Additional Ecosystems in the CWHxm subzone

TEM Map Code	Site Unit Name	CWH	Ixm Site Series
нк	Western hemlock-Douglas-fir-Oregon beaked moss		01
SITE DESCRIPTION		SITE CHARA	CTERISTICS
5	n beaked moss unit occurs typically on gentle slopes, with medium textured from the zonal CDF forest by the presence of western hemlock. Western	Elevation (m):	150-500
hemlock occurs as the dominant trees speci-	Slope (%):	Variable	
occurs in all layers of the tree canopy includir continuous feathermoss layer carpeting the	Aspect (°):	Variable	
present and abundant while the abundance of	Surficial material:	M, F ^G	
Assumed modifiers: d, j, m	Drainage:	m-w	
		SMR:	3-4
		SNR:	A-C



Plots: 4827, 4831, 4832, CHG071, CHV142, ERSK_GRV0, GBG027, GBG028, GBG029, GBV030, HRG130, HRV131, HRV174, QAG003, WMG004, WME009, WMV038, WMV044, MTV060, MTV061

TEM Map Code	Sit	te Unit Name	CWHxm Site Series			
HK Western hemlock-Douglas-fir-Oregon beaked m		01				
CHARACTERISTIC VEGETATION WITHIN EACH STRUCTURAL STAGE						
HK4 (Immature Forest)	HK5 (Young Forest)	HK6 (Mature Forest)	Mature Undisturbed HK6			
Dominant Species	Dominant Species	Dominant Species	Tree Layer			
Douglas-fir	Douglas-fir	salal	Douglas-fir			
salal	salal	Douglas-fir	western hemlock			
Oregon beaked-moss	dull Oregon-grape	Oregon beaked-moss	western redcedar			
western hemlock	western hemlock	step moss				
			Shrub Layer			
Associate Species	Associate Species	Associate Species	salal			
red alder	step moss	western redcedar	dull Oregon-grape			
oceanspray	oceanspray	western hemlock	red huckleberry			
lodgepole pine	lodgepole pine	dull Oregon-grape	baldhip rose			
western redcedar	red huckleberry	sword fern	oceanspray			
dull Oregon-grape	western redcedar	oceanspray				
	electrified cat's-tail moss	red alder	Herb Layer			
	Oregon beaked-moss		vanilla-leaf			
	red alder		sword fern			
	Scotch broom		twinflower			
	stinging nettle		bracken fern			
	arbutus					
			Moss Layer			
			step moss			
			Oregon beaked moss			
			lanky moss			

TEM N	Map Code		Site Unit Name		CWHxm Site Series
HK		Western h	nemlock-Douglas-fir-Oregon be	aked mo	oss 01
HKh	hummocky	HKqv	very steep cool aspect; very shallow soil	HKvx	very shallow soil; drier than typical
HKhs	hummocky; shallow soil	HKrs	ridge; shallow soil	HKvz	very shallow soil; very steep warm aspect
HKhv	hummocky; very shallow soil	HKs	shallow soil	HKw	warm aspect
HKk	cool aspect	HKsw	shallow soil; warm aspect	HKxz	drier than typical; very steep warm aspect
HKks	cool aspect; shallow soil	HKv	very shallow soil	HKz	very steep warm aspect
HKkv	cool aspect; very shallow soil	HKvw	very shallow soil; warm aspect		
Atypic:	al Characteristics/Additiona	l Comments:			

TEM Map Code	Site Association	CWHxi	m Site Series
DC	Douglas-fir—Lodgepole pine—Cladina		02
SITE DESCRIPTION		SITE CHARAC	TERISTICS
	adina unit was infrequently mapped, generally occurring on water-shedding ridge a very thin till-derived Brunisols or bedrock outcrops. Douglas-fir and shore pine were	Elevation (m)	250-650
dominant in the canopy, with mor	e pine occurring where soil conditions were driest. Canopy cover was sparse (20-	Slope (%)	5-65
40%), with much of the forest floregenerating canopy species were fi	Aspect (°)	999	
winter when sites were surveyed.	Surficial material	Mv	
mosses including step moss, juniper	Drainage	r	
Assumed modifiers: j, m, r, s		SMR	0
		SNR	A (-B)



Plots: WMG001, WM006, WM007, ERSK_GR02, ERSK_GR03, WM036, JK304, JKG309, JKG314, ERSK_GR05

TEM Map Code	Site Association	CWHxm Site Series
DC	Douglas-fir—Lodgepole pine—Cladina	02
	OLIA DA OTEDICTI O VECETATIONI VALITURI FACILIOTRIOTI DALICTA OF	

CHARACTERISTIC VEGETATION WITHIN EACH STRUCTURAL STAGE				
DC4	DC5	Mature Undisturbed		
(Immature Forest)	(Young Forest)	DC6		
Dominant Species	Dominant Species	Tree Layer		
curly heron's-bill moss	salal	shore/lodgepole pine		
juniper haircap moss	Douglas-fir	Douglas-fir		
shore pine		arbutus		
brome				
fire-moss		Shrub Layer		
salal		salal		
		oceanspray		
Associate Species	Associate Species	dull Oregon-grape		
Douglas-fir	dull Oregon-grape	red huckleberry		
hoary rock-moss	curly heron's-bill moss	baldhip rose		
reindeer lichens	juniper haircap moss			
step moss	broom-moss	Herb Layer		
·	red-stemmed feathermoss	hairy cat's ear		
	arbutus			
	shore pine	Moss Layer		
	sweet vernalgrass	Oregon beaked moss		
	yellow curl-moss	step moss		
	hoary rock-moss	juniper haircap moss		
	prince's pine	electrified cat's-tail moss		
	rock-moss	red-stemmed feathermoss		
	ragged-moss	lichen		

