOLOGICAL UNIT 3, SITE 1.....46  
 PHOTOPLATE 4. ECOLOGICAL UNIT 4.....53  
 PHOTOPLATE 5. ECOLOGICAL UNIT 5 SITE 1.....59  
 PHOTOPLATE 6. ECOLOGICAL UNIT 6 SITE 1.....64  
 PHOTOPLATE 7. ECOLOGICAL UNIT 7.....66  
 PHOTOPLATE 8. ECOLOGICAL UNIT 8.....68  
 PHOTOPLATE 9. PHOTOSTOP 1 .....70  
 PHOTOPLATE 10. PHOTOSTOP 2 .....72  
 PHOTOPLATE 11. PHOTOSTOP 3 .....74  
 PHOTOPLATE 12. PHOTOSTOP 4 .....76  
 PHOTOPLATE 13. PHOTOSTOP 5 .....78  
 PHOTOPLATE 14. PHOTOSTOP 6 .....80  
 PHOTOPLATE 15. PHOTOSTOP 7 .....82  
 PHOTOPLATE 16. EXTRA PHOTOGRAPHS.....89

## 5.0 ACKNOWLEDGEMENT

The primary authors of the written component of this Baseline Documentation Report were Andrew Harcombe and Leah Ballin of the Nature Conservancy of Canada (NCC). Data entry was completed by Allison Archibald and Christine Lester who worked for NCC in 2010 as Shell interns. Maps were primarily completed by Sarah Loos of NCC and the remainder by Leah Ballin.

Thank you to those NCC staff for spending countless hours on the completion of the project and to the United Church and Moorecroft Camp Society for their excellent stewardship of the land. Thank you to the Moorecroft Camp, the Regional District of Nanaimo and The Nature Trust of British Columbia for recognizing the immense ecological and community values held in this property and for ensuring that it will be protected in perpetuity.

## 6.0 INTRODUCTION

The Moorecroft Camp is a 34 hectare (85 acre) property. Until recently the camp was owned and operated as a youth camp by the BC Conference of the United Church of Canada (UCC) and the Moorecroft Camp Society. The three parcels of which the property is comprised (Lot A, Plan 1777, and Lot 1, Plan 31217 and Lot 249 foreshore lease) are located on the northeast coast of the Nanoose Bay Peninsula near Nanaimo, Vancouver Island. Throughout this woodland and waterfront dominated property reside several buildings, trails, fields and natural green spaces.

The Moorecroft Camp was owned and operated by the UCC since 1954 when it was purchased from the camp's founder Gertrude Moore, who ran it as a girl's camp since 1934. The property is now being sold to the Regional District of Nanaimo, to be retained as a regional park. A condition of sale has been the establishment of a conservation covenant, to be held by the Nature Conservancy of Canada. Of particular importance to the church property owners and the local community are hiking trails, natural green space and foreshore access.

Moorecroft is within the Coastal Douglas-Fir Moist Maritime Variant (CDFmm) biogeoclimatic zone, and is dominated by young to mature Douglas-fir and Big Leaf Maple forests in the uplands and Arbutus and Shore Pine along the coastline. Two Sensitive Ecosystem Polygons have been identified by the Ministry of Environment: Coastal Bluffs and Wetlands. As well, several wildlife trees have been identified by the Wildlife Tree Stewardship Initiative (WiTS).

### 6.1 Project Name

Moorecroft, Georgia Basin



## 6.2 Contact Information

### Landowner Contact Information

Contact: General Manager, Recreation and Parks  
Affiliation: Regional District of Nanaimo  
Phone: (250) 248-3252 (RDN Recreation and Parks)  
(250) 390-4111 (RDN Head Office)  
Fax: (250) 248-3159  
Mailing Address: 6300 Hammond Bay Rd., Nanaimo, B.C. V9T 6N2  
E-mail: [recparks@rdn.bc.ca](mailto:recparks@rdn.bc.ca)  
  
Website: rdn.bc.ca

### Covantee Contact Information

Name: Tim Ennis, Director of Land Stewardship, BC Region  
Affiliation: Nature Conservancy of Canada  
Phone: (250) 479-3191  
Fax: (250) 479-0546  
Email: [tim.ennis@natureconservancy.ca](mailto:tim.ennis@natureconservancy.ca)  
Mailing Address: 200-825 Broughton St. Victoria, BC, V8W-1E5  
  
Website: www.natureconservancy.ca

## 6.3 Surveyors

Name: Andrew Harcombe, M.Sc  
Position: Terrestrial Ecologist, NCC  
Phone: (250) 413-8022  
E-mail: [Andrew.harcombe@natureconservancy.ca](mailto:Andrew.harcombe@natureconservancy.ca)

Name: Leah Ballin, B.Sc.  
Position: Baseline Inventory and Planning Technician, NCC  
Phone: (250) 479-3191 ext. 241  
E-mail: [leah.ballin@natureconservancy.ca](mailto:leah.ballin@natureconservancy.ca)

Name: Allison Archibald, B.Sc.  
Position: Shell Intern  
E-mail: [allison.archibald@natureconservancy.ca](mailto:allison.archibald@natureconservancy.ca)

## 6.4 Field Study Dates and Weather

Field work was completed between May 10<sup>th</sup> and 14<sup>th</sup>, 2010.

The temperature was approximately 17° C during the day, with clear skies and a light breeze

from the north.

### 6.5 Property Descriptors

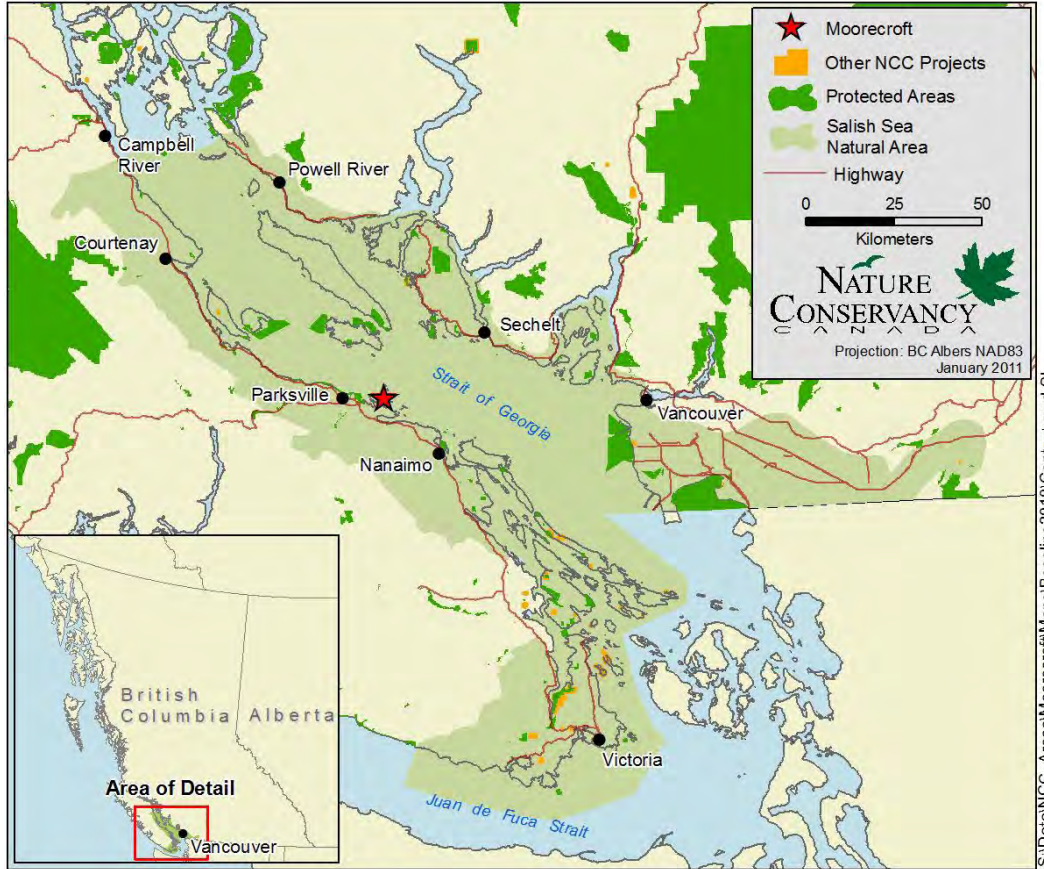


Figure 1. Property Context

**Parcel Identifiers (PID):** 006-884-849 (north), 001-170-228 (south)

**Legal Description:** Lot A, District Lot 110, Nanoose District, Plan 1777 and Lot 1 of District Lots 52 and 110, Nanoose District. Plan 31217

**Portion Covenanted:** The entire portions of all lands described above.

**Zoning:** RC1V (Recreation 1)

**Universal Transverse Mercator (UTM) Grid:** UTM Zone 10

**Latitude and Longitude:** 49°18'28.9"-49°18'3.2"N, 124°11'0.9"-124°10'36.61"W

**Map Sheets:** 092F040

**Aerial Photos<sup>1</sup>:** 30BCC98038 frame #192 and #191

**Surface Area:** 34.59 hectares/ 85.48 acres

**Elevation:** 0-40m

<sup>1</sup> Air photos are no longer available for order from the Province.

**Property Position:** The property is located in the Georgia Basin near Nanoose Bay. The site borders Arab Cove and extends to approximately halfway across the peninsula. The Property rises from sea level in the northeast corner and south along the waterfront, and reaches its peak in the southwest corner.



**Figure 2. Property Locator Map**

**Directions to Property:** Heading North on the TransCanada, drive approximately 10 minutes past Nanaimo to Nanoose Bay. Turn Right (east) on Powder Point Rd, then left (north) onto NW Bay Road. Turn right onto Stewart Road which will take you to the property. Directions to the Moorecroft Camp are signed from the highway to the property.

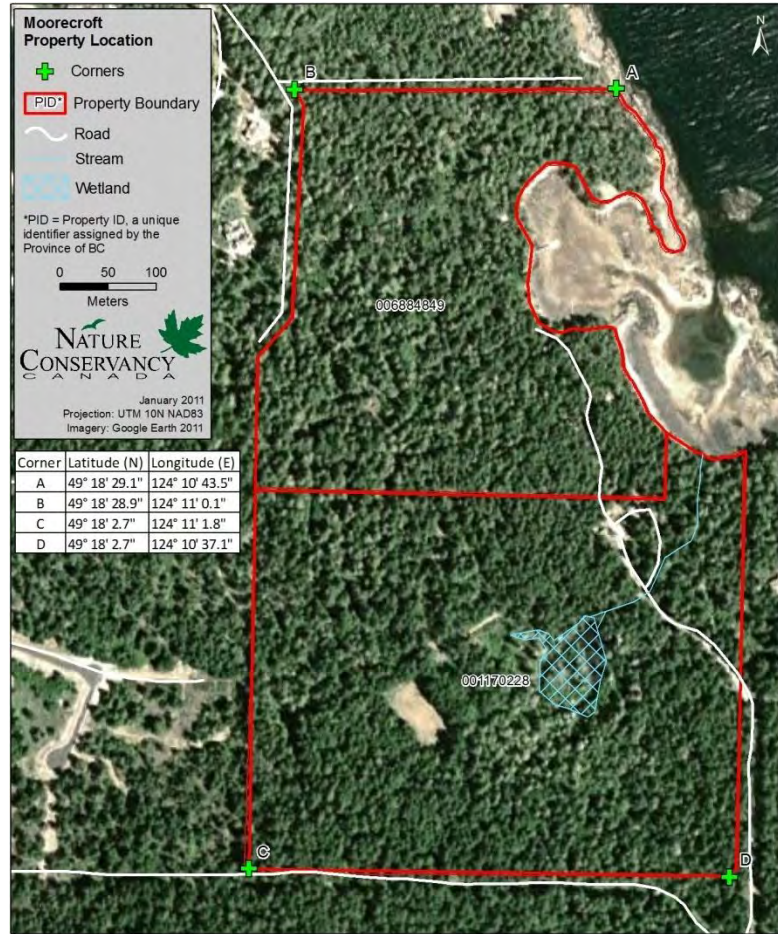


Figure 3. Property Corner Map

## 6.6 Tenures, Leases and Encumbrances

### Rights of Way

Rights of Way are registered on title as follows by the Regional District of Nanaimo and the Esquimalt and Nanaimo Railway Company. The two Rights of Way registered on PID 001-170-228 are for water lines feeding to and from Enos Lake. A water line exists in the Plan 936 RW Right of Way.

PID: 001-170-228

RIGHT OF WAY  
 F97328 1977-11-29 09:16  
 REGISTERED OWNER OF CHARGE:  
 REGIONAL DISTRICT OF NANAIMO  
 F97328  
 REMARKS: INTER ALIA, PART IN PLAN 936 RW,  
 ASSIGNMENT OF 211427G

RIGHT OF WAY

H64825 1979-08-08 09:06  
 REGISTERED OWNER OF CHARGE:  
 REGIONAL DISTRICT OF NANAIMO  
 H64825  
 REMARKS: PART IN PLAN 942 RW  
 ASSIGNMENT OF 209853G

CHARGES, LIENS AND INTERESTS:  
 NATURE OF CHARGE  
 CHARGE NUMBER DATE TIME  
 EXCEPTIONS AND RESERVATIONS  
 M76300  
 REGISTERED OWNER OF CHARGE:  
 ESQUIMALT AND NANAIMO RAILWAY COMPANY  
 M76300  
 REMARKS: A.F.B. 9.693.7434A  
 SECTION 172(3)  
 FOR ACTUAL DATE AND TIME OF REGISTRATION SEE  
 ORIGINAL GRANT FROM E & N RAILWAY COMPANY

PID: 006-884-849

EXCEPTIONS AND RESERVATIONS  
 M76300  
 REGISTERED OWNER OF CHARGE:  
 ESQUIMALT AND NANAIMO RAILWAY COMPANY  
 M76300  
 REMARKS: A.F.B. 9.693.7434A  
 81278G; SECTION 172(3)  
 FOR ACTUAL DATE AND TIME OF REGISTRATION  
 SEE ORIGINAL GRANT FROM E & N RAILWAY COMPANY  
 FOR ACTUAL DATE AND TIME OF REGISTRATION SEE  
 ORIGINAL GRANT FROM E & N RAILWAY COMPANY

**Foreshore Leases**

Two foreshore leases include both of the coastal bays. Block A of Lot 259 was leased to the previous owner and will be leased to the RDN, and Lot 24 remains unleased.

**6.7 Administrative framework**

Ministry of Environment Region: Vancouver Island  
 Forest District: South Island  
 Regional District: Nanaimo

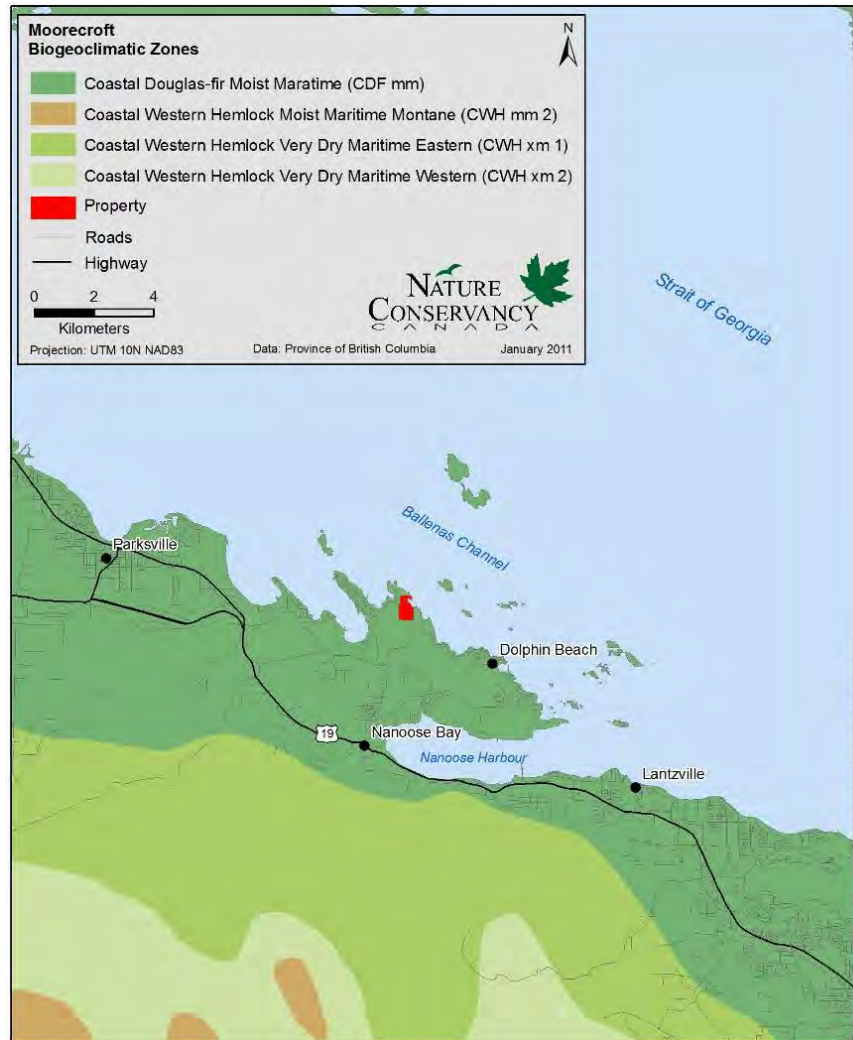
## 7.0 OBJECTIVES

This Baseline Documentation Report documents the baseline condition of these ecologically-significant lands, and provides a baseline condition for monitoring the changes to natural and anthropogenic features of the property over time. Information found within this report is collated from both internal (NCC) and external sources, and supported by field work completed in the summer of 2009 by NCC staff and contractors.

The primary objectives of the report are as follows:

- Describe the historical, physical and ecological characteristics of the property.
- Map and describe the ecological communities.
- Compile property-level species lists of observed flora and fauna.
- Map and describe anthropogenic features, including fences, roads, buildings and other amenities.
- Establish permanent photo-monitoring sites.

## 8.0 ECOLOGICAL DESIGNATION



**Figure 4. Biogeoclimatic Context**

**Ecoregion:** Georgia Basin

**Natural Area:** Salish Sea

**Biogeoclimatic Unit:** Moist Maritime Coastal Douglas-fir Biogeoclimatic Zone (CDFmm)

## 9.0 OTHER STUDIES

- Forrest, C. and Joe Materi. 2007. Baseline Bio-inventory and Conservation Assessment for the Moorecroft Camp Property, NanOOSE. Ursus Environmental
- Cunningham and Rivard Appraisals Ltd. 2007. Appraisal of Moorecroft Camp at 1563 Stewart Road, NanOOSE Bay, BC for BC Conference of the United Church of Canada. Nanaimo, BC.
- Community Mapping Network. 2007. Sensitive Ecosystem Inventory. <http://www.shim.bc.ca/atlas/sei/seimain.html>

## **10.0 SUMMARY OF COVENANT RESTRICTIONS, RESERVED RIGHTS AND STATUTORY RIGHT OF WAY**

Exerts from Sections 3 (Intent), 4 (Baseline Documentation Report), 5 (Restrictions), 7 (Reserved Rights), 10 (Access for Monitoring and Enforcement) and 13 (Management Plan), of the Conservation Covenant, hereafter referred to as “the Agreement” follow:

### **3.0 Intent of Agreement**

- 3.1 The parties each agree that the general intent of this Agreement is to allow for the use of the Land as a Regional Park in a manner that does not Harm the Amenities, and the parties agree that this Agreement is to be interpreted, performed and applied accordingly.
- 3.2 This Agreement shall be perpetual to reflect the public interest in the ecological values of the Land and the Amenities for conservation.

### **4.0 Baseline Documentation Report**

- 4.1 The parties agree that the Land, the location of current uses, and the Amenities, are described in the Report, a copy of which is on file with each of the parties at the addresses set out in section 17.4.
- 4.2 The parties each acknowledge that the flora and fauna on the Land will be subject to natural ecological processes over time and, unless otherwise expressly stated, references to the Report in this Agreement are intended to take into account the natural succession of the flora and fauna and natural disturbance regimes over time, without human intervention other than as expressly permitted by this Agreement.
- 4.3 Subject to section 4.2, the parties agree that the Report is intended to serve as an objective information baseline for monitoring compliance with the terms of this Agreement and the parties each agree that the Report provides an accurate description of the Land and the Amenities as of the date of this Agreement.

