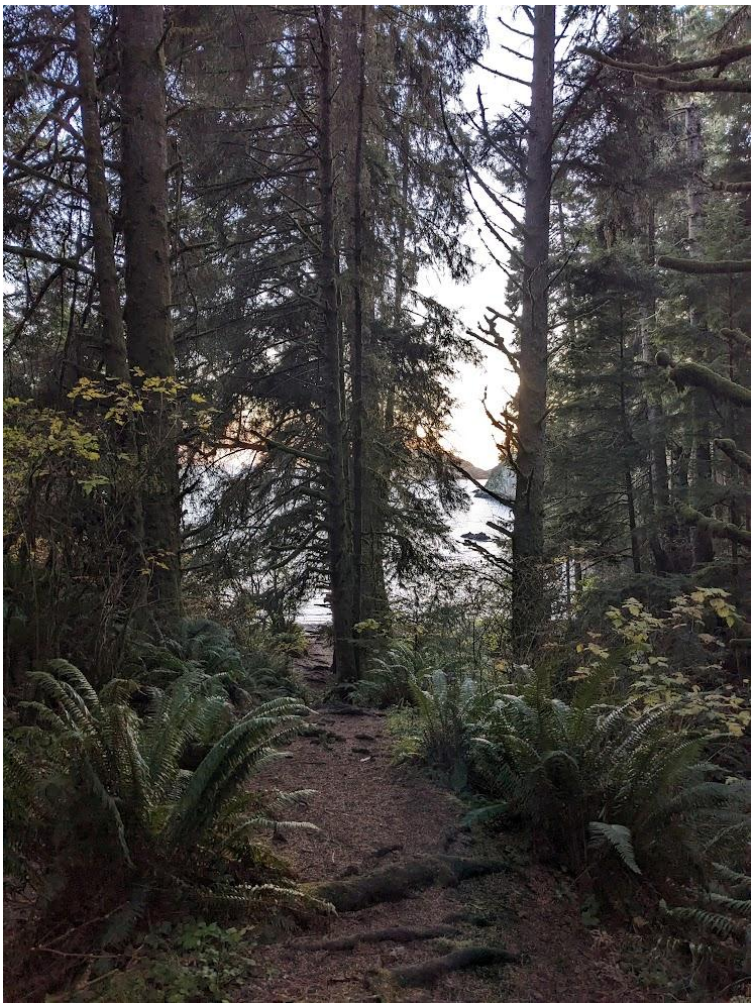


Restoration Report

For Metchosin Property

Amber Rose | ENVR 112 | Feb 27,2026

Land Acknowledged

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Lək̓ʷəŋən (Songhees and Kosapsum) and W̱SÁNEĆ peoples.

We also acknowledge that our testing site is on the tradition territory of the MÁLEXEŁ or Malahat Nation as one of the five Coast Salish Indigenous community of the W̱SÁNEĆ (Saanich) Nations

We honor and respect our ability to access, use and study on these traditional territorial lands.

Executive Summary

In this report we reviewed and summarized the finding at Site 4 on the Metchosin Property, that was gifted to Camosun College. It categorized as a Moist maritime Costal Douglas Fir BEC region, meaning that plants like Salal, Douglas fir and many more are expected to be found in the area. While this does also depend on water availability the a health and diversity Coast Douglas Fir region should have a range of the plant that are known to found in this bio-region.

The restoration of this areas in important as there were red listed (Sword fern) and blue listed (Electrified cats trial moss and Red-streamed feather moss) species found in this plot that will be important to protect as the areas is restored.

Table of Contents

Methods

The Methods used to collect the date and fill in the date form was based on the LMH 25 - Field Manual for describing Terrestrial Ecosystems 2nd Edition (2010) published by the BC ministry of forests and Range and The BC Ministry of Environment.

Site Description

This is a land was Gifted to Camosun College with to understanding that it would be used as educational site and to restore it meant the BEC specified level and diversity of plant populations. This site that was studied was site 4 and is part of the Costal Douglas fir area. The climate for the area is moist maritime, meaning that it experience cool wet winter and warm dry summers with little consistent temperatures year around with no big temperature swings between seasons. The site included two shallow valleys with forested slopes. It was noted that there was however a lack of trees in the plot on one slope, a lack of vegetation on the crest, and shrubbery could be found on the hill. The ground cover was made up of moss and fallen needles. As seen below in figure 1, the site diagram shows the landscape details that were seen at site 4. This was drawn in the field on the Ecosystem Field Form

The slop was measured to be 17%, with an elevation of 162m and an aspect ratio of 338°. The substrate was majority deciduous tree matter and some rocks were visible.

