

TERRESTRIAL ECOSYSTEM MAPPING OF THE CDFmm SUBZONE

Map sheets: 92B/023, 032, 033, 034, 043, 044, 053, 054, 062, 063, 064, 071, 072, 073, 074, 081, 082, 083, 084, 091, 092, 093, 094, 92F/020, 028, 029, 030, 037, 038, 039, 040, 047, 048, 049, 050, 056, 057, 058, 059, 060, 066, 067, 068, 069, 077, 078, 087, 088, 096, 097, 098, 92G/001, 002, 003, 011, 012, 021, 041, 051

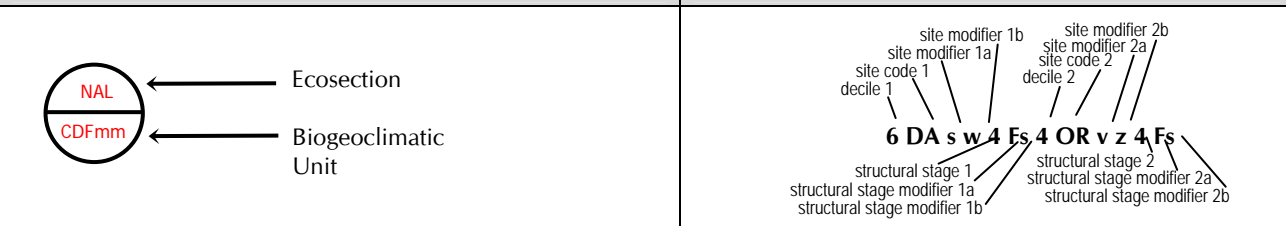
Scale 1: 20,000
June 2008

INTRODUCTION

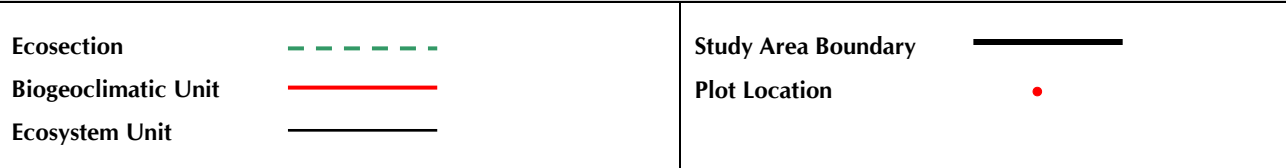
This project synthesizes results of bioterrain and terrestrial ecosystem mapping of the CDFmm biogeoclimatic subzone. The CDFmm occurs in south eastern BC, covering ecosystems along the eastern coastline of Vancouver Island, the southern Gulf Islands, parts of the Sunshine Coast and a portion of the Fraser Valley. On Vancouver Island, Deep Bay marks the northern extent of the CDFmm; Metchosin marks the southern boundary. From Deep Bay moving south, the subzone extends along the Strait of Georgia from sea level to an approximate elevation of 150m above sea level (asl) and includes the major centres of Nanaimo, Duncan and Victoria. The CDFmm covers or partially covers all of the Gulf Islands south of Cortes Island; including: Texada, Hornby, Denman, Lasqueti, Gabriola Galiano, Thetis, Kuper, Saltspring, North Pender, South Pender, Mayne, Saturna, Sidney and several smaller islets in between. Across the Strait of Georgia, the CDFmm covers portions of Lund, Powell River, Sechelt and the Fraser Valley for a total area of approximately 252,000 hectares.

Digital maps will aid interpretation for resource management and land use planning; identified wildlife habitat capability and suitability; and to collate a comprehensive baseline data set of attributes of interest for the CDFmm. A seamless database of polygon attributes and the associated bioterrain and ecosystem data, as well as other features and parameters of interest accompanies this legend. Mapping was completed following the methods outlined in Standard for Terrestrial Ecosystem Mapping in British Columbia¹. Field work was completed in 2007 and 2008 at a modified survey intensity level 5.

