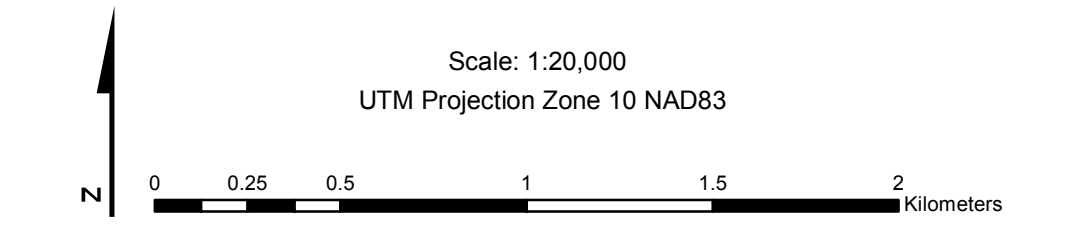


Valdes Island Sensitive Ecosystem Mapping Airphoto - 2007



Sensitive and Terrestrial Ecosystems Label

50513*	50514	50517*	50523*	50524	50535	50536*
50537	50539*	50541*	50543	50547*	50548*	50551
50552	50553	50561	50564	50565	50572	50574
50575	50576	50582	50587	50589	50597	50601
50602	50603	50607	50609	50614	50616	50618
50622	50623	50624	50632	50634	50635	
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50666	50668	50669	50670	50674	50683	50688
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50708	50713	50718	50720	50724	50726*	50729
50732	50733	50737	50739	50748	50751	50752*
50758	50760*	50761	50765	50766*	50767	50773
50775	50777	50778	50781	50783	50784	50785
50787	50789	50790*	50791	50793	50794	50795
50799	50800	50802	50803	50805	50806	50807
50808	50811	50812	50813	50816	50816	50817
50818	50820	50821*	50822	50823	50825	50827
50830	50831	50832	50834	50835	50836	50838
50840	50842	50845	50848	50850	50856	51122
51133	51137*	51138	51139*	51162	51166	51168
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51189	51190	51191	51192	51193	51194	51196
51196	51197	51198	51199	51200	51201	51202
51203	51204	51205	51206	51207	51212	51213
51214	51215	51216	51217	51218	51219	51220
51230						



Sensitive Ecosystems

Sensitive ecosystems are fragile and/or rare, or are ecologically important because of the diversity of species they support.