Key features of the Coast Douglas fir subzone are that they are restricted to lower elevations around the southern tip of Vancouver Island and the Gulf islands. These areas in known to be in the rain shadow of the Vancouver Island and Olympic mountains, leading to this area having warmer dryer summers and more mild wet winters. This mild climate provided the vegetation found in this area to have a long growing season where water availability is a limiting factor.

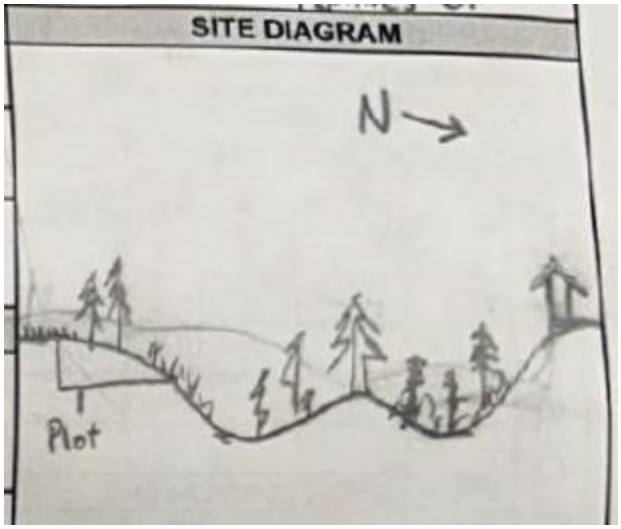


Figure 1: Site Diagram for Site #4

What we expect to find in these areas would include: Douglas fir, Western red cedar, Grand fir, salal, dull Oregon grape, ocean spray, twin flower, vanilla leaf, bracken, broad-leaved starflower, and Oregon beaked moss.

Vegetation

Based on table 15 in the LMH 28 -Field guild for side identification and interpretation for the Vancouver forest region by the BC Ministry of Forests we expect to find in a Healthy and established Costal Douglas Fir eco-region to have: Douglas fir, Western red cedar, Grand fir, salal, dull Oregon grape, ocean spray, twin flower, vanilla leaf, bracken, broad-leaved starflower, and Oregon beaked moss. Below is a table with what was found on the site studied.

Table 1: Vegetation found at study site 4

Common name	Latin name	% cover by layer	Conservation status (BC list)	Native or invasive
Tree layer		10.3%		
Douglas Fir	*Pseudotsuga menziesii* var. *menziesii*		Yellow	Native
Shrub layer		9.37%		
Salal	*Gaultheria shallon*		Yellow	Native
Sword Fern	*Polystichum californicum*		Red	Native
Oregon grape	*Mahonia nervosa*		Yellow	Native
Dwarf Rose or Baldhip rose	*Rosa gymnocarpa*		Yellow	Native
Holly	*Ilex aquifolium*		Exotic	Invasive
Scotch Broom	*Cytisus scoparius*		Exotic	Invasive
Huckleberry	*Vaccinium parvifolium*		Yellow	Native
Bracken Fern	*Pteridium aquilinum*		Yellow	Native
Herb layer		2%		
American trailplant or pathfinder	*Adenocaulon bicolor*		yellow	Native
Moss & lichen layer		32%		
Electrified cats trial moss	*Hylocomiadelphus triquetrus*		Blue	Native
Red-streamed feather moss	*Pleurozium schreberi*		Blue	Native

Site 4 Vegetation summary

The above were recorded as being found in a large grass area on top of one of the slopes, that was 10 m by 10 m plot. The majority of the plants found were native species and with a few that are on the red list (Sword fern) and blue list (Electrified cats trial moss and Red-streamed feather moss).The only Invasive nonnative species found were English Holly and Scotch broom.

It was noted in the field notes that only tree Duglas fir tree were with in the plot.