TEM Map Code		Map Code Site Association		CWHxm Site Series	
DC		Doug	las-fir—Lodgepole pine—Cladina	02	
DChv	hummocky; very shallow s	soil DCv	very shallow soil		
DCkv	cool aspect; very shallow s	soil DCvw	very shallow soil; warm aspect		
DCs	shallow soil	DCvz	very shallow soil; very steep warm aspect		
DCsw	shallow soil; warm aspect	DCw	warm aspect		
Atypica	al Characteristics/Addi	itional Comments:			
Atypica N/A	al Characteristics/Addi	itional Comments:			

TEM Map Code	Site Association	CWHxm Site Series	
DS	Douglas-fir—Western hemlock—Salal		03
SITE DESCRIPTION		SITE CHARA	CTERISTICS
	tes occurred on well-drained, nutrient very poor to medium upper as generally till of various depths, infrequently co-occurring with	Elevation (m)	130-600
colluvium. The canopy closure of structural stage	Slope (%)	5-100	
succession. Dominant ree species included Do hemlock tended to be abundant in the unders	Aspect (°)	variable	
tolerance of Douglas-fir and its mineral seeds	Surficial material	M (C)	
dominant in the shrub layer, with little other p	Drainage	w-r	
layer.	ill moss and curly heron's bill moss were common in the bryophyte	SMR	1-2
Assumed modifiers: d, m, w		SNR	A-C



Plots: 6105, 6107, CAG022, CA057, CA076, CHG068, CHV069, GBG026, JKV013, JK301, JK302, MTV059, WM001, WM002, WM003, WM042, ERSK_GR15, WM043, ERSK_GR13

TEM Map Code	Site Association	CWHxm Site Series
DS	Douglas-fir—Western hemlock—Salal	03

	Douglas III	1105torri riorrilook Galar			
CHARACTERISTIC VEGETATION WITHIN EACH STRUCTURAL STAGE					
DS4	DS5	DS6	Mature Undisturbed		
(Immature Forest)	(Young Forest)	(Mature Forest)	DS6		
Dominant Species	Dominant Species	Dominant Species	Tree Layer		
salal	Douglas-fir	Douglas-fir	Douglas-fir		
Douglas-fir	oceanspray	step moss	western hemlock		
Oregon beaked-moss	dull Oregon-grape	curly heron's-bill moss	western redcedar		
arbutus	salal	Oregon beaked-moss	shore/lodgepole pine		
dull Oregon-grape	Oregon beaked-moss	salal			
	western redcedar	western redcedar	Shrub Layer		
		western hemlock	salal		
		dull Oregon-grape	red huckleberry		
		knight's plume	dull Oregon-grape		
		sibbaldia	baldhip rose		
Associate Species	Associate Species	Associate Species	Herb Layer		
western hemlock	electrified cat's-tail moss	golden short-capsuled moss	twinflower		
oceanspray	step moss	juniper haircap moss	bracken fern		
step moss	arbutus	red-stemmed feathermoss	vanilla-leaf		
Siberian miner's-lettuce	heron's-bill moss	western fescue	sword fern		
trailing blackberry	twinflower	yellow curl-moss			
hairy honeysuckle			Moss Layer		
-			step moss		
			Oregon beaked moss		
			lanky moss		
			electrified cat's-tail moss		

TEM N	EM Map Code		Site Association			CWHxm Site Serie
DS		Do	ouglas-fir—Western hemlock—S	alal		0:
DShs	hummocky; shallow soil	DSkv	cool aspect; very shallow soil	DSv	very s	shallow soil
DShv	hummocky; very shallow soil	DSqv	very steep cool aspect; very shallow soil	DSvz	very s	shallow soil; very steep warm aspect
DSj	gentle slope	DSrs	ridge; shallow soil	DSxz	drier t	than typical; very steep warm aspect
DSjv	gentle slope, very shallow soil	DSrv	ridge; very shallow soil	DSyz	moiste	er than typical; very steep warm aspect
DSk	cool aspect	DSs	shallow soil			
DSks	cool aspect; shallow soil	DSsz	shallow soil; very steep warm aspect			

TEM Map Code	Site Association	CWHxm :	Site Series
DF	Douglas-fir—Sword fern		04
SITE DESCRIPTION		SITE CHARACTE	RISTICS
	mapped on well drained upper to mid-slopes with variable thicknesses rting site series 03. Humus forms were mulls to moders. Douglas-fir was	Elevation (m)	140-575
the most common canopy dominant, but wes	Slope (%)	35-55	
sparser than expected on Saltspring Island. Gr cover (15-30%), with dull Oregon-grape, rea	Aspect (°)	variable	
associates. Sword fern dominated the herb layer	Surficial material	М	
by Oregon beaked moss.		Drainage	W
Assumed modifiers: d, j, m		SMR	1-2
		SNR	C-E



Plots: GB028, GBV031, BBJK11, CA079, WM030, WM031, ERSK_GR07, JK305, K30

TEM N	lap Code		Site Association			CWHxm Site Se	eries
DF			Douglas-fir—Sword fern				04
DFhs	hummocky; shallow soil	DFkv	cool aspect; very shallow soil	DFsz	shallow	soil; very steep warm aspect	
DFhv	hummocky; very shallow soil	DFqs	very steep cool aspect; shallow soil	DFw	warm as	spect	
DFk	cool aspect	DFs	shallow soil				
DFks	cool aspect; shallow soil	DFsw	shallow soil; warm aspect				
Atypic:	al Characteristics/Additional Co	mments:					

TEM Map Code	Site Association	CWHxm Site Series			
RS	Western redcedar—Sword fern	05			
SITE DESCRIPTION		SITE CHAR	ACTERISTICS		
-	The Western redcedar – Sword fern ecosystem was mapped most often on north-facing mid-slopes with well to moderately well-drained soils derived from till and occasionally colluvium. Western redcedar was not always				
dominant in the canopy, likely reflecting the disturbar	ice history of sites in the study area. Western hemlock, grand	Slope (%)	10-100		
	I canopy layers. Coarse woody debris was often moderately storey was dominated by salal, with variable amounts of	Aspect (°)	285-135 (135-285)		
	ne shrub layer. The herb layer featured the dominant species	Surficial material	M, C		
sword fern and bracken fern, occasionally with spiny	Drainage	w-m			
and graminoids decreased with increasing canopy closwith lesser amounts of constant associates curly here	SMR	3-4			
decaying wood. Some sites were influenced by see	SNR	D (E)			
shallower soils than typical.					
Assumed modifiers: d, m					