### **5. Restrictions on Use of the Land**

- 5.1 The Owner shall:
- (a) designate and maintain the Land as a Regional Park;
  - (b) manage the Land in accordance with the Management Plan;
  - (c) not alter the Amenities before the Management Plan has been finalized and approved in writing by the Covenant Holder;
  - (d) not subdivide the Land; and
  - (e) not sell or transfer any of the Land without the prior written permission of the Covenant Holder, unless such sale or transfer is a sale or transfer of the whole of the Land to the same entity at the same time.



- 5.2 The Covenant Holder acknowledges and agrees that the Owner may transfer a fractional interest in the Land to the Trust pursuant to the terms of the Land Acquisition and Co-Owners Agreement. Provided such transfer is on the terms contemplated by this Agreement and the Land Acquisition and Co-Owners Agreement, such transfer shall not require the prior written permission of the Covenant Holder as set out in section 5.1(e) above.

## **7. Owner's Reserved Rights**

- 7.1 Subject to section 5, the Owner reserves all of its rights as owner of the Land, including the right to use, occupy and maintain the Land in any way that is not expressly restricted or prohibited by this Agreement, so long as the use, occupation or maintenance are consistent with the intent of this Agreement as described in section 3.
- 7.2 Nothing in this Agreement restricts or affects the right of the Owner or any other party to do anything reasonably necessary under emergency conditions to:
- (a) prevent, abate or mitigate any damage or loss to any real or personal property; or
  - (b) prevent potential injury or death to any individual.

## **10. Access For Monitoring and Enforcement**

- 10.1 The Owner hereby grants to the Covenant Holder, in perpetuity, the right, liberty and easement for the Covenant Holder and its officers, agents, employees, contractors and subcontractors, with or without equipment and on foot or with vehicles, on, over and across the Land, using existing roads and trails where possible, for the following purposes:
- (a) to enter upon and inspect the Land at all reasonable times upon prior notice by the Covenant Holder to the Owner of at least twenty-four (24) hours, unless, in the opinion of the Covenant Holder, there is an emergency or other circumstance which does not make giving such notice practicable, in the sole discretion of the Covenant Holder;
  - (b) as part of inspection of the Land, to take photographs and video recordings as may be necessary to monitor compliance with and to enforce the terms of the Agreement;
  - (c) to carry out or evaluate, or both, any program agreed upon among the parties for the protection, preservation, conservation, maintenance, enhancement, restoration or rehabilitation of all or any portion of the Land or the Amenities; and
  - (d) to place small wooden survey pegs or other markings on the Land or to increase the visibility of existing survey pegs or other markings.
- 10.2 When the Covenant Holder is not on the Land pursuant to Section 10.1, the Owner is entitled to quiet possession of the Land.

## **13. Management Plan**

- 13.1 Within two (2) years of the date of registration of this Agreement, or such date as otherwise agreed to by the parties, the Owner shall prepare and complete a management plan for the Land (the “Management Plan”). The Management Plan shall be based on terms of reference (the “Terms of Reference”) drafted by a committee, the membership of which shall include representation from the Owner, the Trust, and, at its election, the Covenant Holder. Once the Terms of Reference have been agreed upon by all parties, the Owner shall prepare the Management Plan. The Management Plan shall not be deemed complete until it has been reviewed and approved in writing by the Covenant Holder, such approval not to be unreasonably withheld. The Management Plan and the Terms of Reference shall allow for recreational opportunities for the public, and shall be prepared in accordance with the following principles:
- (a) Conservation of the Amenities shall be the primary use in the area described as the Conservation Zone on the map attached hereto as Schedule „B“;
  - (b) For greater certainty, trail maintenance and improvement for non-motorized use, benches and resting areas and informational and directional signage for the public in locations to be mutually agreed by the parties, and boardwalks or other structures that are for the maintenance of and prevention of Harm to the Amenities shall be permitted uses in the Conservation Zone;
  - (c) Additional major infrastructure such as parking areas, new buildings and camping facilities shall be located in the area described as the Development Zone on the map attached hereto as Schedule „B“.
- 13.2 Once adopted, the Management Plan shall be reviewed and revised by the Owner as necessary at least once every ten (10) years, and each revision requires the written approval of the Covenant Holder.
- 13.3 The Management Plan and any revised versions shall be kept on file by the parties and provided to any Successors of the Owner.

## 11.0 CULTURE/HISTORY

### 11.1 First Nations

The Nanoose (First Nation (Snaw-naw-As First Nation ) has a First Nations government located on southern Vancouver Island in the vicinity of the community of Nanoose Bay. Their ancestral tongue is the Hulqumimum language. The Nanoose First Nation is a member government of the Naut'sa mawt Tribal Council.

On the Moorecroft property, culturally modified trees (*Section 17.1.8 \_DSC6440*) and a possible midden site on the south side of the bay from sea food harvest give light to historic occupation and use.

### 11.2 History and Current Land Use

The Moorecroft property has been operated as a youth camp since 1934 when founder Gertrude Moore opened her all girls' camp. In 1954 the BC Conference of the United Church of Canada (UCC) acquired the property and has continued to host retreats, tours and youth camps to this day. The community of Nanoose Bay and the Regional District of Nanaimo (RDN) have indicated that they value the property for its protection of green space, hiking trails, foreshore access, and programming (Forrest and Materi, 2007).

In 2010, the United Church decided this property was surplus to their plans, and engaged Nature Conservancy of Canada to do an ecological assessment of the property and propose. This resulted in acceptance of two zones: one for conservation and one for potential/present development. The property was then listed for sale, and has been acquired by the Regional District of Nanaimo (RDN). Part of the purchase agreement involves registered a covenant on the property, in favour of Nature Conservancy of Canada. A Management Plan, acceptable to NCC, will be prepared within two years of purchase by RDN, and NCC will commence annual monitoring of restrictions (*See Appendix 1*).

### **11.3 Future Use**

The Regional District of Nanaimo (RDN) intends to manage the property as a regional park.

### **11.4 Management**

Over the next two years, RDN will prepare a management plan that is acceptable to NCC and that takes into consideration the two management zones outlined in the Agreement: the conservation zone and the development zone (*Figure 5*). This plan will be reviewed every 10 years by both the RDN and NCC.

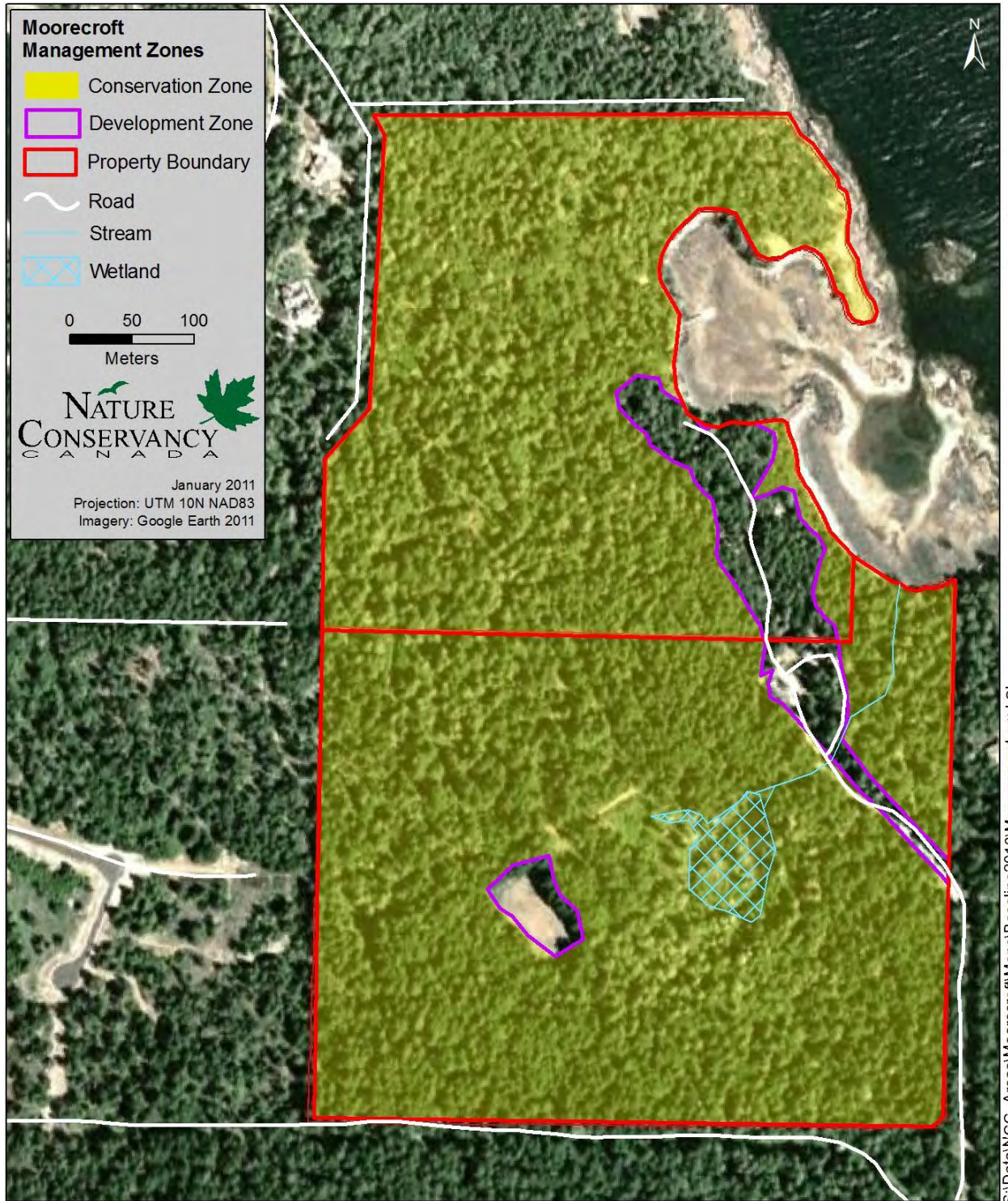


Figure 5. Map of Management Zones

### 11.5 Anthropogenic Features

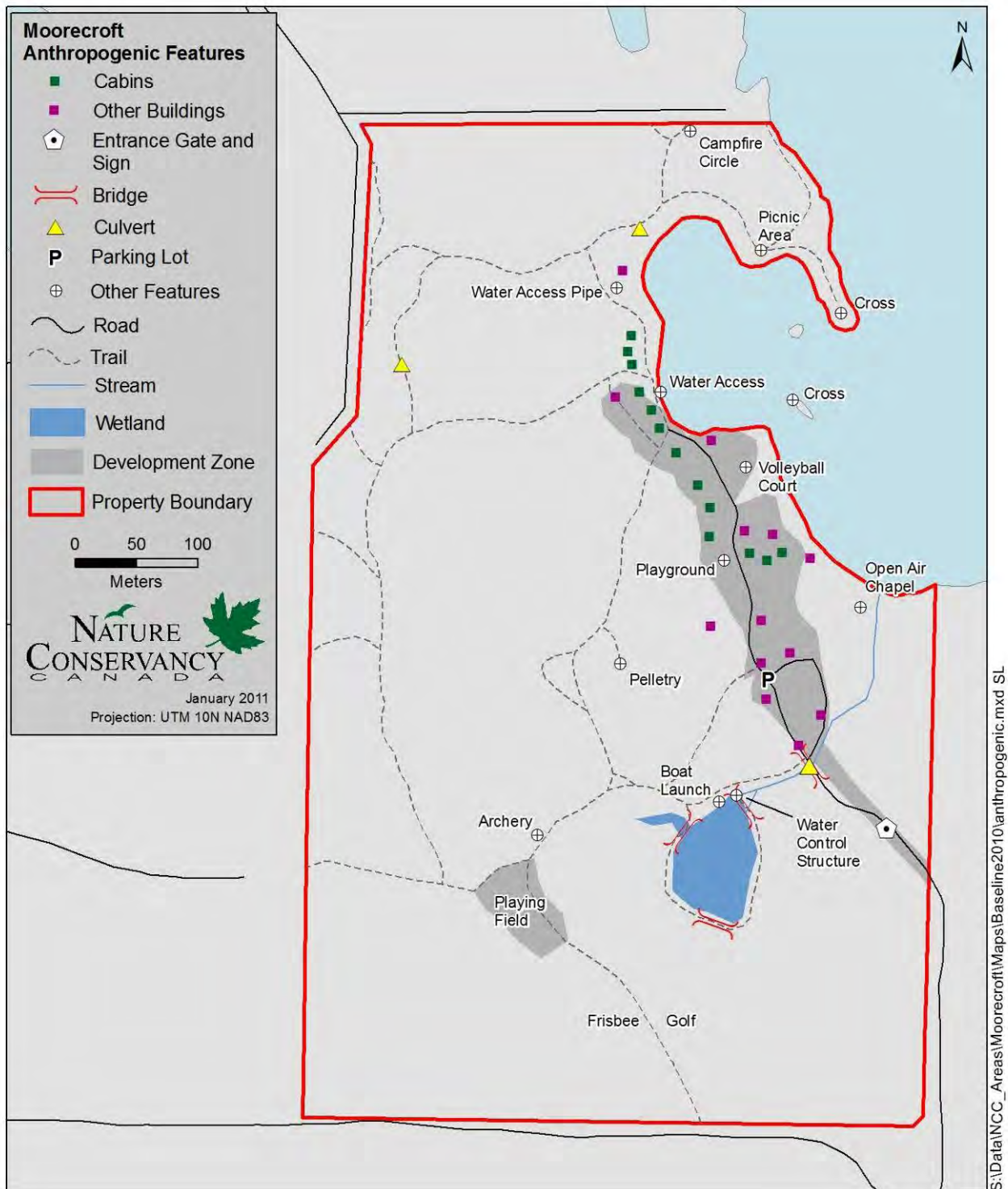


Figure 6. Map of Anthropogenic Features

### **Cabins and buildings<sup>2</sup>**

14 simple cabins and other camp and maintenance buildings stand on the property (*Section 17.1.8*). Most of these buildings are included in the development area. However, a few of the cabins (eg. *\_DSC6559*) remain in the conservation area because of their proximity to the shore and the associated risk of disturbance to shorebirds and other wildlife. Several features specific to camp recreation are scattered around the property including a pellety (paint ball shooting range)(*DSC6386, \_DSC6387, \_DSC6525*), archery (*\_DSC6549*), open air chapel, camp fire ring (*\_DSC6528*), playground, picnic area (*\_DSC6535, \_DSC6537*) and volleyball court (*\_DSC6558*).

### **Roads, parking lot, gate and trails**

Stewart Road is a public paved road that leads onto the property to a gravel surfaced parking lot (*\_DSC6550*) approximately 200 meters onto the property. There is a locked metal gate approximately 75 meters onto the property. The road continues as a gravel/dirt service road (*\_DSC6554*) through the development area (*\_DSC6552*). A number of trails exist on the property that range from grown over service roads to narrow foot paths. The two grown over roads that have reverted to paths are those connecting the two development areas (*\_DSC6553*), and the playing field development area to the waterline road directly south. Most of the trails are chip trails except for the narrow rocky most northeastern trail that runs along the shore.

### **Bridges, dam and water features**

Three bridges cross over portions of Skipsey Lake, one over the stream outlet (*\_DSC6375*), one on the south side (*Section 16.4/5 Ecological Unit \_DSC46364*), and one deteriorating one on the west side. At the stream outlet there is a functioning weir/water control structure (*\_DSC6372*) and a watermill looking structure (*\_DSC6373*). Two modest culverts direct water under the trail at opposite ends of the property, and one larger culvert carries the main stream under Stewart Road.

*See Figure 6. Map of Anthropogenic Features and Appendix 19.4 for a version with an orthophoto background.*

## **11.6 Adjoining Lands**

The property is bordered on all sides by privately owned rural-residential district lots, and public and private roads.

## **11.7 Potential for Encroachment or Disturbance**

The property is located in residential area that has been developed on all sides. None of the neighbouring lots appear to pose a threat to the property at this time. However during the time of sale some trespass and disturbance occurred as documented in *Appendix 19.5*.

---

<sup>2</sup> All photographs can be found in Section 17.1.8 Extra Photographs

## 12.0 ECOLOGICAL FEATURES

### 12.1 Climate

**Table 1. CDFmm climate normals 1969-90 for selected climate variables<sup>3</sup>**

<b>Variable</b>	<b>Mean</b>
Mean annual precipitation	1091 mm
Mean May to September precipitation	201 mm
Precipitation as snow (mm water equivalent)	61 mm
Mean annual temperature	9.6 °C
Mean temperature of coldest month	3.0 °C
Mean temperature of warmest month	16.9 °C
Frost Free Period	204 days
Degree days >5°C	196.5
Summer heat: moisture index	88

### 12.2 Landscape and Physical Features

Moorecroft is located on the Nanoose Peninsula. The Nanoose Peninsula is in the Nanaimo Lowland, a strip of low-lying country, below 2000 feet, that extends south-eastwards about 175 miles (282 km) along the east coast of Vancouver Island from Sayward to Jordan River<sup>4</sup> (Holland 1964). The lowland lies on the western side of the Georgia Depression, and is flanked on its western side by the Vancouver Island Ranges.

The Moorecroft property itself is relatively flat and reaches its highest point at the southwest corner. Higher dry rocky outcrops and piles of moraine, and lower moist and flooded flats and depressions create heterogeneity within the general low grade northeast aspect of the land. There are two rocky bays cutting into the property, each bordered by bedrock headlands. The northern shore is steep bedrock.

### 12.3 Geology and Soils

The Nanaimo Lowland is underlain by sedimentary rock that was overridden by ice during the Pleistocene. The direction of ice movement is reflected in the form of the rock. The low relief was further reduced by glacial erosion and by the deposition of glacial and fluvio-glacial materials.

Soils are of the brunisolic type, and are moderately acidic. These soils have undergone moderate development, with limited weathering because of their young age and drier climate.

<sup>3</sup> Extracted from Spittlehouse (2008)

<sup>4</sup> Holland, 1964

## 12.4 Aquatic

Several low-grade waterways, seeps and depressional wet areas, and a wetland swamp exist on the property. Ephemeral streams with pooling areas can be found throughout the property and primarily run east to west.

Skipsey Lake is a wetland that was originally dug out in a donut shape. It now displays features of a natural wetland. A swampy Red-osier dogwood dominated “hole” occupies the center of the wetland. In the surrounding wetland area stands water lined by cattails, downed wood and several herbaceous species. A path runs around the main wetland which is further surrounded by several more disjunct wetland areas. An anthropogenically channelized stream runs east from the wetland. This stream was likely modified when the wetland was dugout as there are mature trees growing on the channels cobble walls. A weir at the wetland outflow most likely used to regulate the wetlands water levels. This task has now been taken over by a beaver that has dammed the outflow as well as built up mud barriers in select locations around the wetlands perimeter. The sediment build up and subsequent water level rose from 2009 to 2010 due to beaver activity (pers. Comm. Pastor Pete VanderBeek).

## 12.5 Marine

The Georgia Strait and Salish Sea portion of the Pacific Ocean occupy the coastline of the property, Nanoose Bay and Southeastern Vancouver Island. The northern shore drops off steeply and receives moderate ocean exposure creating habitat for Mussels, Limpits, Purple laver and several other brown seaweeds. Schools of fish, Harbour Seals and Sealions can be seen from the shore. The two shallow unconsolidated rocky bays can be almost completely navigated by foot at low tide. Oysters, Barnacles, Rockweed and Sea Lettuce dominate the bays. Purple Stars, Shore Crabs, Hermit Crabs, Sculpins and a diversity of sea weeds are also common. The Moorecroft property title excludes the intertidal and shore zone, however a foreshore lease that includes the northern bay will be held by the RDN.