Restoration Plan

Restoration can be a long process that requires that take lots of time and man-power. Yet the goals are clear, remove invasive species, support native plant communities, with the ultimate goal of reach the plant communities those explained in BEC.

Removal of Invasive Species

Removing invasive species can be challenging due to have fast they take over an area and how quickly they push out native species. Removal requires all or as close to all plant material being removed as many can regrow if roots, steams or seedlings are left. The goals to remove thoroughly and consistently enough to prevent the re-growth from taking over the areas again. Due to the man-power and consistency needed to remove and mitigate regrowth, hosting regular volunteer based invasive species removal event can be useful and connects the local community with their local ecosystems. Online organizations like Meet-up are usefully platforms to organize such events with included safety wavers.

Supporting Native Plant Communities

Supporting the native plant communities can be down in many ways but two to focus on would be protecting the at risk areas and reestablishing native plants in areas, especially after invasives species are removed. Protecting at risk species could look like fencing off areas where red list (Sword fern) and blue list (Electrified cats trial moss and Red-streamed feather moss) species are founds. This would hopefully prevent them from being trampled by animals or people that are in the area, allowing for them to grow undisturbed. Reestablishing native plants into an area looks plant native species where we would expect to find them or release native seeds into an area to allow of native species to grow in areas that they may have low numbers, currently are not found in or were once but on longer found.

Reaching BEC Conditions

This will take time as the disturbed areas growth through the tropic levels and reestablish the areas to align with the populations that the BEC Conditions detail. This is the ultimate goal where the disturbed areas is restored to an “undisturbed” level of native plant population and diversity. Over time the plants will regrow, ideally without the pressure of invasive species and being supported along the way by the local community through replants and protecting as risk communities. Within the BEC region, Moist maritime Costal Douglas Fir, we would expect to find the following plants: Douglas fir, Western red cedar, Grand fir, salal, dull Oregon grape, ocean spray, twin flower, vanilla leaf, bracken, broad-leaved starflower, and Oregon beaked moss.

Conclusion

This site has room for improvement and restoration would be beneficial, especially considering that there is plants that are listed on the red and blue lists. So protecting areas that has such plants is very important for the restoration of the area. While the slop may not have the water available to support some of the plants that we would expect to see it is good to see so few invasive species. However if left alone these invasive species will likely take over the area and push out the native species, this is even more important considering that at risk species were found.

References

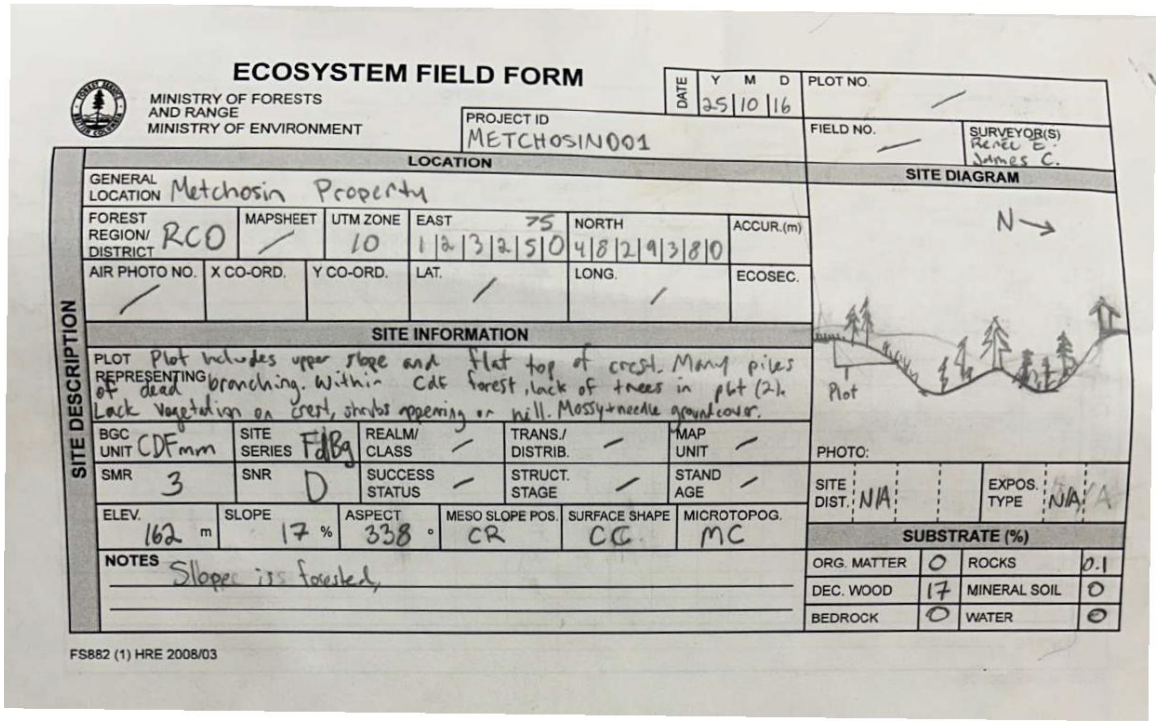
BC ministry of forest (1994) LMH 28 -Field guild for side identification and interpretation for the Vancouver forest region, accessed through D2l