Old Forest (OF):	Primary Ecosystem	Secondary	Tertiary
Definition: Conifer-dominated dry to moist forest types, structural stage 7, generally >250y.			
Importance: Due to the lack of disturbance, old forest ecosystems are often associated with rich communities of plants and animals that may be dependent upon the unique environmental conditions created by these forests.			
Subclasses: ca (conifer-dominated) - greater than 75% coniferous species mx (mixed conifer and deciduous) - forests dominated with a mixture of coniferous and broadleaf trees (>75% coniferous and >25% broadleaf)			
Woodland (WD):	Primary Ecosystem	Secondary	Tertiary
Definition: Dry open forests, generally between 10 and 30% tree cover. Can be conifer-dominated or mixed conifer and arbutus stands. Because of open canopy, will include non-forested openings, often with shallow soils and bedrock outcroppings.			
Importance: Woodlands are naturally, provincially and regionally rare and highly fragmented. A rich assemblage of plants, insects, reptiles and birds are drawn to these ecosystems due to the food sources, habitat and proximity to the ocean. Dry oak woodlands, for example support the highest plant species diversity of any terrestrial ecosystem in British Columbia and are especially vulnerable to rural development.			
Subclasses: bd (broadleaf) - dominant broadleaf with <15% coniferous species mx (mixed conifer and deciduous) - mixed conifer and broadleaf with a minimum of 25% cover of either group is included in the total tree cover			
Herbaceous (HB):	Primary Ecosystem	Secondary	Tertiary
Definition: Non-forested ecosystems (less than 10% tree cover), generally with shallow soils. They include bedrock outcroppings, large openings within forested areas, silt, dunes and shrublands vegetated with grasses and forbs.			
Importance: Terrestrial Herbaceous ecosystems are characterized by thin soils which are easily disturbed. Herbaceous plants can be easily trampled or dislodged onto bare rock where they cannot re-establish. Thus they are highly vulnerable to a range of human disturbance factors including residential development and various recreational uses.			
Subclasses: hb (herbaceous) - non-forested, less than 10% tree cover, generally shallow soils, often with exposed bedrock, predominantly a mix of grasses and forbs, also lichens and mosses ca (coastal herbaceous) - rocky shoreline or silt, influenced by the marine environment and characterized by less than 20% vegetation cover of grasses, herbs, mosses and lichens sp (spit) - fringe-like extension of beach, comprised of sand or gravel deposited by longshore drifting, low to moderate cover of salt-tolerant grasses and forbs du (dunes) - ridge or hill, or beach area created by windblown sand; may be more or less vegetated depending on depositional activity, beach dunes will have low cover of salt-tolerant grasses and herbs sh (shrub) - >20% of total vegetation cover is shrub cover, with grasses and herbs ro (rock) - rock outcrops not dominated by shrubs			
Riparian (RI):	Primary Ecosystem	Secondary	Tertiary
Definition: Areas adjacent to water bodies (rivers, lakes, ocean wetlands) which are influenced by factors such as erosion, sedimentation, flooding and/or subterranean irrigation due to proximity to the water body. Structural stages 1-7.			
Importance: Riparian ecosystems support a disproportionately high number of vascular plant, moss, amphibian and small mammal species for the area they occupy.			
Subclasses: f (low bank floodplain) - flooded at least every other year for moderate periods of growing season; plant species adapted to flooding and abrasion, low or tall shrubs most common fm (medium bank floodplain) - flooded every 1-4 years for short periods (10-25 days); deciduous or mixed forest dominated by species tolerant of flooding and periodic sedimentation; trees occur on elevated microsites fh (high bank floodplain) - only periodically and irregularly flooded by high waters, but highly subsurface flow in the flooding zone; typically conifer-dominated floodplains of larger coastal rivers ri (river) - narrow linear communities along with open water bodies (rivers, lakes and ponds) where there is no floodplain, irregular flooding (bank erosion) - watercourse is within a steep sided V-shaped gully rl (river) - watercourse is large enough to represent >10% of the polygon sn (shrub) - shrub-dominated floodplain or laterozone			
Wetland (WN):	Primary Ecosystem	Secondary	Tertiary
Definition: Areas that are saturated or inundated with water for long enough periods of time to develop vegetation. This may result from flooding, infiltrating water tables, tidal influences or poor drainage conditions.			
Importance: Wetland ecosystems are sensitive and important because they exhibit early, high biodiversity, fragility, specialized habitat, specialized functions and connectivity.			
Subclasses: bg (bog) - nutrient poor wetland, on organic soils (sphagnum peat), water source predominantly from precipitation; may be teed or shrub dominated fn (fen) - nutrient medium wetland (edge peat) where ground water inflow is the dominant water source, open water channels dominated by sedges, grasses and mosses mx (marsh) - wetland with fluctuating water table, often with shallow surface water; usually organically enriched mineral soils, dominated by rushes, reeds, grasses and sedges sp (swamp) - poor to very rich wetland on mineral soils or with an organic layer over mineral soil, with gently flowing or seasonally flooding water table; woody vegetation sw (shallow water) - standing or flowing water less than 2m deep, transition between deep water bodies and other wetland ecosystems (i.e. bogs, swamps, fens, etc.) often with vegetation rooted below the water surface wet (wet meadow) - periodically saturated but not inundated with water; organically enriched mineral soils; grasses, sedges, rushes and forbs dominate			
Cliff (CL):	Primary Ecosystem	Secondary	Tertiary
Definition: Very steep slope, often exposed bedrock, may include steep-sided sand duffs.			
Importance: Open ledges and horizontal fissures on cliffs are known to provide nesting sites. Cliff crevices are used for roosting bats while bird crevices are used for shelter and overwintering of snakes and lizards.			
Subclasses: ce (coastal cliffs) - cliffs with a marine influence, generally near vertical bedrock with accumulation of soil limited to fissures and ledges ie (inland cliffs) - inland cliffs, typically formed as a result of erosion, catastrophic failure or mass wasting. Generally characterized by rapid drainage and the accumulation of soil that is limited to bedrock fissures and ledges			
Freshwater (FW):	Primary Ecosystem	Secondary	Tertiary
Definition: Freshwater ecosystem includes bodies of water such as lakes and ponds that usually lack floating vegetation.			
Importance: Freshwater ecosystems are home to numerous organisms such as, fish, amphibians, aquatic plants, and invertebrates.			
Subclasses: Lakes and ponds play a vital role in the lifecycle of many species. la (lake) - naturally occurring static body of water, greater than 2m deep in some portion pd (pond) - a small body of water greater than 2m deep, but not large enough to be classified as a lake			