## 12.6 Biogeoclimatic Units and Conservation Context

The Coastal Douglas-fir biogeoclimatic zone (CDF zone) occupies a total of 2,593 km<sup>2</sup> in BC (see *Figure 7*). The CDF zone lies in the rainshadow of Vancouver Island and Olympic mountains, and includes eastern Vancouver Island from Saanich Peninsula in the south to Bowser in the north, portions of the Gulf Islands south of Cortes Island, and pockets along the south coast of mainland British Columbia on the Sunshine coast and the Fraser River delta. The CDF zone has warm dry summers and mild wet winters (*Table 1*).





**Figure 7. Coastal Douglas-fir Biogeoclimatic zone in British Columbia**

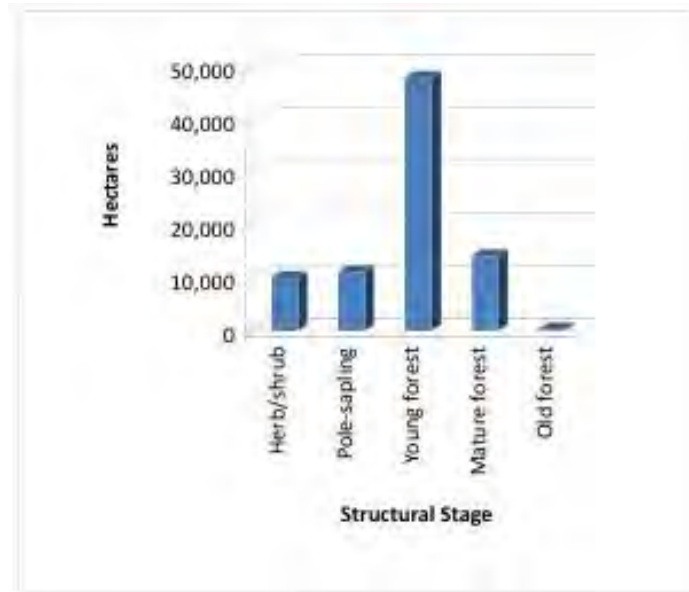
The mesic or zonal<sup>5</sup> ecosystem is the Douglas-fir / dull Oregon-grape ecosystem. Much of the following section has been extracted from de Groot (2010) who has written a draft ecosystem status report for this ecosystem. This ecosystem is a matrix forest ecosystem that occurs within the Georgia Basin of coastal southern British Columbia and the San Juan Islands of adjacent Washington, USA. It is found up to 390 m elevation on mostly gentle sites with mesic or slightly drier soil moisture regimes and medium to poor soil nutrient regimes, where sandy loamy soils are common. The overstory is typically dominated by Douglas-fir, with a well-developed shrub layer dominated by dull Oregon-grape and/or salal, a sparse herb layer, and a well-developed moss layer dominated by Oregon beaked moss. Western redcedar may co-dominate the overstory. This is a late succession climatic forest ecosystem originating from infrequent stand-replacing fires or occasional windthrow.

Past disturbances, primarily fire and logging, has resulted in much of this ecosystem being in early structural stages<sup>6</sup>, defined as less than 80 years old. Because of the early settlement of the area and the associated development, much of the loss of this ecosystem occurred more than 30

<sup>5</sup> Zonal refers to the ecosystem that is on an average site and best reflects the climate of the vegetation zone; other ecosystems are either drier, wetter, poorer, or richer than the zonal ecosystem

<sup>6</sup> Structural stages: after disturbance by cutting or fire, a forest will proceed through a series of stages of development, each with a defined physical appearance, such as shrub-dominated, small young conifers, taller trees and eventually to a climax stage with multiple tree layers, downed logs, snags, etc.

years ago. This is shown by the distribution of structural stage classes in this ecosystem (*Figure 7*), with a large proportion of the ecosystem now 40 to 80 years old and in the young forest structural stage. Stand initiation for the young forests was most likely caused by forest harvesting, as forest fires have been much reduced since European settlement<sup>7</sup>. The condition of the Douglas-fir / dull Oregon-grape ecosystem has been degraded by the widespread fragmentation, development and harvesting that has occurred in the CDF zone. The dominance of younger age forests means that attributes of older forests are missing from the landscape. As stands get older, these attributes can be regained. These attributes include: complex canopy architecture, standing and fallen dead wood, species composition, epiphytic species<sup>8</sup>, soil invertebrates and nematodes, and insect and spider fauna<sup>9</sup>.



**Figure 8. Distribution of structural stages for Douglas-fir/dull Oregon-grape ecosystem in British Columbia.**

Ecosystem processes have also been altered in the CDFmm, with fire almost absent from the landscape, and the canopy-gap forest dynamics also greatly altered because of the predominance of young structural stages.

The most serious and on-going threats to this zone are clearing related to rural residential development and forest harvesting. Associated with these threats are road development, alien invasive plants and recreational use. The CDF zone has a long history of development and forest harvesting, as the area was one of the first areas settled in British Columbia by European immigrants. The zone covers less than one percent of the Province; it is rated as imperiled<sup>10</sup>. B.C. contains 70-80% of the global range of this zone<sup>11</sup>. Ninety-seven percent of described communities in the zone are of provincial conservation concern.

<sup>7</sup> McDadi and Hebda 2008

<sup>8</sup> Epiphytes are plants that grow on trees or downed logs, such as mosses and lichens

<sup>9</sup> Trofymow *et al.* 2003

<sup>10</sup> Austin *et al.* 2008

<sup>11</sup> Austin and Eriksson 2009

Ninety-three percent of the land in the CDF zone is privately owned and the CDF zone has the highest proportion of ecosystem converted to human uses in the province; 46% now being used for urban or agriculture uses, 44% subjected to forest harvesting, 7% non-forested and 3% old-growth forest. The remaining old-growth areas are small patches, including those in protected areas. Most of the old forest outside of protected areas is privately owned, and will continue to be lost to development and forest harvesting, as development of areas for residential and industrial uses is on-going. Invasive species that have been documented in this association include: spurge-laurel (*Daphne laureola*), English ivy (*Hedera helix*), holly (*Ilex aquifolium*), gorse (*Ulex europaeus*) and Scotch broom (*Cytisus scoparius*). Other threats include browsing by feral goats and sheep, agricultural development, and climate change.

Climate change has the potential to alter the disturbance regime, soils and vegetation as species and the ecosystem responds to shifts in temperature, moisture and weather patterns. Climate models indicate that for southern British Columbia, by 2050 summers might get warmer by 1.5 to 4 degrees and drier by as much as 35%. Also, winters might be warmer by 1.5 to 3.5 degrees and wetter by 0 to 20%.

There is moderate potential for restoration of the forested ecosystems. The attributes of old-growth structure, such as coarse woody debris; complex canopy structure, including large old trees; and standing dead trees, can recover through natural processes, but may require more than 100 years, depending on the biological and structural legacies remaining after disturbance. In the long-term there is potential to recruit additional stands into the mature and old structural stages if areas can be protected from development and harvesting. These stands will develop the attributes and biota of mature and old forests<sup>12</sup>. However, it will be very difficult to reintroduce fire as an ecosystem process in such a heavily developed landscape. The elimination of exotic species, and the protection from reinvasion will also be very difficult. The attributes of old-growth structure, such as coarse woody debris; complex canopy structure, including large old trees; and standing dead trees, can recover through natural processes, but may require more than 100 years, depending on the biological and structural legacies remaining after disturbance.

## 12.7 Wildlife Features

The importance of all of the habitats present on the Moorecroft property is augmented because of their rarity. A few large Douglas-fir trees were identified by the Wildlife Tree Stewardship Initiative (WiTS) to serve as Bald Eagle nesting and perch trees in the northern extent of the property. No disturbance should occur within 45m of these trees. The playing field was identified in the 2007 Ministry of Environment Sensitive Ecosystems Inventory (SEI) because it may flood some years and be valuable to waterfowl. Wetlands, hydro-riparian corridors and wet forests provide disproportionately valuable wildlife habitat and listed-species (Painted Turtle, Red-legged and Spotted Frogs) have been found here. The intertidal interface also is extremely important to many species, especially as waterfront property becomes increasingly in demand.

---

<sup>12</sup> Trofymow *et al.* 2003

### 12.8 Rare Species and Ecological Communities

Because of the heavy development and forestry on southern Vancouver Island described above, most of the remaining fragmented ecosystems and ecological communities are considered rare. Within these ecosystems reside several rare species. Those rare communities found on the property are listed in *Table 2* and depicted in *Figure 13*. Rare species that were confirmed by NCC staff in 2010 are listed below. The Ministry of Environment also identified two sensitive ecosystems on the property through their Sensitive Ecosystems Inventory (SEI) process<sup>13</sup>. These are Coastal Bluff (referred to in this report as “Coastal Woodland”) and Wetland.

Each mapped ecological unit was equated to an ecological community described by Green and Klinka (1994) and ranked by the B.C. Conservation Data Centre. This resulted in the units being classified as being Red-, Blue-, or Yellow-listed. The same classification scheme also applies to individual species. Red-list indicates endangered or threatened status within B.C., blue-list is vulnerable, sensitive and/or of special concern within B.C., and yellow-list is considered reasonably secure and not at risk in B.C. Except for the developed portions of the property (too degraded to clearly identify the ecosystem), all non-intertidal ecological communities on the property are ranked as Red- or Blue-listed (see *Table 3* and *Figure 13*). A G1S1 ecosystem is “endangered as a community can become before extinction (see footnote below).

**Table 2. Status of Confirmed Rare Species on Moorecroft<sup>14</sup>**

Common Name	Scientific Name	Global rank <sup>15</sup>	Provincial rank <sup>16</sup>	List status
Northern Red-legged Frog <sup>17</sup>	<i>Rana aurora</i>	G4	SC	Blue
Western Painted Turtle <sup>18</sup>	<i>Crysemys picta pop. 1</i>	G5TNR	S2	Red
Steller Sea Lion <sup>19</sup>	<i>Eumetopias jubatus</i>	G3	S2,S3	Blue
Great Blue Heron <sup>20</sup>	<i>Ardea herodias fannini</i>	G5T4	S2,S4	Blue

<sup>13</sup> <http://www.env.gov.bc.ca/sei/>

<sup>14</sup> Conservation Data Center, 2010

<sup>15</sup> Global ranks (G) are assigned based on the global distribution of the ecosystem. The ecosystems are assessed on a 1 to 5 scale, with 1 being the rarest and 5 secure.

<sup>16</sup> Provincial (subnational) (S) ranks are assigned to the ecosystem within B.C. only. The ecosystems are assessed on a 1 to 5 scale, with 1 being the rarest and 5 secure.

<sup>17</sup> Ursus, 2007

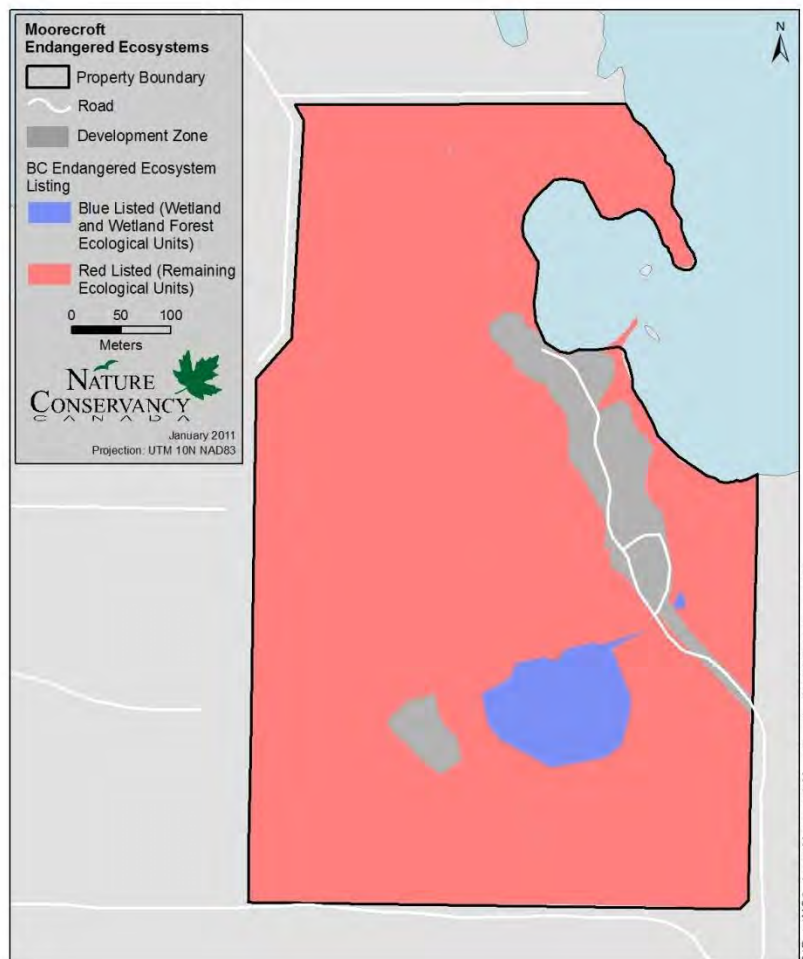
<sup>18</sup> Not 100% confident in identification, small chance of being invasive Red-eared Slider

<sup>19</sup> Not on property, along adjacent shoreline

<sup>20</sup> Ranked as such due to decline in rookeries

**Table 3. Status of ecosystems on Moorecroft<sup>21</sup>.**

Ecological Unit	Ecosystem (ecological community)	Global rank <sup>22</sup>	Provincial rank <sup>23</sup>	List status
Mesic forest	Douglas-fir / dull Oregon-grape	G2	S2	Red
Dry forest	Douglas-fir-lodgepole pine / arbutus	Not ranked	S2	Red
Moist Forest	grand fir / dull Oregon-grape	G1	S1	Red
Riparian forest	grand fir / three-leaved foamflower	G1	S1	Red
Coastal Woodland	Douglas-fir / oniongrass	G1	S1	Red
Wetland forest	western red cedar / skunk cabbage	Not ranked	S2S3	Blue
Marsh	Cattail	Not ranked	S3	Blue



**Figure 13. Map of red and blue-listed ecosystems on Moorecroft**

<sup>21</sup> Conservation Data Center, 2010

<sup>22</sup> Global ranks (G) are assigned based on the global distribution of the ecosystem. The ecosystems are assessed on a 1 to 5 scale, with 1 being the rarest and 5 secure.

<sup>23</sup> Provincial (subnational) (S) ranks are assigned to the ecosystem within B.C. only. The ecosystems are assessed on a 1 to 5 scale, with 1 being the rarest and 5 secure.

Protecting additional CDF habitats from development should be a top priority in BC, particularly where CDF occurs in later seral condition, or where it can buffer other important habitat areas such as rich marine or freshwater ecosystems, and/or protect known habitat for SAR. All three of these things are true of the Moorecroft camp property, making the undeveloped portions of the property priority areas for conservation attention

## 12.9 Exotic Species

Numerous exotic herbaceous species common to southeastern Vancouver Island grow on the property. Scotch broom has mostly kept to developed areas and the shoreline and should be monitored closely. A few sporadically occurring holly plants are scattered around the forested areas. Several herbs grow in disturbed areas or are scattered around the property including Canada thistle, bull thistle, foxglove, dandelion, dovefoot geranium and sheep sorrel.

## 12.10 Natural Disturbances

Natural disturbances to the landscape include historic fire, windthrow and root rot. Two young alder stands in the mid-western portion of the property were cleared because of the danger trees created by root rot.

## 12.11 Anthropogenic Disturbances

Anthropogenic disturbances to the property include all those associated with building trails and operating a camp in addition to some historic logging and watercourse modification, and more recent firewood cutting and fire. Most of the camp infrastructure, including the playing field and buildings are within the development area, but several trails and special features such as fire rings, the picnic area and Frisbee golf invite continuous intense use in some areas of the conservation zone.

Selective logging is evident throughout the property and has modified the stand structure. More recently a few trees have been removed, likely for firewood, and scars of a few renegade fires persist.

Many of the water features on the property have been modified. Skipsey Lake was originally excavated and controlled with a weir. Beavers have since taken over maintaining and growing the "lake". The stream channel downstream/ towards the ocean was modified with cobbles, as many of the water ways probably were. A water pipe runs underground along the right away that was constructed and therefore disturbed the land at some point.

Recently during the transfer of the property from the United Church to the RDN some unsolicited trespass and destruction to the property occurred. See *Appendix 19.5* for the string of emails and photo-documentation exchanged between the RDN, NCC and a concerned neighbour.

### 13.0 ECOLOGICAL SIGNIFICANCE

The Conservation Targets identified on the Moorecroft property align perfectly with the Conservation targets identified in the Salish Sea Natural Area Conservation Plan. Components of the property including Coastal Bluffs, Wetlands and eagle nesting trees, have also been identified as priorities by the Ministry of Environments SEI and the WiTS. All of the ecological communities on the property are considered rare and several rare species can be found on the property and in the adjacent waters.

### 14.0 BIODIVERSITY TARGETS

The covenant refers to amenities, defined as “the natural habitats, and sensitive ecological features occurring on the Lands, as described in the Report” (i.e., this Baseline Documentation Report). The amenities are considered to be equivalent to the Biodiversity Targets, as defined in *Table xx*. For the forested ecosystems, all forest polygons may not yet be in mature or older successional stage, although that is the targeted state.

**Table 4. Biodiversity Targets**

Property Biodiversity Targets	Aligned NACP Biodiversity Target	Ecological Justification <sup>1</sup>	Viability <sup>2</sup>	Nested Targets
<i>Ecological Systems and/or Communities</i>				
<b>Mature Dry forest</b>	Forest and Woodland	Red-listed plant community	Good	Douglas Fir – Lodgepole Pine / Arbutus ( <i>Pseudotsuga menziesii</i> var. <i>menziesii</i> - <i>Pinus contorta</i> var. <i>contorta</i> - <i>Arbutus menziesii</i> ) (GNR, S2)
<b>Mature Mesic forest</b>		Red-listed plant community	Good	Douglas Fir / Dull Oregon-grape ( <i>Pseudotsuga menziesii</i> var. <i>menziesii</i> – <i>Mahonia nervosa</i> ) (G2, S2)
<b>Mature Moist forest</b>		Red-listed plant community	Good	Grand Fir / Dull Oregon-grape ( <i>Abies grandis</i> – <i>Mahonia nervosa</i> ) (G1, S1)

<b>Small hydro-riparian ecosystems</b>	Herbaceous Ecosystems	Red-listed plant community	Fair	Grand Fir / Three-leaved Foamflower ( <i>Thuja plicata</i> - <i>Abies grandis</i> - <i>Tiarella trifoliata</i> var. <i>trifoliata</i> ) (G1, S1)
<b>Mature Wetland forest</b>	Forest and Woodland	Red-listed plant community	Fair	Red Alder / Skunk Cabbage ( <i>Alnus rubra</i> - <i>Lysichiton americanus</i> ) (GNR, S2)
<b>Wetland</b>	Freshwater Systems	Blue-listed plant community	Fair	Common Cattail marsh (CDFmm/Wm05) (G5, S3)
<b>Coastal woodland</b>	Forest and Woodland	Red-listed plant community	Fair	Douglas Fir / Oniongrass ( <i>Pseudotsuga menziesii</i> var. <i>menziesii</i> - <a href="#"><i>Melica subulata</i> var. <i>Subulata</i></a> ) (G1, S1)

<b>Very Good</b>	
<b>Good</b>	
<b>Fair</b>	
<b>Poor</b>	
<b>Unknown</b>	
<b>N/A</b>	



## 15.0 PROCEDURES

### 15.1 Ecological Unit Delineation

Nine Ecological Units were defined and delineated on the property based on dominant vegetation, vegetative structure, topography, and biogeoclimatic (BEC) zone (See *Figure 4. Ecological Polygons and Sites*). These ecological units are designed to represent the properties unique ecological and physical characteristics, and identify sensitive areas. Delineated ecological Polygons and associated descriptions can be found in *Section 19. Detailed Property Descriptors*.