Plots: CHG074, GB029, WM013

TEM Map Code	Site Association	CWHxm Site Series		
RS	Western redcedar—Sword fern	05		
	TERISTIC VEGETATION WITHIN EACH STRUCTURAL STAG			
RS3	Matu	re Undisturbed		
(Shrub/Herb)		RS6		
Dominant Species	Tree Layer			
salmonberry	Douglas-fir			
Oregon beaked-moss bracken fern	western hemlock			
red alder	western redcedar red alder			
	red alder			
dull Oregon-grape salal	Shrub Layer			
Scotch broom	red huckleberry			
trailing blackberry	salal			
western redcedar	dull Oregon-grape			
Himalayan blackberry	baldhip rose			
	oceanspray			
Associate Species				
red huckleberry	Herb Layer			
western hemlock	sword fern			
	vanilla-leaf			
	bracken fern			
	twinflower			
	wall-lettuce			
	sweet-scented bedstraw three-leafed foam flower			
	three-leared roam nower			
	Moss Layer			
	step moss			
	Oregon beaked moss			
	lanky moss			
	coastal leafy moss			

TEM Map Code			Site Association		CWHxm Site Series
RS			Western redcedar—Sword fei	'n	05
RShj	hummocky; gentle slope	RSks	cool aspect; shallow soil	RSsw	shallow soil; warm aspect
RSj	gentle slope	RSkv	cool aspect; very shallow soil	RSvw	very shallow soil; warm aspect
RSjs	gentle slope; shallow soil	RSqv	very steep cool aspect; very shallow soil	RSw	warm aspect
RSk	cool aspect	RSs	shallow soil	RSwx	warm aspect; drier than typical
Atypic N/A	al Characteristics/Additional Com	ments:			

TEM Map Code	Site Association	CWHxm Site Serie		
HD	Western hemlock—Western redcedar—Deer fern	0		
SITE DESCRIPTION		SITE CHARACTI	ERISTICS	
The Western hemlock – Western redcedar – moderately to imperfectly drained Brunisols	Elevation (m)	250-575		
most abundant tree and constant dominant,	Slope (%)	15-45		
Bigleaf maple and red alder were often prestands. The understorey featured salal, salmo	Aspect (°)	variable		
dominants in the herb layer. Occasionally sp	Surficial material	M		
was dominated by Oregon beaked moss with	Drainage	w-m		
Assumed modifiers: d, j, m	plume. Coastal leafy moss was common on decaying wood.			
, 1.05a5a5a5. a, j, iii		SNR	A-C	

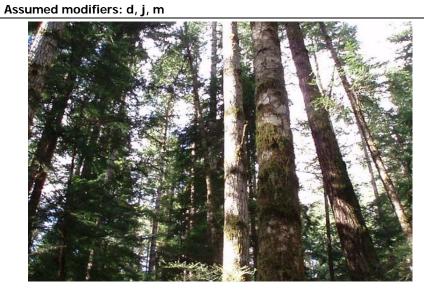


Plots: JK016, JK017, MT058, QAF005, TTG005, WM037

TEM Map Code	Site A	Association	CWHxm Site Series
HD	Western hemlock—Western redcedar—Deer fern		
C	HARACTERISTIC VEGETATION W	VITHIN EACH STRUCTURAL STAGE	
HD5		Mature Undis	sturbed
(Young Fore	est)	HD6	
Dominant Species		Tree Layer	
Douglas-fir		Douglas-fir	
baneberry		western hemlock	
sweet-cicely		western redcedar	
Sitka columbine		grand fir	
Oregon beaked-moss		red alder	
Columbia brome			
western hemlock		Shrub Layer	
		salal	
Associate Species		red huckleberry	
bedstraw		false azalea	
Nootka rose		dull Oregon-grape	
prickly rose		salmonberry	
sword fern			
wild strawberry		Herb Layer	
		deer fern	
		sword fern	
		Moss Layer	
		step moss	
		lanky moss	
		Oregon beaked moss	

TEM N	Nap Code		Site Association	CWHxm Site Series
HD		Weste	ern hemlock—Western redcedar—Deer fern	06
HDh	hummocky	HDs	shallow soil	
HDk	cool aspect	HDsw	shallow soil; warm aspect	
HDks	cool aspect; shallow soil	HDw	warm aspect	
HDkv	cool aspect; very shallow soil			
Atypica N/A	al Characteristics/Additional	Comments:		

TEM Map Code	Site Association	CWHxm Site Series		
RF	Western redcedar—Foamflower	O		
SITE DESCRIPTION		SITE CHARACTE	RISTICS	
The Western redcedar - Foamflower ecosyster	ms occurred on moisture-receiving toe slopes, some seepage sites, and	Elevation (m)	120-325	
level sites with thick relatively rich, moderately	th thick relatively rich, moderately well to imperfectly drained soils. Common soil types were Humo-Ferric			
Podzols or occasionally Gleysols on level sites	grading to gleyed Brunisols derived from till. Humus forms ranged from	Slope (%)	0-35	
moders to mulls. Western redcedar was often	associated in the semi-open canopy with constant associates western	Aspect (°)	variable	
hemlock, red alder, grand fir and bigleaf maple	e; Douglas-fir was infrequent to absent on most sites. Hemlock also was	•	Variable	
infrequent in the study area on these site type	Surficial material	M		
most other site series. Shrubs included dense	e cover of the dominant species dull Oregon-grape, salmonberry and	Drainage	m	
thimbleberry. Herbs also occupied a high cover				
fern, and small-flowered rush typically present	SMR	5-6		
lanky moss and Oregon-beaked moss was domi	SNR	D-E		
Account of many different of the				