BC ministry of Forests and Range, BC ministry of Environment (2010) Field Manual for Describing Terrestrial ecosystems (2nd edition), Accessed through D2L

https://a100.gov.bc.ca/pub/eswp/search.do?method=reset (BC species and Ecosystem explorer)

Appendix

Appendix A: the Ecosystem Field Form (3 pages)



ECOSYSTEM FIELD FORM

MINISTRY OF FORESTS AND RANGE
MINISTRY OF ENVIRONMENT

DATE: Y 25 M 10 D 16 | PLOT NO. | PROJECT ID: METCHOSIN001 | FIELD NO. | SURVEYOR(S): Renee C. James C.

SITE DESCRIPTION

LOCATION

GENERAL LOCATION: Metchosin Property

FOREST REGION/ DISTRICT	MAPSHEET	UTM ZONE	EAST	NORTH	ACCUR.(m)
RCO		10	123250	4829380	

AIR PHOTO NO.	X CO-ORD.	Y CO-ORD.	LAT.	LONG.	ECOSEC.

SITE DIAGRAM

PHOTO:

SITE INFORMATION

PLOT REPRESENTING: Plot includes upper slope and flat top of crest. Many piles of dead branching. Within CdF forest, lack of trees in plot (2). Lack vegetation on crest, shrubs appearing on hill. Mossy+needle groundcover.