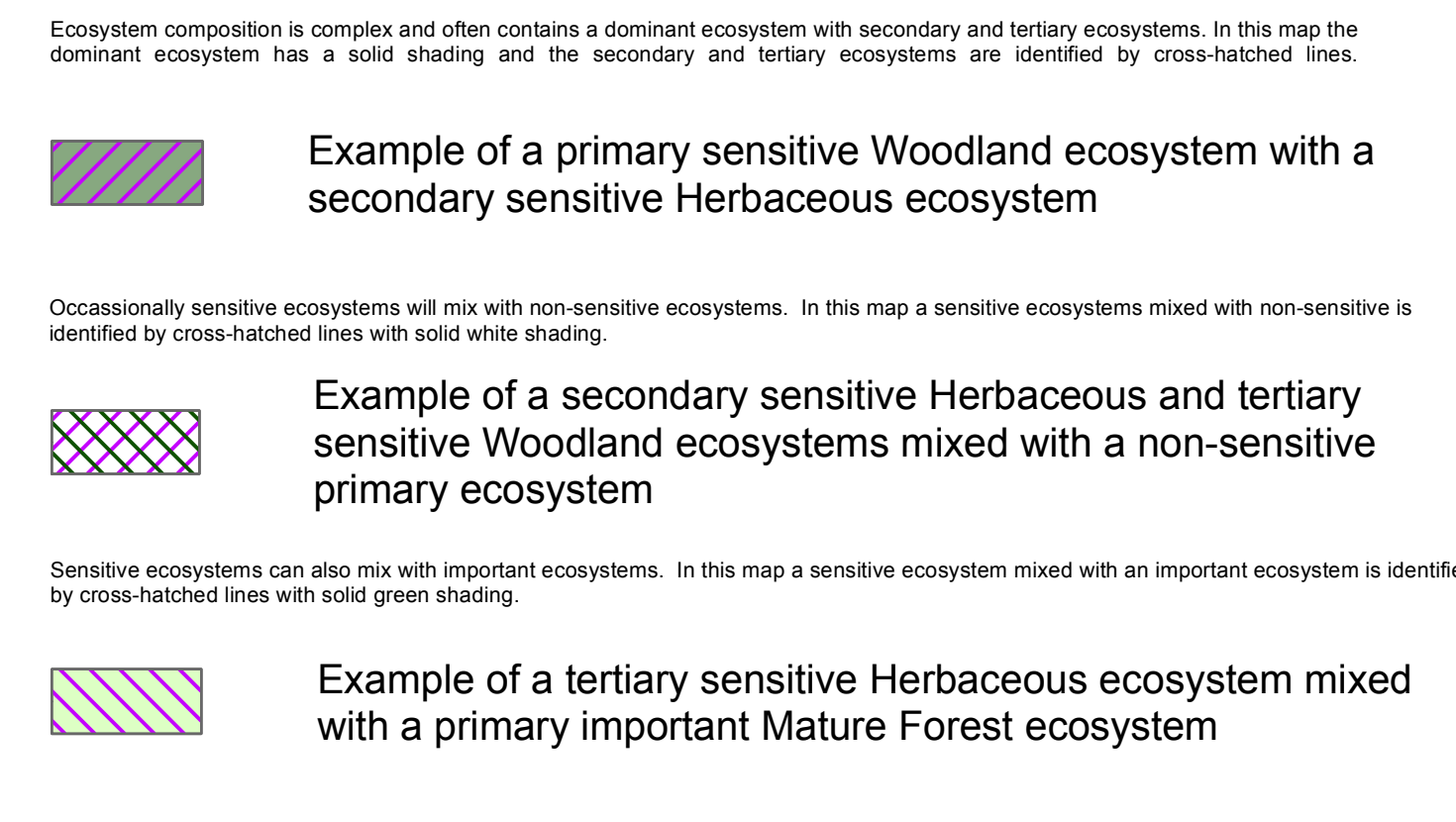
Rare Ecosystems

Mature Forest (MF):	Primary Ecosystem	Secondary	Tertiary
Definition: Usually conifer-dominated, occasionally deciduous, dry to moist forest types, structural stage 6, generally <80y.			
Importance: Future old forest: Within 20 years, many mature forests that were logged early in this century will become Older Forests. The biodiversity value of Mature Forests generally becomes higher with age. This means it will be able to sustain more and larger species of plants and animals.			
Landscap connectivity: Mature Forest stands provide connections between other natural areas that promote the movement and dispersal of many forest-dwelling species across the landscape.			
Buffers: Mature Forest can minimize disturbance to sensitive ecosystems that occur within or adjacent to the forest patch. Where they border or surround wetlands, patches of older forest or other sensitive ecosystems, the Mature Forest area serves an important role in buffering the adjacent sensitive areas.			
Subclasses: ca (conifer dominated) - greater than 75% coniferous species mx (mixed conifer and deciduous) - a minimum of 25% cover of either group is included in the total tree cover bd (broadleaf) - greater than 75% broadleaf species			

Other Mapped Ecosystems

Young Forest (YF):
Definition: Limited to areas of young forest dispersed amongst sensitive and important ecosystems. Forest is 40 - 80 yrs old depending on species and ecological conditions; canopy has begun to differentiate.
Seasonally Flooded Agricultural Fields (SF):
Definition: Limited to areas of annually flooded cultivated fields or hay fields dispersed amongst sensitive and important ecosystems.
Non-Sensitive (NA):