Plots: JKG014, TTG008, WM040

TEM Map Code	Site Association	CWHxm Site Series
RF	Western redcedar—Foamflower	07

CI	HARACTERISTIC VEGETATION WITHIN EACH STR	RUCTURAL STAGE
RF4	RF6	Mature Undisturbed
(Immature Forest)	(Mature Forest)	RF6
Dominant Species	Dominant Species	Tree Layer
stinging nettle	red alder	Douglas-fir
red alder	western hemlock	western hemlock
coastal leafy moss	western redcedar	western redcedar
small-flowered bitter-cress	step moss	grand fir
	curly heron's-bill moss	red alder
	knight's plume	bigleaf maple
	lanky moss	
	Oregon beaked-moss	Shrub Layer
	salal	dull Oregon-grape
		red huckleberry
Associate Species	Associate Species	salmonberry
dovefoot geranium	dull Oregon-grape	devil's club
red-stemmed feathermoss	flat-moss	
arbutus	stinging nettle	Herb Layer
bedstraw		sword fern
bigleaf maple		vanilla-leaf
Douglas-fir		wall-lettuce
field chickweed		three-leaved foamflower
Nootka rose		sweet-scented bedstraw
Oregon beaked-moss		bracken fern
Pacific bleeding heart		lady fern
Scouler's corydalis		oak fern
sweet-cicely		
		Moss Layer
		step moss
		coastal leafy moss
		Oregon beaked moss
		palm tree moss
		lanky moss

TEM Map Code		Site Association	CWHxm Site Series	
RF		Western redcedar—Foamflower	07	
RFh	hummocky	•		
RFk	cool aspect			
RFs	shallow soil			
RFw	warm aspect			
Atypic N/A	al Characteristics/Addition	nal Comments:		

TEM Map Code	Site Association	CWHxm Site Serie		
ss	Sitka spruce—Salmonberry			
SITE DESCRIPTION		SITE CHARAC	TERISTICS	
Sitka spruce - Salmonberry high bench site	Elevation (m)	150-350		
landscape position contribute to highly prod	uctive, moderately-well drained sites with relatively open canopies (more	Elevation (m)	150-550	
open as stands age) Soils were frequently we	Slope (%)	5-35		
in the study area; broadleaf species includi	ing black cottonwood, red alder and bigleaf maple were dominant, with	Aspect (°)	variable	
varying amounts of frequent associate wes	stern redcedar. Shrubs were highly variable in cover and diversity, with		variable	
salmonberry and thimbleberry dominating,	Surficial material	F		
elderberry, bitter cherry, and Pacific crabap	Drainage	m		
common associate species were vanilla-leaf,	0140			
fluenced cover and species recorded. Coastal leafy moss was a common colonizer on woody substrate. SMR 5-6			5-6	
Assumed modifiers: d, j, m	SNR	C-F		



Plots: WM040

TEM Map Code	Site Association	cw	Hxm Site Series
CW	Black cottonwood—Willow		10
SITE DESCRIPTION		SITE CHARA	CTERISTICS
	the Black cottonwood - Willow site series, featuring deep coarse- atively high coarse fragment content. Soils vary from Non-soil ir	Lievation (m)	150-500
recently disturbed locations to gravelly sandy Reg	osols and Brunisols. This ecosystem type was extremely infrequent	Slope (%)	<15
	e dominant species to red alder, willows (more often in or adjacent th associated flood-tolerant shrubs such as salmonberry. Canopy	Aspect	variable
·	ral stage. Structural stage 4 supports the densest stands (canopy	Confinial mankanial	F ^A
closure approximately 50%) with fluvial erosion	closure approximately 50%) with fluvial erosion contributing to stand disturbance. This species association is a		w - m
disturbance-maintained disclimax that would support conifer species in the absence of disturbance. Herbs and mosses are infrequent or absent depending on water table and fluvial characteristics, with blue wildrye most		SMR	5-6
common associate in less frequently flooded sites	Soils are well drained, but the coarse texture limits productivity or	SNR	C-D
sandstone-derived soils, and flooding action often precludes development of an organic soil horizon. Erosion is a			
typical disturbance agent, leading to a predominance of younger seral stands (structural stages 4-5) in the study			
area.			
Assumed modifiers: a, c, d, j			
No photo available Plots: JK136			

TEM Map Code	Site Association	CWHx	m Site Series
RC	Western redcedar—Sitka spruce—Skunk cabbage		12
SITE DESCRIPTION		SITE CHARACT	TERISTICS
•	nk cabbage are rich, moist to wet sites which occurred in moisture-receiving possibly including a minor component of organics. Although Sitka spruce was	Elevation (m)	120-450
not observed on Saltspring Island, wes	not observed on Saltspring Island, western redcedar was a typical dominant with lesser amounts of associated red		0-10
alder, bigleaf maple, and grand fir on the margins. Alder abundance decreased with stand age. Sites often had abundant moderate to large woody debris. Shrubs observed included salmonberry, thimbleberry, and occasionally salal		Aspect (°)	variable
on hummocks. Species visible in the herb layer were limited by the sampling window, but the most common associate		Surficial material	M (0)
species were vanilla-leaf, lady fern, deer fern, and skunk cabbage. Bryophytes associated with this site series were		Drainage	р
coastal and large leafy moss and slender beaked moss. Assumed modifiers: d, j, m		SMR	7
		SNR	C-E



TEM N	Map Code	Site Association	CWHxm Site Series
RC		Western redcedar—Sitka spruce—Skunk cabbage	12
RCp	peaty material		
RCs	shallow soil		