ECOSECTION & BIOGEOCLIMATIC UNITS



MAP SYMBOLS



Ecosections SGI: Southern Gulf Islands SGO: Strait of Georgia NAL: Nanaimo Lowland GEL: Georgia Lowland	Biogeoclimatic Units: CDFmm: Coastal Douglas-Fir zone, moist maritime subzone CWHxm1: Coastal Western Hemlock zone, very dry maritime subzone, eastern variant CWHxm2: Coastal Western Hemlock zone, very dry maritime subzone, western variant
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ECOSYSTEM UNITS

CDFmm

Site Code	Description	Site Series	Assumed Modifiers	Soil Moisture Regime	Mapped Modifiers
AS	Trembling aspen - Slough sedge	00	j, m	subhygric - subhydric	s
CD	Act - Red-osier dogwood	08	a, d, j, m	subhygric - hygric	n, s, t
CS	Cw - Slough sedge	14	d, j, m	subhydric	c, n, p, s, t, w
CW	Act - Willow	09	a, c, d, j	subhygric - hygric	

ECOSYSTEM UNITS					
CDFmm (continued)					
Site Code	Description	Site Series	Assumed Modifiers	Soil Moisture Regime	Mapped Modifiers
DA	FdPl - Arbutus	02	j, d, m, r	xeric	c, h, k, q, s, v, w, x, z
DG	FdBg - Oregon grape	04	d, j, m	subxeric - mesic	c, f, g, h, k, q, r, s, t, v, w, x, z
DO	Fd - Oniongrass	03	d, m, r	xeric	h, k, s, v, w, x
			d, j, m	subxeric - mesic	c, f, g, h, k, n, q, r, s, t, v, w, x, z
DS	Fd - Salal	01	j, m, s		c, d, h, k, n, v, w
FC	Fescue - Camas	00	j, m, r	subxeric	
GO	Garry Oak - Ocean Spray	00	j, m, v	xeric - submesic	s, v, w, z
LM	Dunegrass - Beach pea	00		submesic	c, w
LS	Pl - Sphagnum	10	d, j, p	subhydic	
OM	Garry Oak - Moss	00	j, v	xeric	k, v, w
OR	Oceanspray - Rose	00	m, s	mesic	w
			j, m, r	xeric - submesic	h, k, s, v, w, z
QB	Garry Oak - Brome/mixed grasses	00		subhydic	
RA	Nootka Rose - Pacific Crab Apple	00		subhydic	
RC	Cw - Skunk cabbage	11	d, j, m	subhydic	c, f, n, p, s, t
			d, j, m	subhydic - hygric	a, c, f, g, h, k, n, p, q, s, t, v, w, z
RF	CwBg - Foamflower	06	d, j, m	subhydic - hygric	c, g, h, k, n, r, s, t, v, w, x, y, z
RK	CwFd - Kindbergia	05	d, j, m	subhydic - hygric	z
RP	Cw - Indian-plum	13	a, d, j, m	hygric	c, h, k, n, p, s, t, w
RS	Cw - Snowberry	07		subhydic - hygric	g, k, s, t, w
RV	Cw - Vanilla-leaf	12	d, j, m	subhydic	c, h, n, p, s, v
SC	Cladina - Wallace's selaginella	00	j, m, r, v	subxeric	h, k, q, s, w, z
Ed01	Tufted hairgrass - Meadow barley	Ed01		subhydic - hydric	
Ed03	Arctic rush - Alaska plantain	Ed03		subhydic - hydric	
Em01	Widgeon-grass	Em01		hydric	
Em02	Glasswort - Sea milkwort	Em02		subhydic - hydric	
Em03	Seashore saltgrass	Em03		subhydic - hydric	
Em05	Lyngbye's sedge	Em05		subhydic - hydric	
Wb50	Labrador tea - Bog-laurel - Peat-moss	Wb50		subhydic	
Wf51	Sitka sedge - Peat-moss	Wf51		subhydic	p
Wf52	Sweet gale - Sitka sedge	Wf52		subhydic	p
Wf53	Slender sedge - White beak-rush	Wf53		subhydic - hydric	d, s
Wm05	Cattail	Wm05		hydric	p
Wm06	Great bulrush	Wm06		hydric	
Wm50	Sitka sedge - Hemlock -parsley	Wm50		subhydic - hydric	
Wm51	Three-way sedge	Wm51		hydric	
Ws50	Hardhack (pink spirea) - Sitka sedge	Ws50		subhydic - hydric	p, s
Ws51	Sitka willow - Pacific willow -Skunk cabbage	Ws51		subhydic - hydric	p
Ws52	Red alder - Skunk cabbage	Ws52		subhydic - hydric	