### 15.2 Ecological Monitoring Site Selection

Permanent ecological monitoring sites were established to represent five of the nine defined Ecological Units. At each site ecological data was collected including plant and animal species names, BEC information, and additional site parameters (from “*Describing Ecosystems in the Fields*”). A tripod was set up at the center of each site and representative photographs taken. Extra photographs were taken at geo-referenced locations to help describe four of those polygons for which no formal monitoring sites were established. See Durand, R. 2003. *Baseline inventory protocol: A guideline for inventorying and mapping protected areas* for complete site data collection methodology.

### 15.3 Photostops

Seven extra photo monitoring sites called “photostops” were established on property corners to further document the baseline condition of the property and its borders. A tripod was set up at the center of each site and representative photographs taken. See Durand, R. 2003. *Baseline inventory protocol: A guideline for inventorying and mapping protected areas* for complete Photostop data collection methodology.

### 15.4 Photographs

All photos were taken with a Nikon D300 Digital SLR camera with the Image Authentication Stamp feature turned to “on”. When used in combination with the Nikon Image Authentication software, this provides a legally robust mechanism by which to prove that digital photos have not been modified in any way (either the image itself or the EXIF data). For the purpose of retaining the validity of this authentication stamp the photos must keep their default naming format, which is in the form of “\_DSC#####”.

Most of these photographs also include the geographic coordinates (latitude/longitude) and time (Universal Time Code) of where and when the photograph was taken. This is imprinted to the EXIF file at the time of capture by way of a Garmin GPS connected to the camera with a specialized Nikon cable.

All photographs are displayed as photosheets that were created with AdobeBridge and AdobeInDesign CS3. Latitude and Longitude coordinates were imported from the photographs

EXIF file. On the photosheets where the latitude and longitude are replaced by “[Metadata missing]”, no geographic information was recorded. Detailed photograph descriptions can be found under individual site descriptions in *Section 19*.

### **15.5 Site Pins and Reference Markers:**

All Site and Photostop plot centers are marked by metal rebar wrapped with orange coloured flagging tape.

Alternate reference markers (in the event of the loss or damage to a site pin) vary by individual Site/Photostop, but all are flagged with flagging tape. Individual Site and Photostop descriptions found in *Sections 19* and *20* further describe the type and location of these back-up markers.

### **15.6 Equipment**

All surveys were conducted with the equipment listed below.

Camera settings, vertical lens angles and azimuth bearings for each shot are included in individual Site descriptions. Field guides are included in *Section 21.0 References*.

Camera: Nikon D300

Lens: Nikkor AF-S DX VR 18-200/3.5-5.6G IF ED

Compass: Suunto MC-2 (declination set to 18.5° East)

Clinometer: Suunto PM-5/360 PC

GPS (1): Trimble GeoXM with ArcPad version 7.0.1 software (used for field-based mapping)

GPS (2): Garmin eTrex Legend (used for GPS stamping of EXIF data on photographs)

### **15.7 GIS Data**

Point and line locations were mapped in the field with the above mentioned Trimble GeoXM and ArcPad software using NAD83 for a geographic reference system and projected in BCAlbers. Further GIS work was completed in the office with ArcMap version's 9.2 and 9.3..

In addition to GPS field data, several secondary data layers were used to create maps. Roads, cadastre, and coastline data came from the Province of BC. Roads were modified based on field observations. Trails were digitized from hard-copy plans created by Kyler Land Surveying, 2000. GPS errors resulted in additional missing features, such as buildings, and these were digitized from a hard-copy map of the property provided by the Camp. Ecological units were modified, based on field surveys, from hard-copy maps developed by Ursus Environmental in 2007.

### **15.8 Data storage**

GIS layers and maps can be found on the NCC S:// drive.

The final Baseline Documentation Report and maps can be found electronically on Citrix and in hardcopy and Compact Disk in fireproof filing cabinets in office.

Electronic resources including photographs on disk are stored offsite with a company called ACCESS.

Several of the supporting documents can be found on Citrix both in the Stewardship and Securement folders.

The original field data forms, including site location diagrams, can be found in the fireproof Stewardship filing cabinet in the Victoria office.

### **15.9 Completeness of Survey**

This survey is complete to the Baseline Documentation Report standards of the Nature Conservancy of Canada. However, ecological data and species inventories are by no means complete and should be continuously surveyed.

## **16.0 ECOLOGICAL UNITS**

Seven natural Ecological Units were defined on Moorecroft, as well as the grass field, and two intertidal units that are mostly off the property (see *Figure 9*). Five Sites were established to represent five of the Units according to the above procedures. The remainder of the Units are described below. *Table 5* summarizes the respective areas of each unit. The units are described below, along with specific information on each sample site.

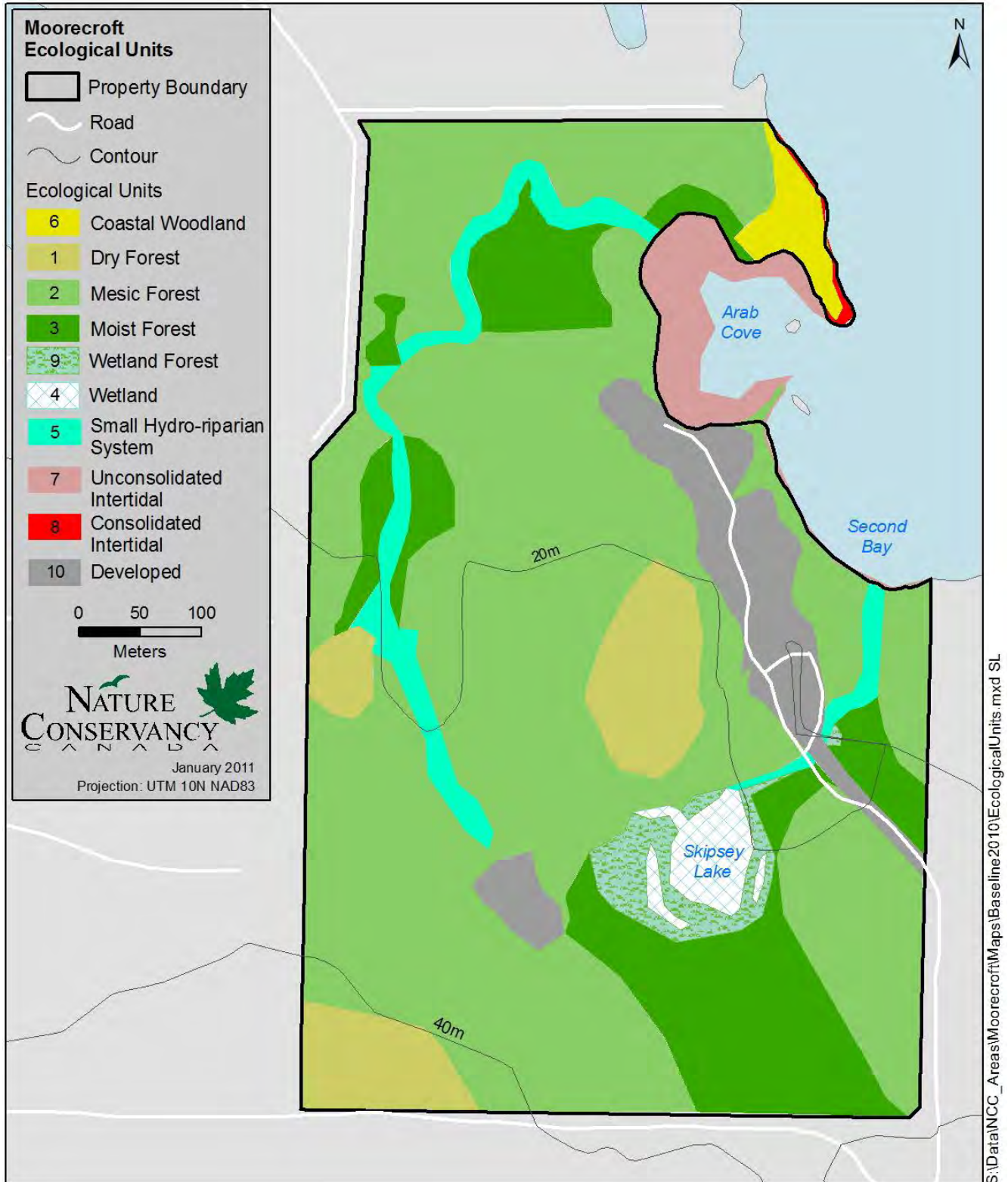


Figure 9. Ecological Unit Map

**Table 5. Relative area of ecosystems on Moorecroft Camp**

<b>Ecological Unit (#)</b>	<b>Hectares</b>	<b>% of property</b>
Dry forest (1)	1.81	5
Mesic forest (2)	18.42	54
Moist Forest (3)	8.80	26
Hydro-riparian Systems (5)	0.91	2.6
Coastal Woodland (6)	0.49	1.3
Wetland Forest (9)	0.93	2.6
Wetland (4)	0.53	1.5
Development (10)	2.38	7

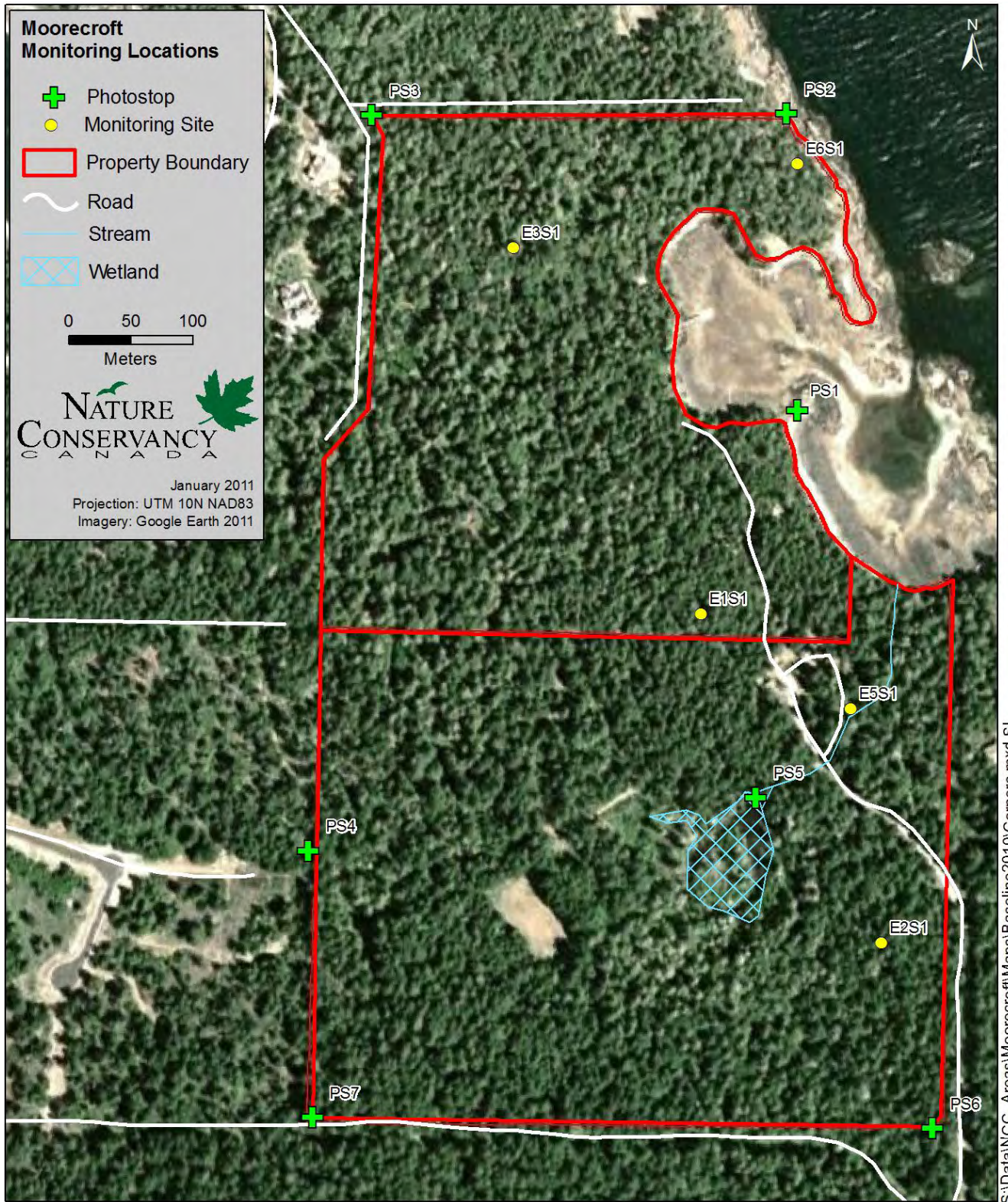


Figure 10. Monitoring Points

## 16.1 Ecological Unit 1: Dry Forest

**Dry Forest** (Douglas-fir-lodgepole pine / arbutus) (CDFmm/02) is drier, has more arbutus, and minor components of lodgepole pine than zonal sites. It generally has a greater diversity of herbaceous species, and occurs on upper slope to crest site positions (Figure 8). Brunisol soils are generally shallow and poorly developed. There was evidence of deer browse in much of the Unit.



**Figure 11. Dry forest**

### Ecological Unit 1, Site 1

#### 16.1.1.1 Date Surveyed

May 12, 2010

#### 16.1.1.2 Location

**Site Location:** On rocky knoll west of the splash house/toilets.

**Marker:** Slingshot shaped Arbutus

**Distance to plot center:** ~20m

**Azimuth to plot center:** 292°

**Latitude:** 49° 18' 15.87"N

**Longitude:** 124° 10' 46.66"W

**Accuracy:** ± 5m

**16.1.1.3 Description**

**General Description:** Dry 02 Douglas-fir/arbutus forest with some large older arbutus and Douglas-fir and extensive moss cover with abundant salal. The substrate is a matrix of consolidated bedrock, shallow soils and shattered surface rock.

**Aspect:** 50°

**Exposure:** n/a

**Elevation:** 23m

**Mesoslope Position:** Crest (CR)

**Slope:** 3%

**Surface Substrate:** Organic/unconsolidated bedrock/outcrop

**Soil Nutrient Regime:** Very Poor-Medium (A-C)

**Soil Moisture Regime:** Very Dry (1)

**Percent Cover (%):**

**Layer A:** 25

**Layer B:** 12

**Layer C:** 2

**Layer D:** 90

**Structural Stage:** Mature mixed multistoried forest (6Mm)

**Crown Closure:** 25%

**Biogeoclimatic Zone:** CDF

**Site Series:** 02

**16.1.1.4 Disturbances**

Deer browse is apparent on many shrubs.

**16.1.1.5 Vegetation**

Common Name	Scientific Name	Layer	Vigour	Distribution	Status
<b>Trees</b>					
Douglas-fir	<i>Pseudotsuga menziesii</i> <i>var. menziesii</i>	A1	4	1	Yellow
Douglas-fir	<i>Pseudotsuga menziesii</i> <i>var. menziesii</i>	A2	3	2	Yellow
Arbutus	<i>Arbutus menziesii</i>	A2	3	1	Yellow
Garry Oak	<i>Quercus garryana</i>	A3	4	1	Yellow
Douglas-fir	<i>Pseudotsuga menziesii</i> <i>var. menziesii</i>	A3	3	2	Yellow
<b>Shrubs</b>					
Saskatoon	<i>Amelanchier alnifolia</i>	B1	4	1	Yellow
Salal	<i>Gaultheria shallon</i>	B2	2	6	Yellow
Baldhip rose	<i>Rosa gymnocarpa</i>	B2	3	3	Yellow
<b>Herbs</b>					
Rattlesnake-plantain	<i>Goodyera oblongifolia</i>	C	1	2	Yellow
Hairy honeysuckle	<i>Lonicera hispidula</i>	C	3	6	Yellow



Trailing blackberry	<i>Rubus ursinus</i>	C	3	4	Yellow
Twayblade	<i>Listera sp</i>	C	2	4	Yellow
Western Trumpet Honeysuckle	<i>Lonicera ciliosa</i>	C	3	1	Yellow
Licorice fern	<i>Polypodium glycyrrhiza</i>	C	3	2	Yellow
Orchid sp.	<i>Orchidaceae</i>	C	2	1	NS*
Ross' sedge	<i>Carex rossii</i>	C	3	3	Yellow
<b>Mosses and Lichens</b>					
Electrified cat's tail moss	<i>Rhytidiadelphus triquetrus</i>	D	5	5	Yellow
Juniper haircap moss	<i>Polytrichum juniperinum</i>	D	5	5	Yellow
Oregon beaked moss	<i>Kindbergia oregana</i>	D	5	5	Yellow
Broom moss	<i>Dicranum scoparium</i>	D	3	3	Yellow
Step moss	<i>Hylocomium splendens</i>	D	3	3	Yellow
Frog pelt lichen	<i>Peltigera neopolydactyla</i>	D	3	3	No status
Maple seedling	<i>Acer sp.</i>	-	-	-	Yellow
Douglas-fir seedling	<i>Pseudotsuga menziesii var. menziesii</i>	-	-	-	Yellow
<b>Epiphytes</b>					
Mushroom	-	E	-	-	NS

\*NS = no status

Common Name	Scientific Name	Lifestage	Evidence	Abundance	Status
<b>Birds</b>					
Pacific-Slope Flycatcher	<i>Empidonax difficilis</i>	-	Visual (V)	1	Yellow
Rufous Hummingbird	<i>Selasphorus rufus</i>	-	Heard (H)	1	Yellow
Common Raven	<i>Corvus corax</i>	-	Heard (H)	1	Yellow
Dark-Eyed Junco	<i>Junco hyemalis</i>	-	Heard (H)	1	Yellow
Orange-Crowned Warbler	<i>Vermivora celata</i>	-	Visual (V)	1	Yellow
Red-Breasted Nuthatch	<i>Sitta canadensis</i>	-	Heard (H)	1	Yellow
Bald Eagle	<i>Haliaeetus leucocephalus</i>	-	Visual (V)	1	Yellow
<b>Mammals</b>					
Deer sp.	<i>Odocoileus sp.</i>	-	Visual (V),	-	Yellow

			Evidence of feeding (F), Scat (S)		
--	--	--	-----------------------------------	--	--

**16.1.1.6 Photographs**

<b>Photo identifier</b>	<b>Location/Subject</b>	<b>Direction °</b>	<b>Lens angle</b>	<b>GPS accuracy</b>	<b>Focal length</b>	<b>Tripod height</b>	<b>Comments</b>
_DSC6379	EU1S1	0	-	8m	35	1.5m	Deer in photo
_DSC6380	EU1S1	90	-	11m	35	1.5m	Towards development area.
_DSC6381	EU1S1	180	-	9m	35	1.5m	Top of knoll.
_DSC6382	EU1S1	270	-	7m	35	1.5m	-
_DSC6383	EU1S1	-	-	9m	35	1.5m	125°, 6m to tripod with marker tree slingshot arbutus



**Photoplate 1. Ecological Unit 1, Site 1**

## 16.2 Ecological Unit 2: Mesic Forest

**Mesic forest** (Douglas-fir / dull Oregon-grape) (CDFmm01). Most of Moorecroft Camp is covered by a coniferous forest matrix; 54% of this is Mesic Forest (Douglas-fir/dull Oregon-grape ecosystem). This ecosystem is in a mature forest structural stage, as distinguished by a well-developed shrub layer of dull Oregon-grape, salal and young conifers. The herb layer is sparse, and in older forests there is a well-developed multi-layered tree structure (*Figure 12*). Self pruning of dead limbs from the bottom upwards is not yet really advanced, nor is there much self-thinning with smaller trees struggling in the understory. Big arbutus has not yet been outcompeted. Mature bark is developing at the base of trees, not yet all the way up.



**Figure 12. Mesic forest**

### Ecological Unit 2, Site 1

#### 16.2.1.1 Date Surveyed

May 12, 2010

#### 16.2.1.2 Location

**Site Location:** South past Moorecroft sign on access road. From power pole on road 246° and ~85m.

**Marker:** Douglas-Fir tree on ridge

**Distance to plot center:** 9m

**Azimuth to plot center:** 234°

**Latitude:** 49° 18' 07.7"N

**Longitude:** 124°10'30.4"W  
**Accuracy:** ± 3.8m

**16.2.1.3 Description**

**General Description:** Mesic Douglas-fir/arbutus and cedar forest with some big-leaf maple and Garry oak. Ground cover is dominated by moss and salal with some sword fern and ocean spray in deeper soil pockets. Vegetation assemblages reflect substrate matrix of soil pockets. For example rocky outcrop/shallow soil pockets typically are dry and open with Garry oak and cedar, while deeper moister soil pockets typically host cedar and ocean spray.