Atypical Characteristics/Additional Comments: N/A

TEM Map Code	Site Association	cw	Hxm Site Series
RB	Western redcedar—Salmonberry		13
SITE DESCRIPTION		SITE CHARA	CTERISTICS
Western redcedar – Salmonberry ecosyste	ems are nutrient medium- to-rich, very moist (winter) to fresh (summer)	Elevation (m)	120-450
sites and were fairly common in hummoc	ky, imperfectly drained, level terrain or moisture receiving toe slopes as	Elevation (III)	120-450
well as in riparian areas. These sites tende	d to support a mosaic of site series 13 and 07, with the former in hollows	Slope (%)	0-10
and the latter on raised microsites. Soils v	vere often gleyed or weakly mottled Brunisols (typically Gleyed Eluviated	Aspect (°)	variable
Dystric Brunisols, similar to CWHxm/12 but with more pronounced mottling), reflecting the seasonally fluctuating			Variable
water tables. There were accumulations of fines beneath the organic horizons in depressions. The canopy was open		Surficial material	M
(5-15%), with western redcedar the dominant tree species growing on elevated hummocks. Dense thickets of		Drainage	i
salmonberry were the dominant shrub com			
Herbs were variable, but few were apparent during sampling (largely in winter). Sword fern grew on hummocks and 5			5
bleeding heart and sweet-cicely were also common associates. Bryophytes were sparse to absent except on		SNR	C-D
decaying wood.			
Assumed modifiers: d i m			



TEM Map Code		Site Association	CWHxm Site Series
RB		Western redcedar—Salmonberry	13
RBh	hummocky		
RBhs	hummocky; shallow soil		
RBhv	hummocky; very shallow soil		
RBks	cool aspect; shallow soil		
RBs	shallow soil		

Atypical Characteristics/Additional Comments: N/A

TEM Map Code	Site Association	CWHxm	n Site Series
RT	Western redcedar—Black twinberry		14
SITE DESCRIPTION		SITE CHARACTI	ERISTICS
1	, wet (winter) to moist (summer) sites were infrequent, occurring in noisture receiving toe slopes and in riparian areas. These sites tended	Elevation (m)	200-450
to support a mosaic of site series 14 and 07 or 1	to support a mosaic of site series 14 and 07 or 12, with the former in hollows and the latter on raised microsites. The		0-15
canopy was open to sparse, with western redcedar the dominant tree species growing on elevated hummocks. Shrubs had fairly high cover, with salmonberry, black twinberry, red elderberry, and willows the most common dominants, and		Aspect (°)	variable
occasional components of ninebark and Pacific crabapple associated with richer sites. Herbs varied among sites;		Surficial material	M, O
foamflower, lady fern, vanilla-leaf, and sword fern were the most frequent. Bryophytes were sparse to absent except on		Drainage	i
decaying wood. Assumed modifiers: d, j, m		SMR	6
		SNR	D-E



TEM Map Code	Site Association	CWHxm Site Series		
RT	Western redcedar—Black twinberry			
RTs shallow soil				
Atypical Characteristics/Additional Comments: N/A				

TEM Map Code	Site Association	CWI	Hxm Site Series
cs	Western redcedar—Slough sedge		15
SITE DESCRIPTION		SITE CHARA	CTERISTICS
Western redcedar - Slough sedge are	swamp forests which occupy poorly drained flat sites to depressions.	Elevation (m)	150-450
Western redcedar and sword fern domin	nate elevated microsites, while sedges, lady fern, and horsetails occupy	Zioration (iii)	100 100
hollows with occasional skunk cabbage	where there is limited surface flow. Soils are moderately deep to deep	Slope (%)	0-35
(>0.5m) with medium texture, typically	gleyed, with seasonally fluctuating water tables, even where bedrock	Aspect (°)	variable
restricts soil depth. Tree species are lim	ited to shade- and moisture-tolerant trees with relatively shallow roots:		
western redcedar, grand fir on margins, and black cottonwood with minor amounts of red alder. Shrubs in this site		Surficial material	Ov, M. L
series are diverse, with Indian-plum, com	mon snowberry, currants/gooseberry, and thimbleberry the most frequent	Drainage	m-p
associates; ninebark, black twinberry, a	nd red-osier dogwood increased in frequency with increased seasonal	0.45	
flooding. Herbaceous species were variable, with slough sedge commonly dominating the herb layer, and Cooley's SMR 6-7		6-7	
$hedge-nettle\ in\ more\ well-drained\ and\ small-flowered\ rush\ in\ more\ poorly-drained\ sites\ also\ common\ associates.$		SNR	C-E
Moss tended to occupy little of the substrate, and only Oregon beaked moss was a constant associate; large leafy			
moss and coastal leafy moss were occasionally present.			
Assumed modifiers: d i m			



Plots: CA008, CA039, MT036

Tem Map Code	Site Association	CWHx	m Site Series
AM	Arbutus—Hairy manzanita		00
SITE DESCRIPTION		SITE CHARAC	TERISTICS
3	es occurred on ridge crests and water-shedding steep upper slopes <5%) with arbutus and occasionally shore pine dominant, rarely	Elevation (m)	Variable
reaching past structural stage 4 with respect to	structural development criteria. The shrub layer was dominated by hairy	Slope (%)	Variable
· ·	ally Scotch broom. Herbs were typically sparse, but annuals may be ut comprising low (<20%) cover. The substrate was typically dominated	Aspect (°)	120-250
	almost completely by curly heron's-bill moss and, to a lesser extent, and on rock outcrops, foliose lichens.		R
From plot data for a shrub/herb (structural stage 3) dominated Arbutus – Hairy Manzanita site the dominant vegetation		Drainage	r
included sweet vernalgrass, hairy Manzanita, shore pine, curly heron's-bill moss, hoary rock-moss, Douglas-fir, Alaska oniongrass, grey rock-moss and juniper haircap moss. Associate species included green sorrel and lesser green		SMR	1
reindeer. From plot data for a young forest (structural stage 5) site the dominant vegetation included arbutus, curly		SNR	Α
heron's-bill moss, red-stemmed feathermoss, hairy Manzanita, western hemlock, Douglas-fir, Oregon beaked-moss and			
salal, with oceanspray as an associate species.			
Assumed modifiers: j, r, s			