BGC UNIT	SITE SERIES	REALM/ CLASS	TRANS./ DISTRIB.	MAP UNIT
CDFmm	FdBg			

SMR	SNR	SUCCESS STATUS	STRUCT. STAGE	STAND AGE
3	D			

ELEV.	SLOPE	ASPECT	MESO SLOPE POS.	SURFACE SHAPE	MICROTOPOG.
162 m	17 %	338 °	CR	CC	MC

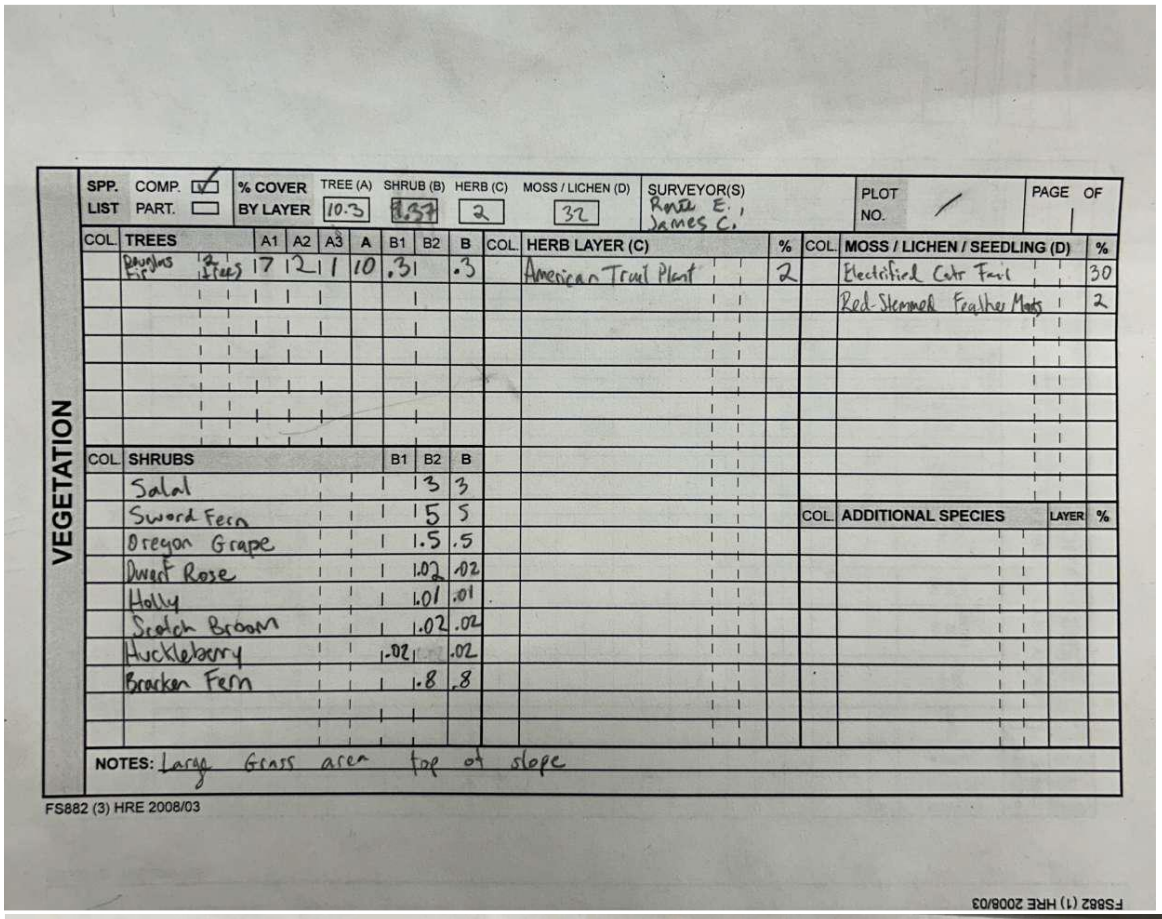
SITE DIST.	EXPOS. TYPE
NA	NA

NOTES: Slopes is forested,

SUBSTRATE (%)

ORG. MATTER	0	ROCKS	0.1
DEC. WOOD	17	MINERAL SOIL	0
BEDROCK	0	WATER	0

FS882 (1) HRE 2008/03



VEGETATION

SPP. LIST COMP. ☑ PART. ☐ | % COVER BY LAYER | TREE (A) 10.3 | SHRUB (B) 1.37 | HERB (C) 2 | MOSS / LICHEN (D) 32 | SURVEYOR(S) Rose E., James C. | PLOT NO. / | PAGE OF

COL.	TREES	A1	A2	A3	A	B1	B2	B
	Douglas Fir (3 trees)	17	12	1	10	.31		.3

COL.	SHRUBS	B1	B2	B
	Salal		3	3
	Sword Fern		5	5
	Oregon Grape		1.5	.5
	Dwarf Rose		1.02	.02
	Holly		1.01	.01
	Scotch Broom		1.02	.02
	Huckleberry	1.02		.02
	Bracken Fern		1.8	.8