**Aspect:** 60°  
**Exposure:** -  
**Elevation:**  
**Mesoslope Position:** Upper (UP)  
**Slope:** 3%  
**Surface Substrate:** Organic  
**Soil Nutrient Regime:** Medium (C)  
**Soil Moisture Regime:** Mesic (3-4)  
**Percent Cover (%):**  
     **Layer A:** 55  
     **Layer B:** 40  
     **Layer C:** 4  
     **Layer D:** 35  
**Structural Stage:** Mature mixed multistoried forest (6Mm)  
**Crown Closure:** 55%  
**Biogeoclimatic Zone:** CDFmm  
**Site Series:** 01

**16.2.1.4 Disturbances**

There are a few animal trails around the site. The forest structure is likely modified due to historic selective logging.

**16.2.1.5 Vegetation**

Common Name	Scientific Name	Layer	Vigour	Distribution	Status
<b>Trees</b>					
Douglas-fir	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	A1	3	2	Yellow
Douglas-fir	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	A2	3	2	Yellow
Arbutus	<i>Arbutus menziesii</i>	A2	3	1	Yellow

Western red cedar	<i>Thuja plicata</i>	A3	1	2	Yellow
Arbutus	<i>Arbutus menziesii</i>	A3	3	1	Yellow
Douglas-fir	<i>Pseudotsuga menziesii var. menziesii</i>	A3	3	2	Yellow
<b>Shrubs</b>					
Ocean spray	<i>Holodiscus discolor</i>	B1	3	1	Yellow
Saskatoon	<i>Amelanchier alnifolia</i>	B1	3	1	Yellow
Western Redcedar	<i>Thuja plicata</i>	B1	3	1	Yellow
Salal	<i>Gaultheria shallon</i>	B2	3	6	Yellow
Baldhip rose	<i>Rosa gymnocarpa</i>	B2	3	2	Yellow
Ocean spray	<i>Holodiscus discolor</i>	B2	3	2	Yellow
Saskatoon	<i>Amelanchier alnifolia</i>	B2	3	2	Yellow
<b>Herbs</b>					
Twayblade	<i>Listera sp.</i>	C	3	2	Yellow
Hairy honeysuckle	<i>Lonicera hispidula</i>	C	3	7	Yellow
Sweet-scented bedstraw	<i>Galium triflorum</i>	C	3	4	Yellow
Trailing blackberry	<i>Rubus ursinus</i>	C	3	4	Yellow
Western trumpet honeysuckle	<i>Lonicera ciliosa</i>	C	3	1	Yellow
Woodland star-flower	<i>Trientalis sp.</i>	C	3	2	Yellow
Bracken fern	<i>Pteridium aquilinum</i>	C	3	1	Yellow
<b>Mosses and Lichens</b>					
Electrified cat's tail moss	<i>Rhytidiadelphus triquetrus</i>	D	-	-	NS
Juniper haircap moss	<i>Polytrichum juniperinum</i>	D	-	-	Yellow
Broom moss	<i>Dicranum scoparium</i>	D	-	-	Yellow
Oregon beaked moss	<i>Kindbergia oregana</i>	D	-	-	Yellow
Frog pelt lichen	<i>Peltigera neopolydactyla</i>	D	-	-	Yellow
Garry oak	<i>Quercus garryana</i>	D	-	-	Yellow
Maple seedling	<i>Acer sp.</i>	D	-	-	Yellow
<b>Epiphytes</b>					
Mushroom	-	-	-	-	NS

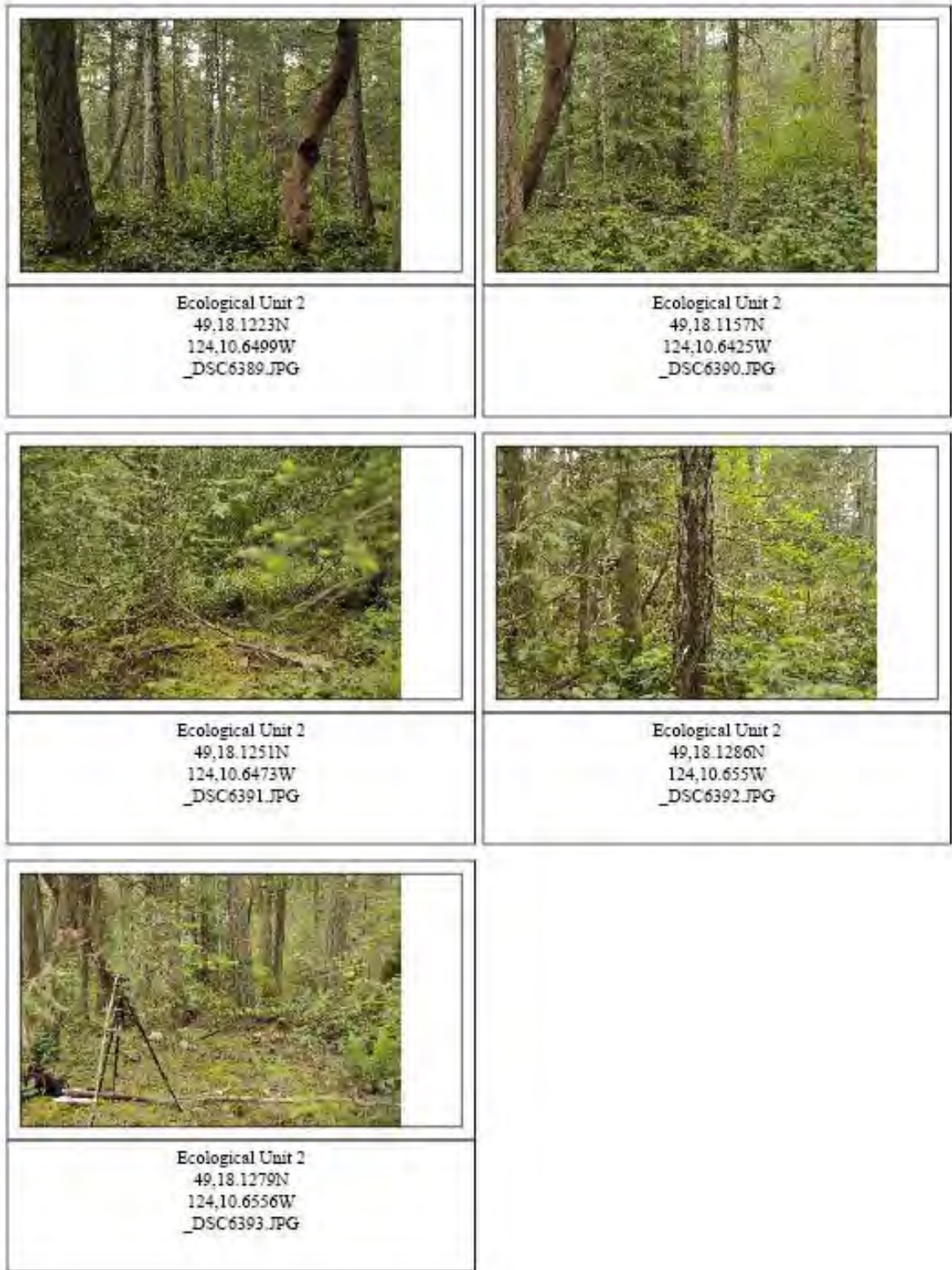
16.2.1.6 Wildlife

Common Name	Scientific Name	Lifestage	Evidence	Abundance	Status
<b>Birds</b>					

Bald Eagle	<i>Haliaeetus leucocephalus</i>	-	Heard (H)	1	Yellow
Pacific Slope Flycatcher	<i>Empidonax difficilis</i>	-	Heard (H)	1	Yellow
<b>Mammals</b>					
Deer	<i>Odocoileus</i> sp	-	Scat (S)	1	Yellow

**16.2.1.7 Photographs**

Photo identifier	Location/Subject	Direction °	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6389	EU2S1	0	-	11m	35	1.5m	-
_DSC6390	EU2S1	90	-	21m	35	1.5m	Thick Oregon grape and salal cover
_DSC6391	EU2S1	180	-	9m	35	1.5m	Dead limbs
_DSC6392	EU2S1	270	-	8m	35	1.5m	-
_DSC6393	EU2S1	-	-	20m	35	-	350° and 8m to marker Douglas-fir.



Photoplate 2. Ecological Unit 2, Site 1



## 16.3 Ecological Unit 3: Moist Forest

**Moist Forest** (Grand fir / dull Oregon-grape) (CDFmm/04) has a rich nutrient regime, and generally has plentiful sword fern and dense shrubs. The presence of three-leaved foamflower (*Tiarella trifoliata*) and palm tree moss (*Leucolepis menziesii*) are good indicators of this ecosystem (*Figure 13*).



**Figure 13. Moist forest**

### Ecological Unit 3, Site 1

#### 16.3.1.1 Date Surveyed

May 10, 2010

#### 16.3.1.2 Location

**Site Location:** On north side of the trail that transects the property from the west to the northern tip of the bay.

**Marker:** Douglas-fir with a red cross marked on it's trunk. On the south side of the trail.

**Distance to plot center:** 20.7m

**Azimuth to plot center:** 356°

**Latitude:** 49° 18' 25.06"N

**Longitude:** 124° 10' 54.3"W

**Accuracy:** No accuracy recorded, poor reception.

### 16.3.1.3 Description

**General Description:** Moist 06 mature forest. Cedar and grand fir dominate the canopy accompanied by a few bigleaf maple and alder trees. The ground is covered by dense sword fern and abundant trailing blackberry. A pooling waterway bisects the site from west to east and creates a riparian skunk cabbage unit (Site series 11) to the west.

**Aspect:** 350°

**Exposure:** -

**Elevation:** 10m

**Mesoslope Position:** Lower slope (LW)

**Slope:** 8%

**Surface Substrate:** Organic

**Soil Nutrient Regime:** Rich (D)

**Soil Moisture Regime:** Subhygric (6)

**Percent Cover (%):**

**Layer A:** 30

**Layer B:** 12

**Layer C:** 65

**Layer D:** 60

**Structural Stage:** Mature mixed multistoried forest (6Mm)

**Crown Closure:** 30

**Biogeoclimatic Zone:** CDFmm

**Site Series:** 5-6

### 16.3.1.4 Riparian Features

**Class:** Seepage

**Centreline Bearing:** 90

**Bankfull Width:** Channels ~ 0.5m

**Bankfull Depth:** -

**Wetted Width:** 0.3-1 m

**Wetted Depth:** 0-.4 m

**Bank Slopes:** Approximately 15%

**Stream Gradient:** Less than 1%

**Bed Characteristics:** Muddy/high organic

**Flow Characteristics:** Stagnant pooling

**Aquatic Vegetation:** None

**Modifications:** Likely channelized as many of these low-grade water courses were historically modified.

**Fish/Wildlife Use:** Several Sitka Black-tailed Deer bedding sites were found here. Not suitable for fish.

### 16.3.1.5 Disturbances

Light grazing on shrubs and herbs by Sitka Black-tailed deer on some bedding sites.

The abundance of water here may be a result of previously mentioned historic modifications to water courses on the property.

16.3.1.6 Vegetation

Common Name	Scientific Name	Layer	Vigour	Distribution	Status
<b>Trees</b>					
Western red cedar	<i>Thuja plicata</i>	A1	4	1	Yellow
Grand fir	<i>Abies grandis</i>	A2	4	2	Yellow
Western red cedar	<i>Thuja plicata</i>	A3	3	1	Yellow
<b>Shrubs</b>					
Western red cedar	<i>Thuja plicata</i>	B1	3	3	Yellow
Grand fir	<i>Abies grandis</i>	B1	3	2	Yellow
Bigleaf maple	<i>Acer macrophyllum</i>	B1	3	1	Yellow
Salmonberry	<i>Rubus spectabilis</i>	B1	3	2	Yellow
Thimbleberry	<i>Rubus parviflorus</i>	B2	4	4	Yellow
Salmonberry	<i>Rubus spectabilis</i>	B2	4	2	Yellow
<b>Herbs</b>					
Trailing blackberry	<i>Rubus ursinus</i>	C	3	4	Yellow
Sword fern	<i>Polystichum munitum</i>	C	3	8-9	Yellow
Spiny wood fern	<i>Dryopteris expansa</i>	C	3	2	Yellow
Lady fern	<i>Athyrium filix-femina</i>	C	3	1	Yellow
Skunk cabbage	<i>Lysichiton americanum</i>	C	3	3	Yellow

16.3.1.7 Wildlife

Common Name	Scientific Name	Life Stage	Evidence	Abundance	Status
<b>Birds</b>					
American Robin	<i>Turdus migratorius</i>	Adult (A)	Visual (V)	1	Yellow
Winter Wren	<i>Troglodytes troglodytes</i>	Adult (A)	Heard (H)	1	Yellow
Chestnut-	<i>Poecile</i>	Adult (A)	Heard (H)	1	Yellow

backed Chickadee	<i>rugescens</i>				
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Adult (A)	Heard (H)	1	Yellow
Rufus Hummingbird	<i>Selasphorus rufus</i>	Adult (A)	Visual (V)	2	Yellow
Pacific Slope Flycatcher	<i>Empidonax difficilis</i>	Adult (A)	Heard (H)	1	Yellow
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Adult (A)	Heard (H)	1	Yellow
<b>Mammals</b>					
Deer sp.	<i>Odocoileus</i> sp.	-	Bedding	3	Yellow
Vole sp.	<i>Microtus</i> sp.	Adult (A)	Visual (V)	1	Yellow

**16.3.1.8 Photographs**

Photo identifier	Location/Subject	Direction °	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6334	EU3S1	0	-	12m	35	1.5m	Down towards standing water.
_DSC6336	EU3S1	90	-	12m	35	1.5m	-
_DSC6337	EU3S1	180	-	12m	35	1.5m	Sword fern.
_DSC6338	EU3S1	270	-	12m	35	1.5m	Towards ocean.
_DSC6339	EU3S1	-	-	12m	35		7m and 170° to tripod

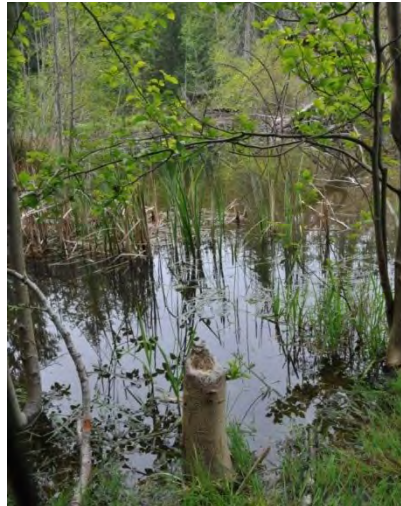


Photoplate 3. Ecological Unit 3, Site 1

## 16.4 Ecological Unit 4: Wetland and Ecological Unit 9: Wetland Forest

**Wetland and Wetland Forest** were originally described together, and were later delineated as separate Ecological Units. As many photographs, flora and fauna species are common to both Units, the cumulative site data is included below, and individual differentiating descriptions given.

**Wetland (Unit 4)** (CDFmm/Wm05) is an anthropogenically altered, naturalized wetland that was excavated in the mid 1930s. The wetland, known as Skipsey Lake, is recovering towards a marsh with cattails (*Typha latifolia*) around the perimeter and other wetland vegetation. Skipsey Lake is now maintained by Beavers and holds significant wildlife value for waterfowl, songbirds, amphibians, reptiles and several other species. The influence of the Beaver in recent years has led to increased flooding and the expansion of Skipsey Lake, and has created a surrounding wetland forest type (*Figure 14*).



**Figure 14. Wetland**

**Wetland Forest (Unit 9)** (Western red cedar / skunk cabbage) (CDFmm/11) has the richest nutrient regime and is the wettest. The presence of skunk cabbage (*Lysichitum americanum*) and salmonberry (*Rubus spectabilis*) are good indicators of this ecosystem. Red-osier dogwood and cottonwood are common on the perimeter where water has been present for longer periods of time. On Moorecroft this ecosystem has largely emerged from anthropogenic water course modification and subsequent Beaver activity, making water levels and the size of this Unit susceptible to change (*Figure 15*).



**Figure 15. Wetland Forest**

**Ecological Unit 4: Wetland**

**16.4.1.1 Date Surveyed**

May 12, 2010

**16.4.1.2 Location**

**Site Location:** Head south down driveway from parking lot, west onto track and walk ~30m. The wetland borders the path to the south.

**16.4.1.3 Riparian Features**

**Class:** Swamp/Shallow open water

**Centreline Bearing:** -

**Bankfull Width:** 70m diameter, 1-2 Ha area

**Bankfull Depth:** Unknown

**Wetted Width:** 70m

**Wetted Depth:** Unknown

**Bank Slopes:** 1-2%

**Stream Gradient:** -

**Bed Characteristics:** Organic sediment.

**Flow Characteristics:** Fairly stagnant

**Aquatic Vegetation:** Duckweed, water hemlock, yellow pond lily.

**Modifications:** Dredged in mid 1930s and controlled with a weir until recently since Beaver have taken over damming and excavating the wetland. The outflow stream was historically channelized. Likely at the time of excavation.

**Fish/Wildlife Use:** See wildlife list.

**16.4.1.4 Disturbances**

The entirety of the wetland is essentially a chain of disturbances, initiated by human excavation, channelization and water control, and now maintained by beaver. There is a path with three bridges surrounding the wetland, and an old watermill. A landing with two row boats is on the northeastern shore adjacent to the trail.