Plots: 4839, ERSK_GR01, WMG006

Site Association	CWHxm Site Series		
Arbutus—Hairy manzanita	00		
AMvw very shallow soil; warm aspect			
AMz very steep warm aspect Atypical Characteristics/Additional Comments:			
	Arbutus—Hairy manzanita		

Distribution of Map Units Containing AM Units

Anthropogenic and Non-Vegetated/Sparsely Vegetated Map Units of the CDFmm

TEM Map Code	Site Unit Name			Site Series
BE	Beach			N/A
SITE DESCRIPTION			SITE CHARAC	CTERISTICS
-	reworked by wave action. All beach units were mappe h water bodies. This unit is typically void of vegetation a	•	Elevation (m):	0-3 m
of either sand or coarse fragments such as gravels, or	cobbles and stones, with scattered driftwood, seaweed	and various	Slope (%):	Variable
washed up items along the shoreline.			Aspect (°):	Variable
			Surficial material:	W
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a



TEM Map Code	Site Unit Name	Site Series
CF	Cultivated Field	N/A

SITE DESCRIPTION SITE CHARACTERISTICS Cultivated fields are non forested, open areas that are subject to agricultural practices including plowing, fertilization, Elevation (m): 50-150 and non native crop production which often results in long-term soil and vegetation changes. Cultivated fields are common throughout the CDFmm, and extensive throughout the Cowichan Valley and Central and North Saanich. The Slope (%): <15 typical structural stage for cultivated fields is 2b, graminoid, infrequently 3. Small islands of forest occur in fields, as do Aspect (°): Variable narrow shrub dominated riparian channels and scattered large trees. Noteworthy are the cultivated fields of Cowichan W^G, W (Ox) Surficial material: and Saanich with scattered Garry oak trees and Garry oak groves. Rural residential is also a very common association with cultivated fields. Although cultivated fields are typically agriculture based CF was mapped for other green spaces as Drainage: i - w well. These included city parks, baseball fields, and residential lawns. This unit was often complexed with Rural (RW) SMR: 2-6 and Urban (UR) units. B-D SNR:



Plots: BB_HR_G1, BB_HR_G2, BB_HR_G3, BB_HR_G6, DHV022, GBG044, GBV055, CHV093, JCV101, JCV060, DHV050, HRV077, HRV209

TEM Map Code	Site Unit Name			Site Series
CL	Cliff	N/A		
SITE DESCRIPTION			SITE CHARACTERISTICS	
Cliffs are steep, vertical or overhanging rock faces. Cliff units are most common along the coast complexed with coastal			Elevation (m):	Variable

Cliffs are steep, vertical or overhanging rock faces. Cliff units are most common along the coast complexed with coastal bluffs or steep rock controlled gully sidewalls and infrequently along mountain slopes. Cliffs are non-vegetated ecosystems.

Slope (%): >130

Aspect (°): Variable

Surficial material: R

Drainage: n/a

SMR: n/a

Plots: JCV036



TEM Map Code	Site Unit Name	Site Series
со	Cultivated Orchard	N/A

100	Cultivated Orchard			IN/ A
SITE DESCRIPTION		SITE CHARACTERISTICS		
1 -	ee species planted in rows. Typically this would include, f nesteads are common in the CDF and although many of	•	Elevation (m):	Variable
become overgrown, these have been mapped as CO wherever possible. It also includes tree farms such as Christmas		Slope (%):	<15	
tree farms, or any coniferous tree farm where conife	er trees are planted in rows for commercial production.		Aspect (°):	Variable
			Surficial material:	n/a
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a



TEM Map Code	Site Unit Name	Site Series		
CV	Cultivated Vineyard			N/A
SITE DESCRIPTION			SITE CHAR	ACTERISTICS
	d of single or multiple species or grapes planted in renewed he grand scheme of things within the mapping area	•	Elevation (m):	Variable
vineyards are not common, they do occur in the Cowie	chan Valley and to a less extent in Central Saanich. Wi	ne vineyards	Slope (%):	<15
quite often do not occur as a major polygon compone fields and rural residential. Occasionally cultivated vine	ent, instead they are a minor component complexed wi	th cultivated	Aspect (°):	Variable
The control of the co	of a control position appear to part of polygonia.		Surficial material:	n/a
			Drainage:	n/a
			SMR:	n/a
	-		SNR:	n/a
No photo available	Plots: N/A			

TEM Map Code	Site Unit Name	Site Series
ES	Exposed Soil	N/A

E3	Exposed Soil			IV/A
SITE DESCRIPTION			SITE CHAR	ACTERISTICS
	void of vegetation and is not bedrock but mineral soil. It eas, predominantly disturbance sites associated with n	•	Elevation (m):	Variable
developments. Exposed soil was also mapped for pr	ull-outs along forestry roads and to a lesser extent along	g steep side	Slope (%):	Variable
slopes. For example steep side slopes composed surface erosion, vegetation was not present.	of glaciomarine sediments, were mapped as exposed	soil. Due to	Aspect (°):	Variable
Surface crosser, regeration true not process.			Surficial material:	F ^G , W ^G , A
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a



Plots: CHV108, CHV166, HRV106, JCV160

TEM Map Code	Site Unit Name	Site Series
GB	Gravel Bar	N/A

GB	Gravei Bar		IN/A
SITE DESCRIPTION		SITE CHAR	ACTERISTICS
•. •	river channels. Gravel bars are non-vegetated and characterize bles, stones and sand. Notable rivers with gravel bars include E	 Elevation (m):	Variable
Chemainus River, Cowichan River and Ko	oksilah River.	Slope (%):	<15
		Aspect (°):	Variable
		Surficial material:	n/a
		Drainage:	n/a
		SMR:	n/a
		SNR:	n/a