COL.	HERB LAYER (C)	%
	American Trail Plant	2

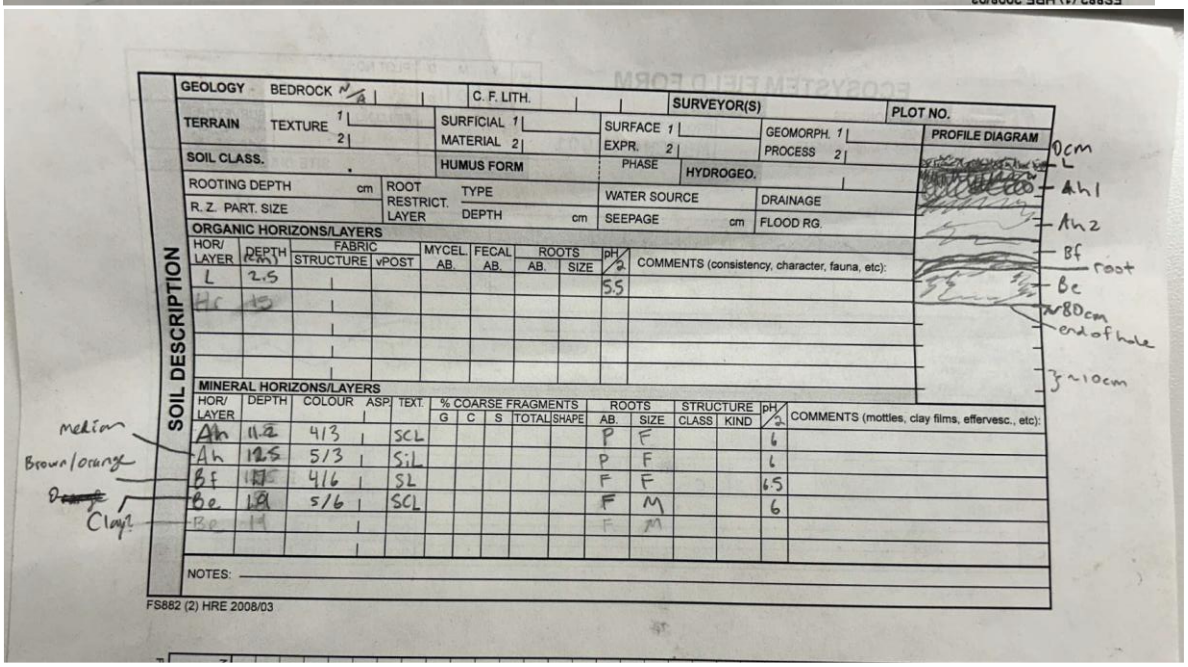
COL.	MOSS / LICHEN / SEEDLING (D)	%
	Electrified Catr Fair	30
	Red-Stemmed Feather Moss	2

COL.	ADDITIONAL SPECIES	LAYER	%

NOTES: Large Grass area top of slope

FS882 (3) HRE 2008/03

FS882 (1) HRE 2008/03



SOIL DESCRIPTION

GEOLOGY BEDROCK N/A | C. F. LITH. | SURVEYOR(S) | PLOT NO.

TERRAIN TEXTURE 1 2 | SURFICIAL MATERIAL 1 2 | SURFACE EXPR. 1 2 | GEOMORPH. PROCESS 1 2 | PROFILE DIAGRAM

SOIL CLASS. | HUMUS FORM | PHASE | HYDROGEO.

ROOTING DEPTH cm | ROOT RESTRICT. LAYER TYPE DEPTH cm | WATER SOURCE | DRAINAGE

R. Z. PART. SIZE | SEEPAGE cm | FLOOD RG.

ORGANIC HORIZONS/LAYERS

HOR/ LAYER	DEPTH (cm)	FABRIC STRUCTURE	FABRIC vPOST	MYCEL. AB.	FECAL AB.	ROOTS AB.	ROOTS SIZE	pH 2	COMMENTS (consistency, character, fauna, etc):
L	2.5							5.5	
Hc	15								

MINERAL HORIZONS/LAYERS

HOR/ LAYER	DEPTH	COLOUR	ASP	TEXT.	% COARSE FRAGMENTS G	C	S	TOTAL	SHAPE	ROOTS AB.	ROOTS SIZE	STRUCTURE CLASS	STRUCTURE KIND	pH 2	COMMENTS (mottles, clay films, effervesc., etc):
Ah	11.2	4/3		SCL						P	F			6	
Ah	12.5	5/3		SiL						P	F			6	
Bf	17.5	4/6		SL						F	F			6.5	
Bc	18	5/6		SCL						F	M			6	
Bc	19									F	M				