**16.4.1.5 Vegetation**

Common Name	Scientific Name	Layer	Vigour	Distribution	Status
<b>Trees</b>					
Western redcedar	<i>Thuja plicata</i>	-	-	-	Yellow
<b>Shrubs</b>					
Red-osier dogwood	<i>Cornus stolonifera</i>	-	-	-	Yellow
Willow sp.	<i>Salix</i> sp.	-	-	-	Yellow
Hardhack	<i>Spiraea douglasii</i>	-	-	-	Yellow
Red raspberry	<i>Rubus idaeus</i>	-	-	-	Yellow
Red alder	<i>Alnus rubra</i>	-	-	-	Yellow
<b>Herbs</b>					
Stinging nettle	<i>Urtica dioica</i>	-	-	-	Yellow
Mint sp.	Lamiaceae sp.	-	-	-	Yellow
Common horsetail	<i>Equisetum arvense</i>	-	-	-	Yellow
Canada thistle	<i>Cirsium arvense</i>	-	-	-	Exotic
Bull thistle	<i>Cirsium vulgare</i>	-	-	-	Exotic
Daisy sp	<i>Aster</i> sp.	-	-	-	Yellow
Cooley's hedge-nettle	<i>Stachys cooleyae</i>	-	-	-	Yellow
Common cattail	<i>Typha latifolia</i>	-	-	-	Yellow
Common rush	<i>Juncus effusus</i>	-	-	-	Yellow
Slough sedge	<i>Carex obnupta</i>	-	-	-	
Skunk cabbage	<i>Lysichiton americanum</i>	-	-	-	Yellow
Buttercup sp.	<i>Ranunculus</i>	-	-	-	Yellow
Forget-me-not	<i>Myosotis</i> sp.	-	-	-	Exotic/yellow
Foxglove	<i>Digitalis purpurea</i>	-	-	-	Exotic
Dandelion	<i>Taraxacum</i>	-	-	-	Exotic



	<i>officinale</i>				
Geranium sp.	<i>Geranium</i> sp.	-	-	-	Exotic/yellow
Sword fern sp.	<i>Polystichum</i> sp.	-	-	-	Yellow
Bracken fern	<i>Pteridium aquilinum</i>	-	-	-	Yellow
Clover	<i>Trifolium</i> sp.	-	-	-	Exotic/Yellow
Chickweed sp	<i>Stellaria</i> sp.	-	-	-	Exotic/Yellow
Pathfinder	<i>Adenocaulon bicolor</i>	-	-	-	Yellow
Cleavers	<i>Galium aparine</i>	-	-	-	Yellow
Plantain	<i>Plantago</i> sp.	-	-	-	Yellow

16.4.1.6 Wildlife

Common Name	Scientific Name	Life Stage	Evidence	Abundance	Status
<b>Birds</b>					
Mallard	<i>Anas platyrhynchos</i>	-	Visual (V)	9 (pair + 7 young)	Yellow
American Goldfinch	<i>Carduelis tristis</i>	-	Visual (V)	-	Yellow
Wood Duck	<i>Aix sponsa</i>	-	Visual (V)	-	Yellow
Hooded Merganser	<i>Lophodytes cucullatus</i>	-	Visual (V)	-	Yellow
Hairy Woodpecker	<i>Picoides villosus</i>	-	Visual (V)	-	Yellow
Pileated Woodpecker	<i>Dryocopus pileatus</i>	-	Heard (H)	-	Yellow
Red-breasted Nuthatch	<i>Sitta canadensis</i>	-	Heard (H)	-	Yellow
Song Sparrow	<i>Melospiza medodia</i>	-	Visual (V)	2	Yellow
Turkey Vulture	<i>Cathartes aura</i>	-	Visual (V)	2	Yellow
Yellow-throated Warbler	<i>Dendroica dominica</i>	-	Heard (H)	1	Accidental
Swainson's Thrush	<i>Catharus ustulatus</i>	-	Visual (V)	1	Yellow
American Robin	<i>Turdus migratorius</i>	-	Visual (V)	4	Yellow
Rufus Hummingbird	<i>Selasphorus rufus</i>	-	Visual (V), Building (BU)*	-	Yellow

Pacific Slope Flycatcher	<i>Empidonax difficilis</i>	-	-	-	Yellow
Dark-eyed Junco	<i>Junco hyemalis</i>	-	Heard (H)	1	Yellow
<b>Mammals</b>					
Deer	<i>Odocoileus</i> sp	-	Tracks (T)	-	Yellow
Beaver	<i>Castor canadensis</i>	-	Evidence of feeding (F), Building (BU)	-	Yellow
<b>Amphibians</b>					
Painted Turtle	<i>Chrysemys picta</i>	-	-	1	Red
Pacific Chorus Frog	<i>Pseudacris regilla</i>	-	Visual (V)	1	Yellow
Oregon Spotted Frog	<i>Rana pretiosa</i>	-	Visual (V)	3	Red
<b>Reptiles</b>					
Garter Snake	<i>Thamnophis</i> sp.	-	Visual (V)	1	Yellow

\*Building (BU): collecting cattail fluff for nest

**16.4.1.7 Photographs**

Photo identifier	Location/Subject	GPS accuracy	Focal length	Tripod height	Comments
_DSC6356	EU4 and 9	8-16m	18	1.5m	
_DSC6357	EU4 and 9	8-16m	18	1.5m	Beaver chew
_DSC6358	EU4 and 9	8-16m	18	1.5m	Beaver building up wetland edge.
_DSC6359	EU4 and 9	8-16m	18	1.5m	Newly flooded edge
_DSC6360	EU4 and 9	8-16m	18	1.5m	Newly flooded edge.
_DSC6361	EU4 and 9	8-16m	18	1.5m	Path around wetland
_DSC6362	EU4 and 9	8-16m	18	1.5m	Across to islet
_DSC6363	EU4 and 9	8-16m	20	1.5m	Newer wetland forest.
_DSC6364	EU4 and 9	8-16m	18	1.5m	Bridge and wetland forest/wetland interface
_DSC6365	EU4 and 9	8-16m	20	1.5m	Into wetland

					forest.
_DSC6366	EU4 and 9	8-16m	20	1.5m	Into wetland forest
_DSC6367	EU4 and 9	8-16m		1.5m	?
_DSC6368	EU4 and 9	8-16m		1.5m	?
_DSC6369	EU4 and 9	8-16m		1.5m	?
_DSC6370	EU4 and 9	8-16m	20	1.5m	Cattail marsh and open water.
_DSC6371	EU4 and 9	8-16m	22	1.5m	Nettle.*
_DSC6372	EU4 and 9	8-16m	22	1.5m	Weir
_DSC6373	EU4 and 9	8-16m	22	1.5m	Watermill
_DSC6374	EU4 and 9	8-16m	22	1.5m	Weir
_DSC6375	EU4 and 9	8-16m	22	1.5m	Southeast bridge.
_DSC6376	EU4 and 9	8-16m	22	1.5m	Boat launch.

		
Ecological Unit 4 49,18.1606N 124,10.7363W _DSC6356.JPG	Ecological Unit 4 49,18.1623N 124,10.731W _DSC6357.JPG	Ecological Unit 4 [Metadata Not Available] [Metadata Not Available] _DSC6358.JPG
		
Ecological Unit 4 49,18.1581N 124,10.7279W _DSC6359.JPG	Ecological Unit 4 49,18.153N 124,10.7297W _DSC6360.JPG	Ecological Unit 4 49,18.152N 124,10.7288W _DSC6361.JPG
		
Ecological Unit 4 49,18.1378N 124,10.7445W _DSC6362.JPG	Ecological Unit 4 [Metadata Not Available] [Metadata Not Available] _DSC6363.JPG	Ecological Unit 4 [Metadata Not Available] [Metadata Not Available] _DSC6364.JPG

Photoplate 4. Ecological Unit 4

## 16.5 Ecological Unit 5: Small Hydro-riparian System

(Grand fir / three-leaved foamflower) (CDFmm/06) is associated with lower slopes near ephemeral streams. The presence of three-leaved foamflower and a sparse shrub layer are good indicators for this ecosystem (*Figure 16*).



**Figure 16.** Small hydro-riparian system, with ephemeral stream

### Ecological Unit 5, Site 1

#### 16.5.1.1 Date Surveyed

May 12, 2010

#### 16.5.1.2 Location

**Site Location:** West of access road, south of development along stream corridor. From parking lot head south back up road – left down track past shed. Turn right into push to stream from green “bouldering building.” The roof of the shed is visible from site, 80° and ~45m to site from NE corner.

**Marker:** Alder

**Distance to plot center:** 4m

**Azimuth to plot center:** 55°

**Latitude:** 49°18'25.1"N

**Longitude:** 124°10'54.3"W

**Accuracy:** Poor reception, no accuracy recorded.

### 16.5.1.3 Description

**General Description:** Low grade stream and associated riparian corridor. The water pools and backchannels in spots along the stream creating wetland to moist forest with skunk cabbage and/or swordfern.

**Aspect:** 66°

**Exposure:** -

**Elevation:** 23m (GPS)

**Mesoslope Position:** Middle slope (MD)

**Slope:** 15%

**Surface Substrate:** Organic - some

**Soil Nutrient Regime:** Rich-Very Rich (C-D)

**Soil Moisture Regime:** Hygric (7)

**Percent Cover (%):**

Layer A: 60

Layer B: 6

Layer C: 20

Layer D: 30

**Structural Stage:** Mature mixed multistoried forest (6Mm)

**Crown Closure:** 60%

**Biogeoclimatic Zone:** CDF

**Site Series:** 11 (Cedar-skunk cabbage)

### 16.5.1.4 Riparian Features

**Class:** Stream

**Centreline Bearing:** 66°

**Bankfull Width:** 3m

**Bankfull Depth:** 1-45 cm

**Wetted Width:** 2m

**Wetted Depth:** 1-30cm

**Bank Slopes:** 50%/35%

**Stream Gradient:** 15%

**Bed Characteristics:** Rocks, organic sediment traps and pooling, some debris

**Flow Characteristics:** Riffle pool, medium constant flow.

**Aquatic Vegetation:** Skunk cabbage (*Lysichiton americanum*)

**Modifications:** Road/driveway ~50m upstream with culvert, Beaver control. Pond ~150m upstream may help regulate flow through the seasons.

**Fish/Wildlife Use:** No fish, but good amphibian habitat. Evidence of Deer.

### 16.5.1.5 Disturbances

Road/driveway ~50m upstream with culvert, above which the stream has obviously been channelized. This part of the channel may have been modified in the past as well.

16.5.1.6 Vegetation

Common Name	Scientific Name	Layer	Vigour	Distribution	Status
<b>Trees</b>					
Western red cedar	<i>Thuja plicata</i>	A1	3	1	Yellow
Douglas-fir	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	A1	4	2	Yellow
Western redcedar	<i>Thuja plicata</i>	A2	3	2	Yellow
Red alder	<i>Alnus rubra</i>	A2	4	1	Yellow
Douglas-fir	<i>Pseudotsuga menziesii</i>	A2	2	2	Yellow
Western redcedar	<i>Thuja plicata</i>	A3	0	1	Yellow
<b>Shrubs</b>					
Western redcedar	<i>Thuja plicata</i>	B1	3	2	Yellow
Salmonberry	<i>Rubus spectabilis</i>	B1	3	1	Yellow
Salal	<i>Gaultheria shallon</i>	B2	3	2	Yellow
Tall Oregon grape	<i>Mahonia aquifolium</i>	B2	2	1	Yellow
Snowberry	<i>Symphoricarpos albus</i>	B2	3	1	Yellow
Bigleaf maple	<i>Acer macrophyllum</i>	B2	3	1	Yellow
<b>Herbs</b>					
Hairy honeysuckle	<i>Lonicera hispidula</i>	C	3	2	Yellow
Cleavers	<i>Galium aparine</i>	C	2	1	Yellow
Skunk cabbage	<i>Lysichiton americanum</i>	C	3	4	Yellow
Hedge nettle	<i>Stachys</i> sp.	C	3	1	Yellow
Wood reed grass	<i>Cinna latifolia</i>	C	3	3	Yellow
Slough sedge	<i>Carex obnupta</i>	C	3	3	Yellow
Sword fern	<i>Polystichum munitum</i>	C	3	6	Yellow
Lady fern	<i>Athyrium filix-femina</i>	C	3	1	Yellow
Wall lettuce	<i>Lactuca muralis</i>	C	3	2	Yellow

Trailing blackberry	<i>Rubus ursinus</i>	C	2	1	Yellow
Pacific water parsley	<i>Oenanthe sarmentosa</i>	C	3	2	Yellow
<b>Mosses and Lichens</b>					
Menzies' red-mouthed mniium	<i>Mnium spinnulosum</i>	D	4	5	Yellow
Menzies' tree moss	<i>Leucolepis acanthoneuron</i>	D	3	5	Yellow
Moss sp.	<i>Rhytidiadelphus</i> sp.	D	3	5	Yellow
Saskatoon seedling	<i>Amelanchier alnifolia</i>	D	3	2	Yellow
Maple seedling	<i>Acer</i> sp.	D	3	1	Yellow
<b>Epiphytes</b>					
Red huckleberry	<i>Vaccinium parvifolium</i>	E	3	2	Yellow

**16.5.1.7 Wildlife**

Common Name	Scientific Name	Life Stage	Evidence	Abundance	Status
<b>Birds</b>					
American Robin	<i>Turdus migratorius</i>	Adult (A)	Visual (V)	1	Yellow
Chestnut-backed Chickadee	<i>Poecile rufescens</i>	Adult (A)	Visual (V)	1	Yellow
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Adult (A)	Heard (H)	1	Yellow
Spotted Towhee	<i>Pipilo maculatus</i>	Adult (A)	Visual (V)	1	Yellow
Song Sparrow	<i>Melospiza melodia</i>	Adult (A)	Visual (V)	1	Yellow
<b>Mammals</b>					
Deer sp.	<i>Odocoileus</i> sp.	-	Tracks (T)	1	Yellow

**16.5.1.8 Photographs**

Photo identifier	Location/Subject	Direction °	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6350	EU5S1	70	-27%	69m	35	1.5m	Downstream
_DSC6351	EU5S1	340	-	9m	35	1.5m	Bedding
_DSC6352	EU5S1	230	+8%	21m	35	1.5m	Upstream



_DSC6354	EU5S1	124	-	8m	35	1.5m	
_DSC6355	EU5S1	-	-	8m	35	-	250° to tripod – can see metal roof in photo



Photoplate 5. Ecological Unit 5 Site 1

## 16.6 Ecological Unit 6: Coastal Woodland

**Coastal Woodland** (Douglas-fir / oniongrass) (CDFmm03) is drier and richer than 02. The presence of Garry oak (*Quercus garryana*), hairy honeysuckle (*Lonicera hispidula*), and Pacific sanicle (*Sanicula crassicaulis*) are good indicators of this ecosystem. This Unit is immediately adjacent to the shoreline. It has shallow soils on bedrock (*Figure 17*).



**Figure 17.** Coastal woodland understory

### Ecological Unit 6, Site 1

#### 16.6.1.1 Date Surveyed

May 10, 2010

#### 16.6.1.2 Location

**Site Location:** North of cross near the northwestern shore. Follow the narrow path along the shore to the marker tree—a Garry oak on east side of path. A downed large Garry oak branch leads to site center at the top of the slope.

**Marker:** End of Garry oak branch on west side of trail.

**Distance to plot center:** 8.6m

**Azimuth to plot center:** 276°

**Latitude:** 49° 18' 13.45"N

**Longitude:** 124° 10' 43.5"W

**Accuracy:** ±4m

**16.6.1.3 Description**

**General Description:** Douglas-fir, Garry oak and arbutus dominated coastal woodland/bluffs. The abundance of Saskatoon is unique to this site as are several species present in the diverse herb.

**Aspect:** 80°

**Exposure:** Coastal influences – wind, salt

**Elevation:** 9m

**Mesoslope Position:** Crest (CR)

**Slope:** 10%

**Surface Substrate:** Organic

**Soil Nutrient Regime:** Rich (D)

**Soil Moisture Regime:** Xeric (1)

**Percent Cover (%):**

Layer A: 17

Layer B: 30

Layer C: 80

Layer D: 1 (moss mostly on rock)

**Structural Stage:** Mature mixed multistoried forest (6Mm)

**Crown Closure:** 17%

**Biogeoclimatic Zone:** CDFmm

**Site Series:** 03

**16.6.1.4 Disturbances**

Low shrubs had low vigour, maybe because of last years drought. Also appears that insect browsed with rust or galls. Both Saskatoon and ocean spray were notably highly browsed and rusted.

**16.6.1.5 Vegetation**

Common Name	Scientific Name	Layer	Vigour	Distribution	Status
<b>Trees</b>					
Douglas-fir	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	A1	3	1	Yellow
Douglas-fir	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	A2	3	4	Yellow
Garry oak	<i>Quercus garryana</i>	A2	4	2	Yellow
<b>Shrubs</b>					
Douglas-fir	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	B1	1	3	Yellow

Arbutus	<i>Arbutus menziesii</i>	B1	1	3	Yellow
Saskatoon	<i>Amelanchier alnifolia</i>	B1	3	7	Yellow
Ocean spray	<i>Holodiscus discolor</i>	B1	3	1	Yellow
Saskatoon	<i>Amelanchier alnifolia</i>	B2	2	4	Yellow
Ocean spray	<i>Holodiscus discolor</i>	B2	2	2	Yellow
Snowberry	<i>Symphoricarpos albus</i>	B2	2	4	Yellow
Baldhip rose	<i>Rosa gymnocarpa</i>	B2	3	1	Yellow
Tall Oregon grape	<i>Mahonia aquifolium</i>	B2	4	3	Yellow
Salal	<i>Gaultheria shallon</i>	B2	3	1	Yellow
<b>Herbs</b>					
Western trumpet honeysuckle	<i>Lonicera ciliosa</i>	C	3	2	Yellow
Hairy honeysuckle	<i>Lonicera hispidula</i>	C	3	2	Yellow
Trailing blackberry	<i>Rubus ursinus</i>	C	4	5	Yellow
Cleavers	<i>Galium aparine</i>	C	4	7	Yellow
Sea blush	<i>Plectritis congesta</i>	C	4	5	Yellow
Pacific sanicle	<i>Sanicula crassicaulis</i>	C	4	7	Yellow
Forget-me-not	<i>Myosotis</i> sp.	C	3	6	Exotic
Miner's lettuce	<i>Claytonia perfoliata</i>	C	3	4	Yellow
Dovefoot geranium	<i>Geranium molle</i>	C	3	2	Exotic
Chocolate lily	<i>Frittilaria lanceolata</i>	C	3	1	Yellow
Lovage sp.	<i>Ligustichum</i> sp.	C	3	2	Yellow
Yerba Buena	<i>Satureja douglasii</i>	C	4	7	Yellow
Alaska oniongrass	<i>Melica subulata</i>	C	4	4	Yellow
Nodding trisetum	<i>Trisetum cernuum</i>	C	4	4	Yellow
Small-	<i>Collinsia</i>	C	4	4	Yellow

flowered blue-eyed Mary	<i>parviflora</i>				
Fawn lily	<i>Erythronium oregonum</i>	C	4	2	Yellow
Mountain sweet-cicely	<i>Osmorhiza chilensis</i>	C	4	2	Yellow
Dandelion	<i>Taraxacum officinale</i>	C	4	2	Exotic
Western buttercup	<i>Ranunculus occidentalis</i>	C			Yellow
Crisp sandwort	<i>Stellaria crispa</i>	C	4	4	Yellow
<b>Mosses and Lichens</b>					
Oak seedling	<i>Quercus garryana</i>	D	4	2	Yellow
Oregon beaked moss	<i>Kindbergia oregana</i>	D	3	5	Yellow

**16.6.1.6 Wildlife**

Common Name	Scientific Name	Life Stage	Evidence	Abundance	Status
<b>Birds</b>					
Red crossbill	<i>Loxia curvirostra</i>	Adult (A)	Visual (V)	1	Yellow
American goldfinch	<i>Carduelis tristis</i>	-	-	-	Yellow
Chestnut-backed chickadee	<i>Poecile rufescens</i>	-	-	-	Yellow
<b>Mammals</b>					
Deer sp.	<i>Odocoileus</i> sp.	-	Scat (S)	-	Yellow

**16.6.1.7 Photographs**

Photo identifier	Location/Subject	Direction °	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6322	EU5S1	90	-8%	8m	35	1.5m	Towards ocean.
_DSC6324	EU5S1	180	-7%	9m	35	1.5m	Saskatoon.
_DSC6325	EU5S1	270	-	10m	35	1.5m	-
_DSC6326	EU5S1	0	-	8m	35	1.5m	-
_DSC6328	EU5S1	-	-	7m	35	-	Site set up~345° and 8m to tripod



Photoplate 6. Ecological Unit 6 Site 1


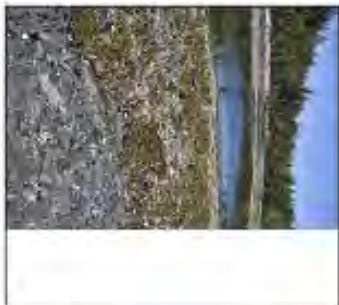
**16.7 Ecological Unit 7: Unconsolidated Intertidal**

Two intertidal bays (names) border the Moorecroft property. These bays are not registered on the subject title but are crown leases. The most northern of the two, name, was leased by the previous owner. The shoreline has accumulated many logs behind which is vegetated by salal, cedar, arbutus, Douglas-fir and bigleaf maple. The bays are shallow enough that they could be navigated by foot at a very low tide. The substrate is composed of unconsolidated rock that creates habitat for a diversity of intertidal flora and fauna. Pacific Oyster, Acorn Barnacles, and Butter Clams are very common, and Purple Stars, Shore Crabs, Hermit Crabs, Whelk, Dog Winkle, Sculpins and various snails are also abundant. Purple laver, sea lettuce, Turkish towel, rockweed and several other brown and red seaweeds are abundant. Glaucous-winged Gulls, Great Blue Heron, Bald Eagle and Common Garter Snake were observed in the bay.