TEM Map Code	Site Unit Name			Site Series
GC	Golf Course			N/A
SITE DESCRIPTION			SITE CHAR	ACTERISTICS
Golf courses are a common feature particularly aloudwellers. Golf courses are characterized by flat to get	·		Elevation (m):	Variable
golf. The fairways are typically separated by isolated rows or patches of trees and ponds. More often than not, forested			Slope (%):	<15
areas were too small to identify to site series and were mapped as GC with a structural stage 5 or 6. Although golf courses have altered the native landscape and vegetation communities to a large extent, scattered trees that remain are			Aspect (°):	Variable
noteworthy. For example, scattered trees found in	G		Surficial material:	W ^G
significant height and age whereas other golf course arbutus.	9		Drainage:	n/a
arbutus.			SMR:	n/a
			SNR:	n/a
No photo available	Plots: JCV069, HRV113, HR	V215		

TEM Map Code	Site Unit Name		Site Series
GP	Gravel Pit		N/A
SITE DESCRIPTION		SITE CHAI	RACTERISTICS
Gravel pits are areas of exposed soil through the com	mercial removal of sand and gravel.	Elevation (m):	Variable
		Slope (%):	Variable
		Aspect (°):	Variable
		Surficial material:	W ^G , F ^G , A
		Drainage:	n/a
		SMR:	n/a
		SNR:	n/a
No photo available	Plots: CAG029, CHV072	2, JCV062, HRV034, HRV059	

TEM Map Code	Site Unit Name			Site Series
IN	Industrial			N/A
SITE DESCRIPTION			SITE CHARA	ACTERISTICS
	due to the requirement to address sites that were deer mills, oil/gas refineries and so on. These units are c	_	Elevation (m):	Variable
by a high degree of ground disturbance; concrete	parking lots, large commercial buildings, work yard	s and other	Slope (%):	Variable
specialized industry infrastructure.			Aspect (°):	Variable
			Surficial material:	n/a
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a
No photo available	Plots: N/A			

LA	Lake	N/A
TEM Map Code	Site Unit Name	Site Series

LA	Lake			N/A
SITE DESCRIPTION			SITE CHAR	ACTERISTICS
A lake is a naturally occurring body of water, greater as Elk, Beaver, Prospect, Cowichan, Quamichan, Sor	er than 2 m deep. Several lakes occur within the mappin nenos, Long and Brannen Lake to name a few.	g area such	Elevation (m):	Variable
·	-		Slope (%):	0
			Aspect (°):	999
			Surficial material:	n/a
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a



TEM Map Code	Site Unit Name			Site Series
мі	Mine			N/A
SITE DESCRIPTION			SITE CHARA	ACTERISTICS
Mine sites are un-vegetated areas used for the purp mapped in the study area, some of which were limest	oose of extracting mineral ore or other materials. Mine one quarries.	e sites were	Elevation (m):	Variable
			Slope (%):	Variable
			Aspect (°):	Variable
			Surficial material:	Α
			Drainage:	n/a
			SMR:	n/a



Plots: JCV023

n/a

SNR:

TEM Map Code	Site Unit Name			Site Series
ми	Mudflat Sediment			N/A
SITE DESCRIPTION			SITE CHAR	ACTERISTICS
•	d by fine textured sediments. These areas were mannel sediment located at the mouth of a creek as the	•	Elevation (m):	Variable
saltwater bays.		-	Slope (%):	Variable
			Aspect (°):	Variable
			Surficial material:	n/a
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a
No photo available	Plots: N/A			

TEM Map Code	Site Unit Name	Site Series
ow	Shallow Open Water	N/A

SITE DESCRIPTION	SITE CHARA	ACTERISTICS
Shallow open water is a wetland class composed of permanent, shallow (less than 2 m at midsummer levels), standing water that has less than 10% surface cover of emergent vegetation (plants rooted in the bottom). Open water with	Elevation (m):	Variable
more than 10% surface cover of emergent vegetation are classified as marsh wetlands. Open water is typically a minor	Slope (%):	0
polygon component in association with other non-forested wetlands such as marsh ecosystems (e.g. Wm05 & Wm06) and swamp forests (Cw-Skunk cabbage (11) and Cw-Slough sedge (14)).	Aspect (°):	999
and one in proceed (on one and one one one of the one o	Surficial material:	n/a
	Drainage:	n/a
	SMR:	n/a
	SNR:	n/a



Plots: DHV013, DHV039

TEM Map Code	Site Unit Name			Site Series
PD	Pond			N/A
SITE DESCRIPTION			SITE CHAR	ACTERISTICS
	eep yet smaller than lakes (less than 50 ha). Ponds a difficult to distinguish between natural ponds and		Elevation (m):	Variable
impoundments. Man-made impoundments were typic	ally mapped as reservoirs however berms & dykes we	re often not	Slope (%):	0
readily visible and left some doubt as to their origin. Ponds are a common feature throughout the rural residential areas and in association with cultivated fields.			Aspect (°):	999
and in association with cultivated notes.		Surficial material:	n/a	
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a
No photo available	Plots: N/A			

TEM Map Code	Site Unit Name			Site Series
RE	Reservoir			N/A
SITE DESCRIPTION			SITE CHAR	ACTERISTICS
A reservoir is an artificial basin created by the impour berm, dyke, or wall. As noted above, reservoirs			Elevation (m):	Variable
commonly occur throughout cultivated fields and rural residential areas.		Slope (%):	0	
			Aspect (°):	999
		Surficial material:	n/a	
		Drainage:	n/a	
			SMR:	n/a
			SNR:	n/a
No photo available	Plots: N/A			

TEM Map Code	Site Unit Name	Site Series
RI	River	N/A

IXI	Kivei			IN/ A
SITE DESCRIPTION			SITE CHARA	ACTERISTICS
1	iter, flowing toward the ocean, a lake, or another strea etely before reaching another body of water. The water		Elevation (m):	Variable
usually confined to a channel, made up of a stream	am bed between banks. Notable rivers include English	nman River,	Slope (%):	Variable
Chemainus River, Cowichan River and Koksilah River.			Aspect (°):	Variable
			Surficial material:	n/a
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a