CWHxm					
Site Code	Description	Site Series	Assumed Modifiers	Soil Moisture Regime	Mapped Modifiers
AM	Arbutus-Hairy manzanita	00	j, r, s	xeric	v, w, z
CS	Cw-Slough sedge	15	d, j, m a, c, d, j	subhydryc subhydryc	
CW	Act-Willow (Fl50-Sitka willow-False lily-of-the-valley)	10		- hydryc	
DC	FdPl-Cladina	02	j, m, r, s d, j, m	very xeric	h, k, s, v, w, z
DF	Fd-Sword fern	04		xeric - subxeric	h, k, q, s, v, w, z
DS	FdHw-Salal	03	d, m, w	xeric - subxeric	h, j, k, q, r, s, v, x, y, z
FC	Fescue-Common camas	00	j, r, s d, j, m	xeric subhydryc	
HD	HwCw-Deer fern	06		- hydryc	h, k, s, v, w
HK	HwFd-Kindbergia	01	d, j, m	submesic - mesic	h, k, q, r, s, v, w, x, z
QB	Garry Oak - Brome/mixed grasses	00	j, m, r	xeric - submesic	
RB	Cw-Salmonberry	13	d, j, m	subhydryc	h, k, s, v
RC	CwSs-Skunk cabbage (Ws53-Cw-Sword fern-Skunk cabbage)	12	d, j, m d, j, m	subhydryc subhydryc	p, s
RF	Cw-Foamflower	07	d, m	- hydryc submesic	h, k, s, w h, j, k, q, s, v, w, x
RS	Cw-Sword fern	05		- mesic	w, x
RT	Cw-Black twinberry	14	d, j, m	hydryc	s
SC	Cladina - Wallace's selaginella	00	j, m, r, v a, d, j, m	subxeric subhydryc	
SS	Ss-Salmonberry	08		- hydryc	
Wb50	Labrador tea - Bog-laurel -Peat-moss	Wb50		subhydryc	
Wf53	Slender sedge - White beak-rush	Wf53		- hydric	
Ws50	Hardhack (pink spirea) - Sitka sedge	Ws50		subhydryc - hydric	
Ws51	Sitka willow-Pacific willow-Skunk cabbage	Ws51		subhydryc - hydric	

Non-Vegetated / Sparsely Vegetated / Anthropogenic

Site Code	Description
BE	Beach
CF	Cultivated Field
CL	Cliff
CO	Cultivated Orchard
CV	Cultivated Vineyard
DM	Dam
ES	Exposed Soil
GB	Gravel Bar
GC	Golf Course
GP	Gravel Pit
IN	Industrial
LA	Lake
MI	Mine
MU	Mudflat Sediment
OW	Shallow Open Water
PD	Pond
RE	Reservoir
RI	River
RN	Railway Surface
RO	Rock Outcrop
RZ	Road Surface
RW	Rural
TA	Talus
TZ	Mine Tailings
UR	Urban/ Suburban

SITE MODIFIERS	
Code	Topography
a	active floodplain ¹ : level or very gently sloping area bordering a river that has been formed by river erosion and deposition, with evidence of active sedimentation and deposition
g	gullying ¹ : occurs within a gully, or with gullying throughout the delineated area
h	hummocky ¹ terrain: indicated by the terrain surface expression
j	gentle slope: < 35% in the CWH and CDF zones
k	cool aspect: occurs on aspects 285°–135°, on moderately steep slopes (35%–100% in the CWH and CDF)
n	fan ¹ : occurs on a fluvial fan or on a colluvial fan or cone
q	very steep cool aspect–very steep slopes (< 100%) with aspects 285°–135°
r	ridge ¹ : occurs throughout an area of ridged terrain, or on a ridge crest
t	terrace ¹ : occurs on a fluvial, glaciofluvial, lacustrine, or rock cut terrace
w	warm aspect: 135°–285°, on moderately steep slopes (35%–100% slope in the CWH and CDF zones)
z	very steep warm aspect –slopes > 100% on aspects 135°–285°
Code	Soil
x	drier than typical
y	moister than typical
c	coarse-textured soils ² : sand and loamy sand, and sandy loam, loam, and sandy clay loam with > 70% coarse fragment volume
d	deep soil: > 100 cm to bedrock
f	fine-textured soils ² : silt and silt loam with < 20% coarse fragment volume; and clay, silty clay, silty clay loam, clay loam, sandy clay, and heavy clay with < 35% coarse fragment volume
p	peaty: on deep organics or a peaty surface (15–60 cm) ³ over mineral materials
s	shallow soils: 20–100 cm to bedrock
v	very shallow soils: < 20 cm to bedrock
STRUCTURAL STAGE	
Code	Structural Stage ¹
1	Sparse (1a) bare rock or ground / bryoid (1b) bryophytes and lichens dominant, may reflect recent disturbance
2	Herb some invading or residual shrubs and trees may be present, may reflect recent disturbance
	Forb-dominated (2a) / Graminoid-dominated (2b) / Aquatic (2c) / Dwarf shrub (2d)
3	Shrub Early successional stage or maintained by environmental conditions or disturbance
	Low shrub (3a) < 2 m tall / Tall shrub (3a) 2–10 m tall
4	Pole/Sapling Trees > 10 m tall, often densely stocked, no vertical canopy structure, typically < 40 years since disturbance
5	Young Forest Self-thinning and canopy differentiation initiated, typically 40–80 years since disturbance
6	Mature Forest Mature tree canopy, typically 80–250 years since disturbance
7	Old Forest Structurally complex stands comprised mainly of shade-tolerant and regenerating tree species; snags and coarse woody debris and patchy understories, typically > 250 years since disturbance.