**16.7.1.1 Photographs**

<b>Photo identifier</b>	<b>Location/subject</b>	<b>GPS accuracy</b>	<b>Focal length</b>	<b>Comments</b>
DSC6400	EU7	7-9m	-	-
DSC6401	EU7	7-9m	-	-
DSC6402	EU7	7-9m	-	-
DSC6403	EU7	7-9m	-	-
DSC6404	EU7	7-9m	-	-
DSC6405	EU7	7-9m	-	-
DSC6406	EU7	7-9m	-	-
DSC6407	EU7	7-9m	-	-
DSC6408	EU7	7-9m	-	-
DSC6409	EU7	7-9m	-	-
DSC6410	EU7	7-9m	-	-
DSC6411	EU7	7-9m	-	-
DSC6412	EU7	7-9m	-	-
DSC6413	EU7	7-9m	-	-
DSC6414	EU7	7-9m	-	-
DSC6415	EU7	7-9m	-	-
DSC6416	EU7	7-9m	-	-
DSC6417	EU7	7-9m	-	-
DSC6418	EU7	7-9m	-	-
DSC6419	EU7	7-9m	-	-
DSC6420	EU7	7-9m	-	-
DSC6421	EU7	7-9m	-	-



		
Ecological Unit 7 49,18.3712N 124,10.6006W _DSC6400.JPG	Ecological Unit 7 49,18.3729N 124,10.6003W _DSC6401.JPG	Ecological Unit 7 49,18.3738N 124,10.6007W _DSC6403.JPG
		
Ecological Unit 7 49,18.3744N 124,10.6005W _DSC6404.JPG	Ecological Unit 7 49,18.3744N 124,10.6007W _DSC6405.JPG	Ecological Unit 7 49,18.3517N 124,10.6149W _DSC6406.JPG
		
Ecological Unit 7 [Metadata Not Available] [Metadata Not Available] _DSC6407.JPG	Ecological Unit 7 49,18.3245N 124,10.6071W _DSC6408.JPG	Ecological Unit 7 49,18.3108N 124,10.6408W _DSC6420.JPG

Photoplate 7. Ecological Unit 7

## **16.8 Ecological Unit 8: Consolidated Intertidal**

The intertidal zone, although mostly not within the legal land title area of Moorecroft, was also mapped and species recorded. The bedrock-dominated shoreline was described independent from the unconsolidated shoreline portion. Above the reach of the high tide, Saskatoon, camas, trailing blackberry, sheep sorrel, plantain, chickweeds, yarrow and a few unidentified grasses grow. In the intertidal itself, several species of seaweed including purple laver and fucus grow on the rock. Acorn barnacles cover the exposed rocky upper intertidal and are joined by Limpits and Mussels at the mid-tide line. Anemones and purple stars take shelter in the rocks protected grooves. Schooling fish, Stellar (Northern) Sea Lions, Harbour Seals and Marbled Murrelets can be seen from the shore.

### **16.8.1.1 Photographs**



**Photoplate 8. Ecological Unit 8**

## 16.9 Ecological Unit 10: Development

**Development** includes those areas included in the “Development” management zone. These areas were previously intensively used for camp function including buildings, service roads, play structures, parking lot and the playing field. Photographs of these features can be found below in *Section 17.1.8 Extra Photographs*.

## 17.0 VISUAL DESCRIPTORS

### 17.1 Photostops

Photostops were established at the four main property corners as well as at some key high human-use locations to assist in long-term monitoring of human activity on the property.

#### Photostop 1

**Description:** Two bays and shoreline use.

**Location:** On headland between the two main bays.

**Marker:** Cedar trunk

**Distance to tripod:** 5.7m

**Azimuth to tripod:** 225°

**Latitude:** 49° 18' 21.17"

**Longitude:** 124° 10' 42.92"

**Accuracy:-**

Photo identifier	Location/subject	Direction (°)	Lens angle	GPS accuracy (m)	Focal length (mm)	Tripod height (m)	Comments
_DSC6429	Development/cabins	274	-5°	14m		1.5m	
_DSC6430	Development/pier/raft	313	-5°	14m		1.5m	
_DSC6431	Grass/cross/picnic	5	-5°	10m		1.5m	
_DSC6433	South bay	82	-7°	13m		1.5m	
_DSC6434	Development adjacent property	126	-15°	9m		1.5m	
_DSC6435	Logs on shore	176	-5°	14m		1.5m	
_DSC6436	Path/shoreline	252	0°	14m		1.5m	
_DSC6438			-	9m			35°, 7m to tripod

See Appendix 1 for photographs.



**Photoplate 9. Photostop 1**

**Photostop 2**

**Description:** Shoreline and adjacent property.

**Location:** NE property corner along shore, taken over legal pin.

**Marker:** White legal pin

**Distance to tripod:** 3m

**Azimuth to tripod:** 86°

**Latitude:** 49°18'29.31"N

**Longitude:** 124°10'44.04"W

**Accuracy:** ±3.8m

Photo identifier	Location/subject	Direction (°)	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6458	NE corner, off the property	336	-10°	5m		1.5m	
_DSC6459	East photo, showing marker	85	-35°	9m		1.5m	
_DSC6460	On property, showing path	154	-10°	6m		1.5m	
_DSC6466	West photo	264	0	14m		1.5m	
_DSC6468	Tripod photo (3.5m)	110	-	8m			



Photoplate 10. Photostop 2

**Photostop 3**

**Description:** Trail runs by corner leading to adjacent lots. There has been some recent tree removal just off the property.

**Location:** NW property corner, taken over metal legal pin.

**Marker:** White legal pin (IPR)

**Distance to tripod:** 30cm

**Azimuth to tripod:** -

**Latitude:** 4918'28.9"N

**Longitude:** 124 11'0.1"W

**Accuracy:** No signal, coordinates derived from Cadastre

Photo identifier	Location/subject	Direction (°)	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6470	NW property corner	0	-	-	-	1.5m	Cut trees, trail.
_DSC6471	NW property corner	90	-	-	-	1.5m	-
_DSC6472	NW property corner	180	-	-	-	1.5m	-
_DSC6473	NW property corner	270	-	-	-	1.5m	Clearing
_DSC6474	NW property corner	20	-	-	-	-	Site set up with marker





**Photoplate 11.**

**Photostop 3**

**Photostop 4**

**Description:** Shows trail leading onto property from residential lots and cleared area along property line.

**Location:** Along west property line north ~10m of where path intersects property line.

**Marker:** White IP C.P.3 pin

**Distance to tripod:**

**Azimuth to tripod:**

**Latitude:** 49°18'09.39"

**Longitude:** 124°11'01.88"

**Accuracy:** ±5.6m

Photo identifier	Location/Subject	Direction (°)	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6476	PS4	0	0°	11m	35	1.5m	Trail.
_DSC6477	PS4	90	0°	11m	35	1.5m	-
_DSC6478	PS4	180	0°	11m	35	1.5m	-
_DSC6479	PS4	270	0°	11m	35	1.5m	-
_DSC6480	PS4	20	0°	8m	-	-	4m to tripod at 20°



Photoplate 12.

Photostop 4

**Photostop 5**

**Description:** Use adjacent to wetland including trail, bridge, water control structure and row boat launch area.

**Location:** North end of swamp/wetland by boats and 4 tight trees.

**Marker:** Douglas-fir snag with metal pin and blue paint.

**Distance to tripod:** 5.5m

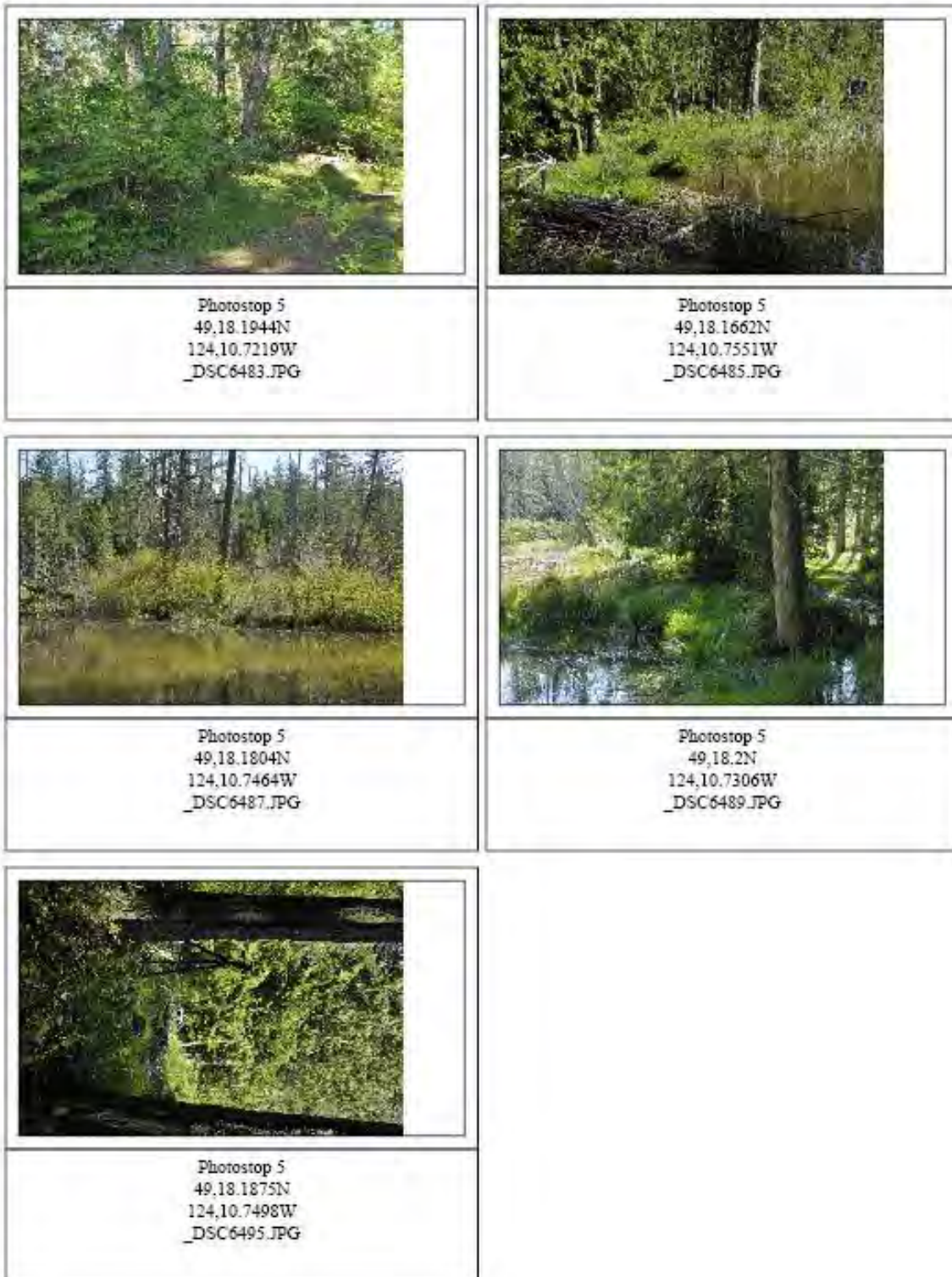
**Azimuth to tripod:** 304°

**Latitude:** 49°18'10.4"

**Longitude:** 124°10'45.3"

**Accuracy:** ±16m

Photo identifier	Location/Subject	Direction (°)	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6483	PS5	40	0°	23m	35	1.5m	Wetland/path to wetland
_DSC6485	PS5	158	-7°	19m	35	1.5m	Beaver dam/bridge
_DSC6487	PS5	190	0°	10m	35	1.5m	Center of swamp/wetland
_DSC6489	PS5	230	-7°	10m	35	1.5m	Path and wetland
_DSC6495	PS5	-	-	9m	28	-	130° and 5m to tripod



**Photoplate 13.**

**Photostop 5**

**Photostop 6**

**Description:** Property corner and access road.

**Location:** SE property corner ~15m west of Stewart road across from gated driveway – photo taken over legal metal pin. Can see white marked property line from road.

**Marker:** IP White marker  
**Distance to tripod:** 30 cm  
**Azimuth to tripod:** -

**Latitude:** 49°18'02.37"  
**Longitude:** 124°10'36.82"  
**Accuracy:** ±5m

Photo identifier	Location/Subject	Direction (°)	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6498	PS6	0	0°	52m	35	1.5m	-
_DSC6499	PS6	90	0°	15m	35	1.5m	Road and pole
_DSC6500	PS6	180	0°	15m	35	1.5m	-
_DSC6501	PS6	270	0°	7m	35	1.5m	Property line
_DSC6503	PS6	-	-	9m	27	-	Site set up, shows pole and road.



**Photoplate 14. Photostop 6**

**Photostop 7**

**Description:** Property corner along cleared road right of way.

**Location:** SW property line – follow water line road on South property boundary to pin on N side of road on edge of path of salal. Salal and tree flagged orange along road.

**Marker:** Flagged white post or tree.

**Distance to tripod:** 4.8m

**Azimuth to tripod:** 320°

**Latitude:** 49°18'2.33"

**Longitude:** 124°11'2.11"

**Accuracy:** ±7m

Photo identifier	Location/Subject	Direction (°)	Lens angle	GPS accuracy	Focal length	Tripod height	Comments
_DSC6506	PS7	0	-10°	13m	35	1.5m	-
_DSC6509	PS7	90	0°	13m	35	1.5m	-
_DSC6511	PS7	180	0°	14m	35	1.5m	-
_DSC6515	PS7	270	0°	9m	35	1.5m	-
_DSC6517	PS7	-	-	13m	35	-	Tripod on left/water pipe on right, 25° and ~7m to tripod








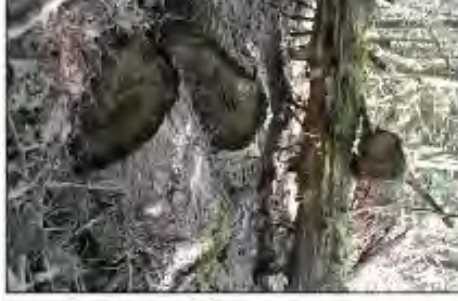



Photoplate 15. Photostop 7

**Extra Photos**







<b>Photo identifier</b>	<b>Location/Subject</b>	<b>GPS accuracy</b>	<b>Focal length</b>	<b>Comments</b>
_DSC6524	Shed/barn	8m	26	Located along driveway
_DSC6525	Pelletry	9m	31	-
_DSC6527	Campfire	8m	18	-
_DSC6528	Campfire and shed	14m	20	-
_DSC6535	Picnic area	13m	20	-
_DSC6537	Picnic area	8m	20	-
_DSC6541	Example of tree cut to clear path across trail (wood left behind)	-	38	-
_DSC6542	Example of tree removal due to root rot; alders are now growing here	17m	28	-
_DSC6543	Anthropogenic water hole along western boundary	-	24	-
_DSC6544	Root rot area that was cut seep beneath it	16m	46	-
_DSC6546	Alder swamp next to field	15m	20	-
_DSC6547	Stone wall N of field from old homestead	-	44	-
_DSC6549	Archery	-	18	-
_DSC6550	Office/parking lot/telephone pole	10m	22	-
_DSC6552	“splash house”/camp layout	17m	22	-
_DSC6554	Playground/buildings	12m	28	-
_DSC6555	Cabin #10, conservation area	11m	18	-
_DSC6557	Cabins #11 and #12	12m	22	-
_DSC6558	Volleyball courts	22m	22	-
_DSC6559	Mrs. Moore’s cabin	-	22	-

	
<p>Wetland dam to stream [Metadata Not Available] [Metadata Not Available] _DSC6372.JPG</p>	<p>Watermill [Metadata Not Available] [Metadata Not Available] _DSC6373.JPG</p>
	
<p>Dam to stream [Metadata Not Available] [Metadata Not Available] _DSC6374.JPG</p>	<p>Wetland bridge 49.18.1834N 124.10.7381W _DSC6375.JPG</p>
	
<p>Wetland boat launch [Metadata Not Available] [Metadata Not Available] _DSC6376.JPG</p>	<p>Path around wetland [Metadata Not Available] [Metadata Not Available] _DSC6312.JPG</p>

	
<p>Intertidal Garter Snake 49.18.3127N 124.10.6278W _DSC6415.JPG</p>	<p>Melanistic Garter Snake [Metadata Not Available] [Metadata Not Available] _DSC6089.JPG</p>
	
<p>Culturally modified Douglas-fir 49.18.4052N 124.10.8115W _DSC6440.JPG</p>	<p>Historic logging [Metadata Not Available] [Metadata Not Available] _DSC6470.JPG</p>
	
<p>Recent path clearing [Metadata Not Available] [Metadata Not Available] _DSC6541.JPG</p>	<p>Anthropogenically made hole [Metadata Not Available] [Metadata Not Available] _DSC6543.JPG</p>

	
<p>_DSC6544.JPG 49.18.2523N 124.10.9805W _DSC6544.JPG</p>	<p>Historic stone wall [Metadata Not Available] [Metadata Not Available] _DSC6547.JPG</p>
	
<p>Area cleared due to root rot 49.18.1787N 124.10.9126W _DSC6546.JPG</p>	<p>Road to field 49.18.4274N 124.10.8226W _DSC6443.JPG</p>
	
<p>Access road on southern property border [Metadata Not Available] [Metadata Not Available] _DSC6518.JPG</p>	<p>Pelleny [Metadata Not Available] [Metadata Not Available] _DSC6386.JPG</p>

	
<p>Pellenry [Metadata Not Available] [Metadata Not Available] _DSC6387.JPG</p>	<p>Pellenry 49,18.2585N 124,10.8412W _DSC6525.JPG</p>
	
<p>Playing field [Metadata Not Available] [Metadata Not Available] _DSC6521.JPG</p>	<p>Playing field [Metadata Not Available] [Metadata Not Available] _DSC6523.JPG</p>
	
<p>Campfire circle 49,18.4796N 124,10.7785W _DSC6528.JPG</p>	<p>Picnic area 49,18.4403N 124,10.7506W _DSC6535.JPG</p>

	
<p>Picnic area 49.18.4323N 124.10.7363W _DSC6537.JPG</p>	<p>Shed 49.18.2056N 124.10.713W _DSC6524.JPG</p>
	
<p>Archery [Metadata Not Available] [Metadata Not Available] _DSC6549.JPG</p>	<p>Parking lot 49.18.2326N 124.10.7103W _DSC6550.JPG</p>
	
<p>Development area 49.18.2687N 124.10.7444W _DSC6552.JPG</p>	<p>Development area 49.18.2922N 124.10.7443W _DSC6554.JPG</p>



**Photoplate 16. Extra Photographs**



## 18.0 REFERENCES

- Austin, M.A., and A. Eriksson. 2009. *The biodiversity atlas of British Columbia*. Biodiversity B.C., Victoria, B.C.
- Austin, M.A., D.A. Buffet, D.J. Nicholson, G.G.E. Scudder, and V. Stevens (eds.). 2008. *Taking nature's pulse: the status of biodiversity in B.C.* Victoria, B.C.
- BConline <https://www.bconline.gov.bc.ca/>
- Community Mapping Network. 2007. Sensitive Ecosystem Inventory. <http://www.shim.bc.ca/atlas/es/sei/seimain.html>
- Conservation Data Centre. 2010. *Species and Ecosystem Explorer*. Ministry of Environment, Victoria, B.C. <http://a100.gov.bc.ca/pub/eswp/> Last accessed February 1<sup>st</sup>, 2010.
- Cunningham and Rivard Appraisals Ltd. 2007. Appraisal of Moorecroft Camp at 1563 Stewart Road, Nanoose Bay, BC for BC Conference of the United Church of Canada. Nanaimo, BC.
- De Groot, A. 2010. *Douglas-fir / dull Oregon-grape (*Pseudotsuga menziesii* / *Mahonia nervosa*)* Draft Ecosystem Status report. Ministry of Environment, Victoria, B.C.
- Durand, R. 2003. *Baseline inventory protocol: A guideline for inventorying and mapping protected areas*. Nature Conservancy of Canada, British Columbia Region, and Habitat Acquisition Trust.
- Edder and Pattie. 2001. *Mammals of British Columbia*. Lone Pine Publishing, Edmonton, AB.
- Forrest, C. and Joe Materi. 2007. Baseline Bio-inventory and Conservation Assessment for the Moorecroft Camp Property, Nanoose. Ursus Environmental
- GeoBC. <http://geobc.gov.bc.ca/> Last accessed May 2010.
- Green, R.N., and K. Klinka. 1994. *A field guide to site identification and interpretation for the Vancouver Forest Region*. Ministry of Forests, Victoria, B.C.
- IMapBC. 2010. <http://webmaps.gov.bc.ca/imfx/imf.jsp?site=imapbc> last accessed January 30<sup>th</sup>, 2011
- Forrest, C., and J. Materi. 2007. *Baseline bio-inventory and conservation assessment for the Moorecroft Camp property, Nanaimo*. Ursus Environmental, Nanaimo, B.C.
- McDadi, O. and R. J. Hebda. 2008. Change in historic fire disturbance in a Garry oak (*Quercus garryana*) and Douglas-fir (*Pseudotsuga menziesii*) mosaic, University of Victoria, British

Columbia, Canada: a possible link with First Nations and Europeans. Forest Ecology and Management (in press)

Ministry of Forests. 1994. A field Guide for Site Identification and Interpretation for the Vancouver Forest Region: Land Management Handbook Number 28. Victoria, BC.