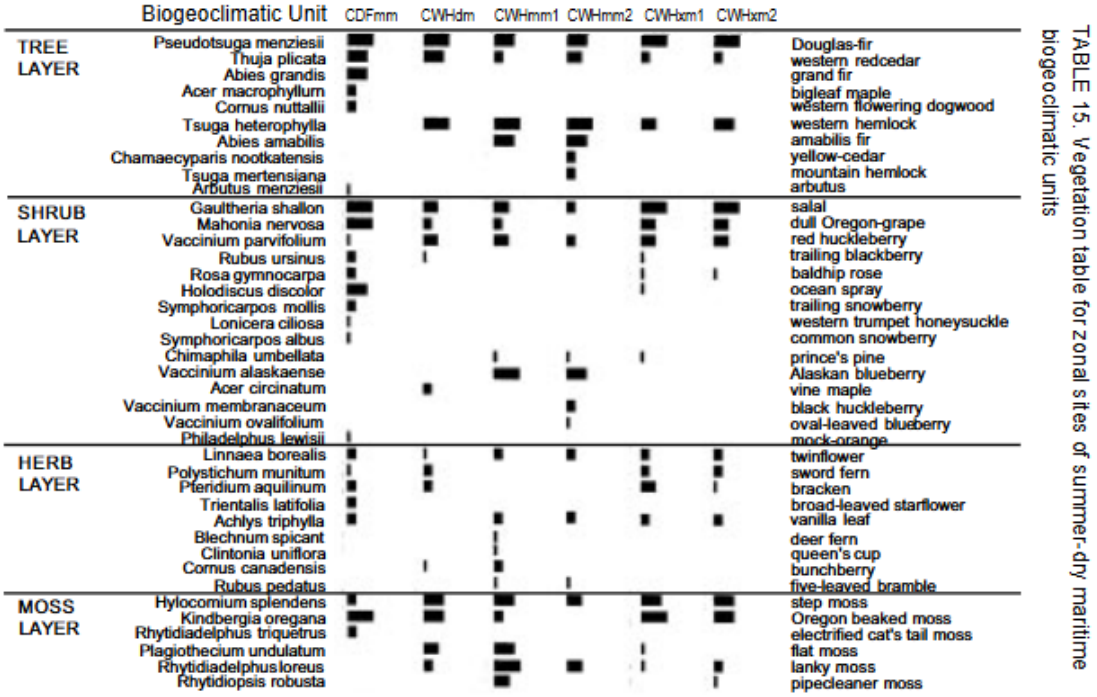
NOTES:

FS882 (2) HRE 2008/03

0cm L — Ah1 — Ah2 — Bf — root — Bc — ~80cm end of hole — ~10cm

melon — Brown/orange — Clay?

Appendix B: Table 15 from the LMH 28 -Field guild for side identification and interpretation for the Vancouver forest region



	Biogeoclimatic Unit	CDFmm	CWHdm	CWHmm1	CWHmm2	CWHxm1	CWHxm2	
TREE LAYER	Pseudotsuga menziesii							Douglas-fir
	Thuja plicata							western redcedar
	Abies grandis							grand fir
	Acer macrophyllum							bigleaf maple
	Cornus nuttallii							western flowering dogwood
	Tsuga heterophylla							western hemlock
	Abies amabilis							amabilis fir
	Chamaecyparis nootkatensis							yellow-cedar
	Tsuga mertensiana							mountain hemlock
	Arbutus menziesii							arbutus
SHRUB LAYER	Gaultheria shallon							salal
	Mahonia nervosa							dull Oregon-grape
	Vaccinium parvifolium							red huckleberry
	Rubus ursinus							trailing blackberry
	Rosa gymnocarpa							baldhip rose
	Holodiscus discolor							ocean spray
	Symphoricarpos mollis							trailing snowberry
	Lonicera ciliosa							western trumpet honeysuckle
	Symphoricarpos albus							common snowberry
	Chimaphila umbellata							prince's pine
	Vaccinium alaskaense							Alaskan blueberry
	Acer circinatum							vine maple
	Vaccinium membranaceum							black huckleberry
	Vaccinium ovalifolium							oval-leaved blueberry
	Philadelphus lewisii							mock-orange
HERB LAYER	Linnaea borealis							twinflower
	Polystichum munitum							sword fern
	Pteridium aquilinum							bracken
	Trientalis latifolia							broad-leaved starflower
	Achlys triphylla							vanilla leaf
	Blechnum spicant							deer fern
	Clintonia uniflora							queen's cup
	Cornus canadensis							bunchberry
	Rubus pedatus							five-leaved bramble
MOSS LAYER	Hylocomium splendens							step moss
	Kindbergia oregana							Oregon beaked moss
	Rhytidiadelphus triquetrus							electrified cat's tail moss
	Plagiothecium undulatum							flat moss
	Rhytidiadelphus loreus							lanky moss
	Rhytidiopsis robusta							pipecleaner moss

TABLE 15. Vegetation table for zonal sites of summer-dry maritime biogeoclimatic units