DISTURBANCE MODIFIERS				
B	Biotic Disturbances	F	Fire disturbances	
b	<ul style="list-style-type: none"> ▪ Beaver tree cutting ▪ Domestic grazing/browsing ▪ Wildlife grazing/browsing ▪ Insects <ul style="list-style-type: none"> ⇒ Insect kill ⇒ Infestation ▪ Disease ▪ Aggressive vegetation 	c	<ul style="list-style-type: none"> ▪ overstorey crown fire ▪ light surface (ground) fire ▪ repeated light surface fires ▪ severe surface fire ▪ repeated severe surface fires ▪ slash burning <ul style="list-style-type: none"> ⇒ broadcast burn ⇒ piled and burned ⇒ burned windrows 	
d				
w				
k				
		ki		
		in		
p		bb		
v		pb		
		wb		
L	Forest Harvesting	L	Forest Harvesting	
a	<ul style="list-style-type: none"> ▪ patch cut system <ul style="list-style-type: none"> ⇒ with reserves ▪ clearcut system <ul style="list-style-type: none"> ⇒ with reserves (patch retention) ▪ seed tree system <ul style="list-style-type: none"> ⇒ uniform ⇒ grouped 	e	<ul style="list-style-type: none"> ▪ selection system <ul style="list-style-type: none"> ⇒ group selection ⇒ single tree ⇒ strip ▪ land clearing ▪ Shelterwood system <ul style="list-style-type: none"> ⇒ Uniform ⇒ Group ⇒ Strip ⇒ Irregular 	
		wr		gr
c				si
		wr		st
d				l
		un		s
	gr	un		
		gr		
		st		
		ir		

DATA SOURCES

This mapping project is based on a mix of monochrome and colour stereo aerial photography provided by the ILMB and the Islands Trust Fund. Airphotos ranged in scale from 1:8500 to 1:25000; photo age ranged from 1980 to 2007. Base map data is from Terrain Resource Inventory Mapping (TRIM) and provided by the Integrated Land Management Bureau (ILMB). A total of 9% polygon inspection was achieved. 78 full plots, 399 ground inspections and 985 visual checks were completed.

CREDITS

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Funding:	Integrated Land Management Bureau, The Islands Trust Fund, Bulkley Valley Centre

LITERATURE CITED

¹Resources Inventory Committee [RIC]. 1998. Standard for terrestrial ecosystem mapping in British Columbia. Ecosystems Working Group, Terrestrial Ecosystems Task Force, Resources Inventory Committee. Vancouver, B.C. 100 pp.

²Howes, D.E. and E. Kenk (contributing eds.). 1997. Terrain classification system for British Columbia. V.2. Resource Inventory Branch, Min. Env., Lands and Parks. MOE Manual 10. Victoria, B.C. 99 pp.

³Soil Classification Working Group. 1998. The Canadian System of Soil Classification. Agric. and Agri-Food Can. Publ. 1646 (Revised) 187 pp. NRC Research Press, Ottawa, Ont.