Nanaimo and Area Land Trust <http://www.nalt.bc.ca/> Last accessed May 2010.

Nanoose First Nation. 2009. Last visited June 1<sup>st</sup>, 2010 <http://www.nanoose.org/index.htm>

Nature Conservancy of Canada. 2010. Salish Sea Natural Area Plan. Victoria, B.C.

Pojar, J. and Mackinnon, A. 1994. Plants of Coastal British Columbia. Ministry of Forests and Lone Pine Publishing. Vancouver, B.C.

Regional district of Nanaimo <http://www.rdn.bc.ca/>

Sensitive Ecosystem Inventory. 2010. British Columbia Ministry of Environment <http://www.env.gov.bc.ca/sei/-downloaded> Last accessed February 1, 2011.

Sibley, David Allen. 2003. *The Sibley Field Guide to Birds of Western North America*. Chanticleer Press.Inc. New York, New York.

Spittlehouse, D. 2007. *Unpublished climate data*. Ministry of Forests, Victoria, B.C.

Trofymow, J.A., J. Addison, B.A. Blackwell, F. He, C.A. Preston, and V.G. Marshall. 2003. *Attributes and indicators of old-growth and successional Douglas-fir forests on Vancouver Island*. Environmental Reviews 11: S187-S204.

WITS. 2010. Wildlife Tree Stewardship. [www.wildlifetree.org](http://www.wildlifetree.org) last accessed January 30, 2011.

## 19.0 APPENDICES

### 19.1 Covenant Restriction Monitoring

Restriction	Monitoring method	Desired outcome
designate and maintain the Land as a Regional Park;	In 2012, verify designation of park	Regional Park designated under Local Government Act
manage the Land in accordance with the Management Plan	in 2013, NCC approve Management Plan Expand Covenant Restriction Monitoring methods to fit new management plan requirements	Management plan approved by NCC 2013 New Covenant monitoring plan created
not alter the Amenities before the Management Plan has been finalized and approved in writing by the Covenant Holder	In 2012, walk around property to ensure ecological units (amenities/biodiversity targets), and anthropomorphic features remain the same; check trail network against baseline map of trails	No alterations or new infrastructure found; no new trails
not subdivide the Land; and	annual search of land title	no subdivisions entered on land title
not sell or transfer any of the Land without the prior written permission of the Covenant Holder, unless such sale or transfer is a sale or transfer of the whole of the Land to the same entity at the same time	annual search of land title	Neither title has been transferred without the other, nor any partial interest transferred unless a fractional interest to the Nature Trust pursuant to Section 5.2 of the Agreement (covenant).

### 19.2 Flora of Moorecroft

Common Name	Scientific Name	Common Name	Scientific Name
<b>Trees</b>			
Douglas-fir	<i>Pseudotsuga menziesii</i> <i>var. menziesii</i>	Arbutus	<i>Arbutus menziesii</i>

Garry oak	<i>Quercus garryana</i>	Red alder	<i>Alnus rubra</i>
Western red cedar	<i>Thuja plicata</i>	Grand fir	<i>Abies grandis</i>
<b>Shrubs</b>			
Saskatoon	<i>Amelanchier alnifolia</i>	Salal	<i>Gaultheria shallon</i>
Baldhip Rose	<i>Rosa gymnocarpa</i>	Tall Oregon grape	<i>Mahonia aquifolium</i>
Salmonberry	<i>Rubus spectabilis</i>	Snowberry	<i>Symphoricarpos albus</i>
Ocean Spray	<i>Holodiscus discolor</i>	Willow sp.	<i>Salix</i> sp.
Red-osier dogwood	<i>Cornus stolonifera</i>	Red raspberry	<i>Rubus idaeus</i>
Hardhack	<i>Spiraea douglasii</i>		
<b>Herbs</b>			
Rattlesnake-plantain	<i>Goodyera oblongifolia</i>	Hairy honeysuckle	<i>Lonicera hispidula</i>
Trailing blackberry	<i>Rubus ursinus</i>	Twayblade	<i>Listera</i> sp.
Western trumpet honeysuckle	<i>Lonicera ciliosa</i>	Licorice fern	<i>Polypodium glycyrrhiza</i>
Orchid sp.	<i>Orchidaceae</i>	Ross' sedge	<i>Carex rossii</i>
Yerba buena	<i>Satureja douglasii</i>	Slough sedge	<i>Carex obnupta</i>
Cleavers	<i>Galium aparine</i>	Sword fern	<i>Polystichum munitum</i>
Skunk cabbage	<i>Lysichiton americanum</i>	Lady fern	<i>Athyrium filix-femina</i>
Hedge nettle	<i>Stachys</i> sp.	Wall lettuce	<i>Lactuca muralis</i>
Wood reedgrass	<i>Cinna latifolia</i>	Sweet-scented bedstraw	<i>Galium triflorum</i>
Pacific water parsley	<i>Oenanthe sarmentosa</i>	Woodland star-flower	<i>Trientalis</i> sp.
Bracken fern	<i>Pteridium aquilinum</i>	Small-flowered blue-eyed mary	<i>Collinsia parviflora</i>
Common camas	<i>Camassia quamash</i>	Sheep sorrel	<i>Rumex acetosella</i>
Grass	Poaceae	Yarrow	<i>Achillea millefolium</i>
Miner's lettuce	<i>Claytonia perfoliata</i>	Sea blush	<i>Plectritis congesta</i>
Dovefoot geranium	<i>Geranium molle</i>	Pacific sanicle	<i>Sanicula crassicaulis</i>
Chocolate lily	<i>Frittilaria lanceolata</i>	Alaska oniongrass	<i>Melica subulata</i>
Lovage sp.	<i>Ligustichum</i> sp.	Foxglove	<i>Digitalis purpurea</i>
Fawn lily	<i>Erythronium oregonum</i>	Nodding trisetum	<i>Trisetum cernuum</i>
Mountain sweet-cicely	<i>Osmorhiza chilensis</i>	Western buttercup	<i>Ranunculus occidentalis</i>
Dandelion	<i>Taraxacum officinale</i>	Crisp sandwort	<i>Stellaria crispa</i>
Spiny wood fern	<i>Dryopteris expansa</i>	Common rush	<i>Juncus effusus</i>
Stinging nettle	<i>Urtica dioica</i>	Bull thistle	<i>Cirsium vulgare</i>
Mint sp.	<i>Lamiaceae</i> sp.	Daisy sp.	<i>Aster</i> sp.
Common horsetail	<i>Equisetum arvense</i>	Cooley's hedge-nettle	<i>Stachys cooleyae</i>
Canada thistle	<i>Cirsium arvense</i>	Common cattail	<i>Typha latifolia</i>
Geranium sp.	<i>Geranium</i> sp.	Forget-me-not	<i>Myosotis</i> sp.
Pathfinder	<i>Adenocaulon bicolor</i>	Clover	<i>Trifolium</i> sp.
Plantain	<i>Plantago</i> sp.	Chickweed sp.	<i>Stellaria</i> sp.
Sheep sorrel	<i>Rumex acetosella</i>		
<b>Mosses and Lichens</b>			
Electrified cat's tail	<i>Rhytidiadelphus</i>	Juniper haircap moss	<i>Polytrichum</i>

moss	<i>triquetrus</i>		<i>juniperinum</i>
Oregon beaked moss	<i>Kindbergia oregana</i>	Step moss	<i>Hylocomium splendens</i>
Broom moss	<i>Dicranum scoparium</i>	Frog pelt lichen	<i>Peltigera neopolydactyla</i>
Menzies' red-mouthed mniium	<i>Mnium spinnulosum</i>	Menzies' tree moss	<i>Leucolepis acanthoneuron</i>
Maple seedling	<i>Acer sp.</i>	Douglas-fir seedling	<i>Pseudotsuga menziesii var. menziesii</i>
Oak seedling	<i>Quercus garryana</i>		
<b>Epiphytes</b>			
Mushroom	-	Red huckleberry	<i>Vaccinium parvifolium</i>
<b>Algae</b>			
Brown algae	<i>Fucus sp.</i>	Common rockweed	<i>Fucus gardneri</i>
Purple laver	<i>Porphyra laciniata</i>	Sea lettuce	<i>Ulva sp.</i>
Turkish towel seaweed	<i>Choridracanthus exasperatus</i>		

### 19.3 Fauna of Moorecroft<sup>24</sup>

Common Name	Scientific Name	Status
<b>Birds</b>		
Mallard	<i>Anas platyrhynchos</i>	Yellow
American Goldfinch	<i>Carduelis tristis</i>	Yellow
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Yellow
Wood Duck	<i>Aix sponsa</i>	Yellow
Hooded Merganser	<i>Lophodytes cucullatus</i>	Yellow
Hairy Woodpecker	<i>Picoides villosus</i>	Yellow
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Yellow
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Yellow
Song Sparrow	<i>Melospiza medodia</i>	Yellow
Turkey Vulture	<i>Cathartes aura</i>	Yellow
Yellow-	<i>Dendroica</i>	-

<sup>24</sup> Please see Ursus, 2007 for additional species

rumped Warbler	<i>dominica</i>	
Swainson's Thrush	<i>Catharus ustulatus</i>	Yellow
American Robin	<i>Turdus migratorius</i>	Yellow
Rufus Hummingbird	<i>Selasphorus rufus</i>	Yellow
Pacific Slope Flycatcher	<i>Empidonax difficilis</i>	Yellow
Dark-eyed Junco	<i>Junco hyemalis</i>	Yellow
Glaucous-winged Gull	<i>Larus glaucescens</i>	Yellow
Great Blue Heron	<i>Ardea herodias var. fannini</i>	Blue
<b>Mammals</b>		
Sitka Black-tail Deer	<i>Odocoileus hemionus sitkensis</i>	Yellow
American Beaver	<i>Castor canadensis</i>	Yellow
Harbour seal	<i>Phoca vitulina</i>	Yellow
Stellar Sealion	<i>Eumetopia jubatus</i>	Blue
<b>Amphibians and Reptiles</b>		
Painted Turtle <sup>25</sup>	<i>Chrysemys picta</i>	Red
Pacific Chorus Frog	<i>Pseudacris regilla</i>	Yellow
<b>Fish</b>		
Sculpin	Cottidae family	NS
Unknown school of fish	-	NS
<b>Marine Invertebrates</b>		
Blue Mussel	<i>Mytilus edulis</i>	Yellow
Limpit	-	NS
Purple Star	<i>Pisaster ochraceus</i>	-
Acorn	<i>Chthamalus</i>	-

<sup>25</sup> Small chance of being an invasive Red-eared Slider (*Trachemys scripta elegans*), either way the single turtle was likely introduced to the wetland.

Barnacle	<i>dali</i>	
Aggregate Anemone	<i>Anthopleura elegantissima</i>	-
Japanese oyster	<i>Crassostrea gigas</i>	NS
Purple Shore Crab	<i>Hemigrapsus nudus</i>	NS
Green Shore Crab	<i>Hemigrapsus oregonensis</i>	NS
Japanese Oyster	<i>Crassostrea gigas</i>	NS
Purple Star	<i>Pisaster ochraceus</i>	NS
Whelk	-	NS
Hermit Crab	-	NS
Dog Winkle	<i>Thais lamellosa</i>	NS

**19.4 Extra Maps**

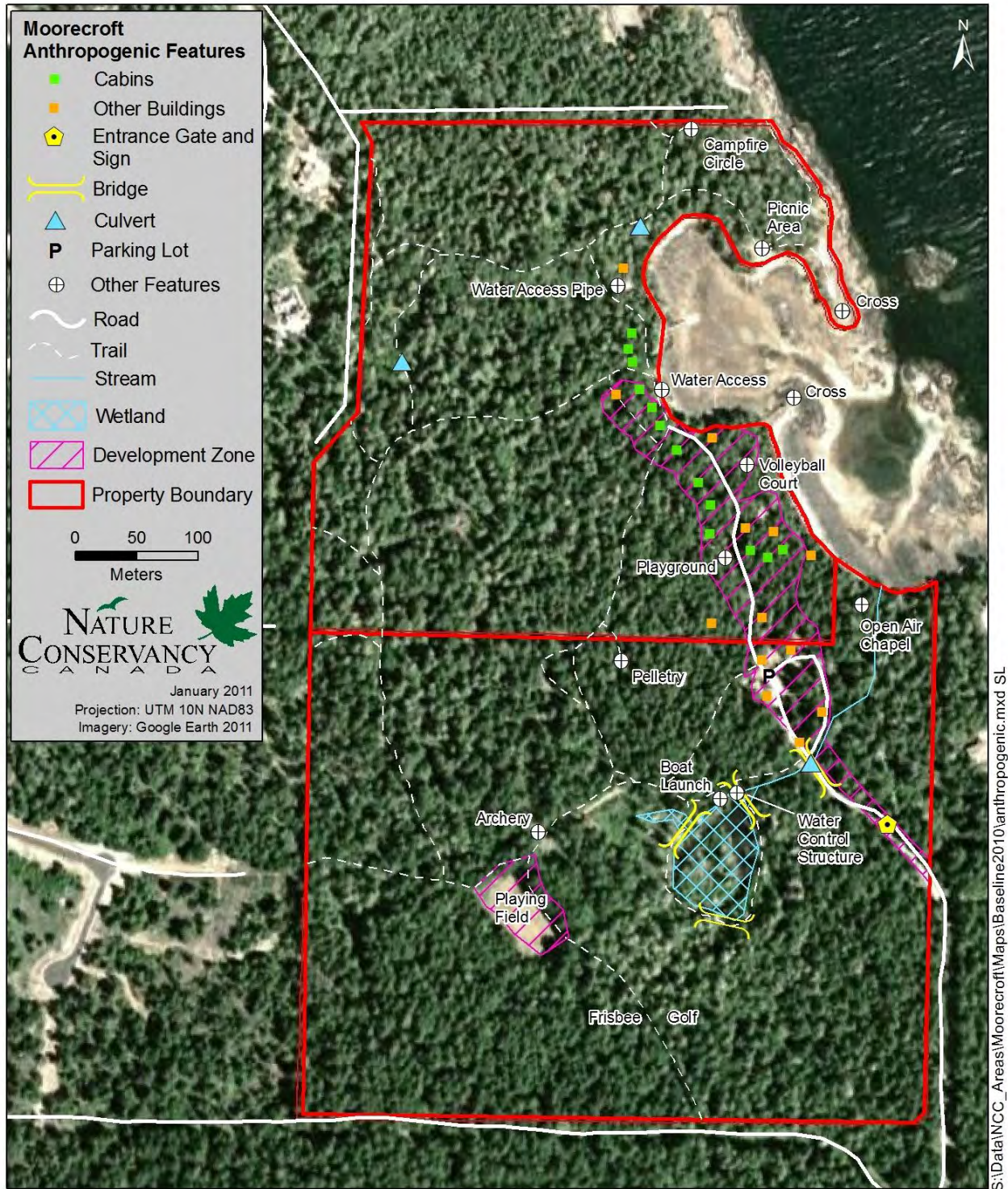


Figure 18. Anthropogenic Feature Map with Orthophoto



## 19.5 Documentation of Disturbance

From: Marshall, Wendy [<mailto:WMarshall@rdn.bc.ca>]  
Sent: February-15-2011 2:29 PM  
To: Katie Blake  
Subject: Buildings at Moorecroft

Hi Katie,

I was just reviewing the buildings that lie out of the development zone and there are quite a few. Also, the map doesn't seem to make sense in terms of where the development zone lies and where some of the buildings are. Before sending you a formal letter from the RDN regarding the buildings outside of the development zone, I think it would be good for us both to walk the property to see what is out of the zone and what is in. It would also be good to review other work that we have identified such as removing the pellety. If we both walk through this together, then we can discuss any issues on site and I can formalize this with you in a letter.

Will you have time after the announcement ceremony to walk the property? I think the ceremony is 10 to 12, we could then walk the site after this. Please let me know if this will work for you.

I have attached some photos we took on February 11 showing the damage from ATVs on the playing field and the trails. I think you were going to record this damage as occurring before the RDN took possession.

We also just received an email from BC Hydro regarding dead trees that are interfering with the hydro lines. Usually, when we get these requests we send a staff person out to meet with BC Hydro to look at the trees before they are removed. Now with the covenant in place, do you want to be involved?

Thanks Katie,

Wendy

<<IMG\_2315 (Large).JPG>> <<IMG\_2303 (Large).JPG>> <<IMG\_2304 (Large).JPG>>  
<<IMG\_2305 (Large).JPG>> <<IMG\_2308 (Large).JPG>> <<IMG\_2310 (Large).JPG>>  
<<IMG\_2313 (Large).JPG>>

Wendy Marshall  
Manager of Parks Services

Regional District of Nanaimo Recreation and Parks Dept.  
Oceanside Place  
830 West Island Highway  
Parksville, BC  
V9P 2X4  
Ph: 250-248-3252 or 1-888-828-2069  
Fax: 250-248-3159

[www.rdn.bc.ca](http://www.rdn.bc.ca)



**From:** Osborne, Tom [<mailto:TOsborne@rdn.bc.ca>]  
**Sent:** February-08-2011 8:49 AM  
**To:** Lester, Mark; Doug Goodwin  
**Cc:** Dobbs, Mark; Marshall, Wendy; Katie Blake; [dwalker@naturetrust.bc.ca](mailto:dwalker@naturetrust.bc.ca); [terry2@shaw.ca](mailto:terry2@shaw.ca)  
**Subject:** FW: Moorecroft

Mark Lester and Doug Goodwin,

Please find below an e-mail from a concerned citizen about recent damage caused by ATVs to areas of the property. As we are not in a position to handle at this time, would you be follow up on?

Thanks

Tom

Tom Osborne  
General Manager of Recreation and Parks Services

Regional District of Nanaimo Recreation and Parks Dept.

**From:** George Holme [<mailto:gholme@shaw.ca>]  
**Sent:** Monday, February 07, 2011 9:34 PM  
**To:** Osborne, Tom  
**Subject:** Fw: Moorecroft

Hi Tom;

Can someone investigate this? It sounds quite serious.

George.

----- Original Message -----

**From:** [Jackie & John](#)  
**To:** [George Holme](#)  
**Cc:** [Judy & Bob Gougeon](#) ; [Jill Davies](#)  
**Sent:** Monday, February 07, 2011 7:34 PM  
**Subject:** Moorecroft

Hi George

I was talking to Bob Gougeon, one of our neighbours on Nuttal Drive, this weekend and he mentioned that the playing field at Moorecroft has been used by a variety of off-road motorcross bikes, probably unregistered, resulting in a lot of damage to the field. In addition, apparently those bikes have chewed up some of the trails and the cross and sign at Vesper Point has been vandalized. I suspect it won't be long before the various outbuildings suffer a similar fate. Bob indicated that the bikes are accessing Moorecroft from La Senza and over the septic field for the Nuttal Drive properties. While Bob will ensure that this entrance is blocked to prevent bike access, it won't be long before they find another way in.

Do you know who, if anyone, is taking care of Moorecroft now that it is on the market? Can the RDN do anything to assist?

Jackie Fennellow