TEM Map Code	Site Unit Name	Site Series
RN	Railway Surface	N/A
SITE DESCRIPTION		 SITE CHARACTERISTICS

Railway surface is a long, linear feature that is characterized by a level surface with fixed rails to carry trains. The Esquimalt and Nanaimo (E&N) railway dissects a portion of the mapping area on southeastern Vancouver Island. The E&N is a short line railway that runs from Victoria to Courtenay, with branch lines to Parksville and south of Nanaimo to the E&N's main railyard and barge slip (dock) on the Nanaimo waterfront.

he he he to Slope (%): Variable

Aspect (°): Variable

Surficial material: n/a

Drainage: n/a

SMR: n/a

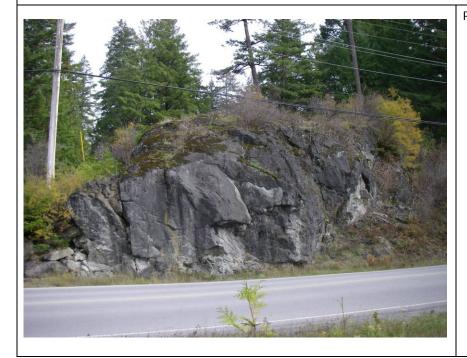
n/a

SNR:



TEM Map Code	Site Unit Name	Site Series
RO	Rock Outcrop	N/A

SITE DESCRIPTION	SITE CHARA	CTERISTICS
Rock outcrops are bedrock outcroppings with little soil development and sparse vegetation cover. Rock outcrops can be steep such as the one in the photo below or gentle such as those found along ridges. Often rock outcrops are associated	Elevation (m):	Variable
with dry 02 sites or QB and SC units. Most importantly SEI units classified as coastal bluffs were mapped as rock	Slope (%):	Variable
outcrops with aspect modifiers. These coastal rock outcrops begin at the waters edge and are exposed to salt spray and high winds.	Aspect (°):	Variable
riigit wiitus.	Surficial material:	R (Mvx)
	Drainage:	x-r
	SMR:	n/a
	CND.	n/a



Plots: CORV003, JCV086, JCV251, CHV261, JCG004, JCV008, JCV012, CXV034

TEM Map Code	Site Unit Name	Site Series
RW	Rural	N/A

1200	itai ai			14771
SITE DESCRIPTION			SITE CHARA	ACTERISTICS
,	sidences and other human development scattered and i ative vegetation. Rural areas are very common in the CD	J	Elevation (m):	Variable
form the dominant polygon component. Minor comp	oonents include cultivated fields, zonal forests and shru	bby riparian	Slope (%):	Variable
creek draws.			Aspect (°):	Variable
			Surficial material:	n/a
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a



Plots: JCV032B, DHV043, DHV058, HRV010, HRV012, WMG021

TEM Map Code	Site Unit Name	Site Series
RZ	Road Surface	N/A
SITE DESCRIPTION		SITE CHARACTERISTICS

SITE CHARACTERISTICS Road surfaces are defined as areas cleared and compacted for the use of vehicles. Road surfaces are linear features that Elevation (m): cross the landscape and occur in varying degrees. From small farms roads, to gravel forestry roads, to two-lane residential paved roads & highways and to main thoroughfares such as the Island highway (Hwy 1 & 19) with a Slope (%): significant portion being four-lanes. The Island highway was for the most part, pulled out and mapped as its own long, Aspect (°): narrow and continuous corridor. Other, lesser roads were not.

Variable Variable Surficial material: n/a Drainage: n/a SMR: n/a SNR: n/a

Variable



Plots: CHV098

TEM Map Code	Site Unit Name	Site Series
ТА	Talus	N/A

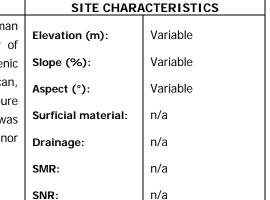
SITE DESCRIPTION SITE CHARACTERISTICS Talus is angular, colluvial rock fragments that have accumulated at the foot of steep rock slopes. Talus ecosystems are Elevation (m): Variable not a common feature of the CDFmm. Slope (%): Variable Variable Aspect (°): Surficial material: С Drainage: n/a SMR: n/a SNR: n/a



TEM Map Code	Site Unit Name			Site Series
тz	Mine Tailings			N/A
SITE DESCRIPTION			SITE CHARACTERISTICS	
Mine tailings are solid waste materials directly produced and deposited during the mining and milling of ore bodies. Mine tailings are not common however did occur on occasion.			Elevation (m):	Variable
For example, near Ladysmith there is an old site where coal was hauled in, then exported out. There is a thick layer of			Slope (%):	Variable
coal debris underneath with disturbed shrub vegetation.			Aspect (°):	Variable
			Surficial material:	n/a
			Drainage:	n/a
			SMR:	n/a
			SNR:	n/a
No photo available	Plots: N/A			

TEM Map Code	Site Unit Name	Site Series
UR	Urban	N/A

Urban units are characterized by an almost continuous covering over the landscape by residences and human development. The greater Victoria area is the most significant urban area mapped. Given the extensive cover of concrete and altered landscape, bioterrain labels were intended to reflect this by labeling urban polygons Anthroprogenic (A). Whereby the landform is man-modified and drainage is no longer applicable. Other urban areas occurred in Duncan, Crofton, Ladysmith, Nanaimo, Parksville, Qualicum and Powell River for example. Urban units most often formed pure polygons however sometimes patches of forest are present as a minor component (10%). For example the QB unit was most often found to occur in urban areas of Victoria and Saanich while the DS unit more often occurred as a minor component with urban centers up island.





SITE DESCRIPTION

Plots: JCV031, HRV137