Definition: Limited to areas of disturbance or human impact dispersed amongst sensitive and important ecosystems.

Ecosystem Map Symbols



What is a Sensitive Ecosystem?

For the purpose of this study, an ecosystem is considered to be a portion of the landscape with relatively uniform dominant vegetation.

Sensitive ecosystems are those which are fragile and/or rare, or those ecosystems which are ecologically important because of the diversity of species they support.

Rationale

Intense development pressure fueled by population and economic growth has fragmented and degraded many terrestrial ecosystems. A high proportion of these ecosystems are now designated as 'at risk' in BC. Sensitive ecosystems typically have high biological diversity and are a vital part of the landscape. They provide ecosystem services for a healthy economy and for social well-being. They regulate climate, clean water, generate and clean soils, recycle nutrients and pollinate our crops. To protect these areas, sensitive ecosystems must be located, identified and mapped. From 1993 to 1999 the Provincial and Federal Governments completed a Sensitive Ecosystems Inventory of East Vancouver Island and the Gulf Islands. This mapping product is an updated version of that product.

Purpose

The purpose of this Sensitive Ecosystems map is to identify the location of sensitive ecosystems. The goal of this mapping exercise is to encourage informed and use decisions that will conserve sensitive ecosystems. This map and the accompanying data provide site-specific ecological information that can be used to flag areas of conservation concern, to promote land stewardship and to prompt detailed field surveys and consideration of ecological values before changes to the land are initiated.

Methodology

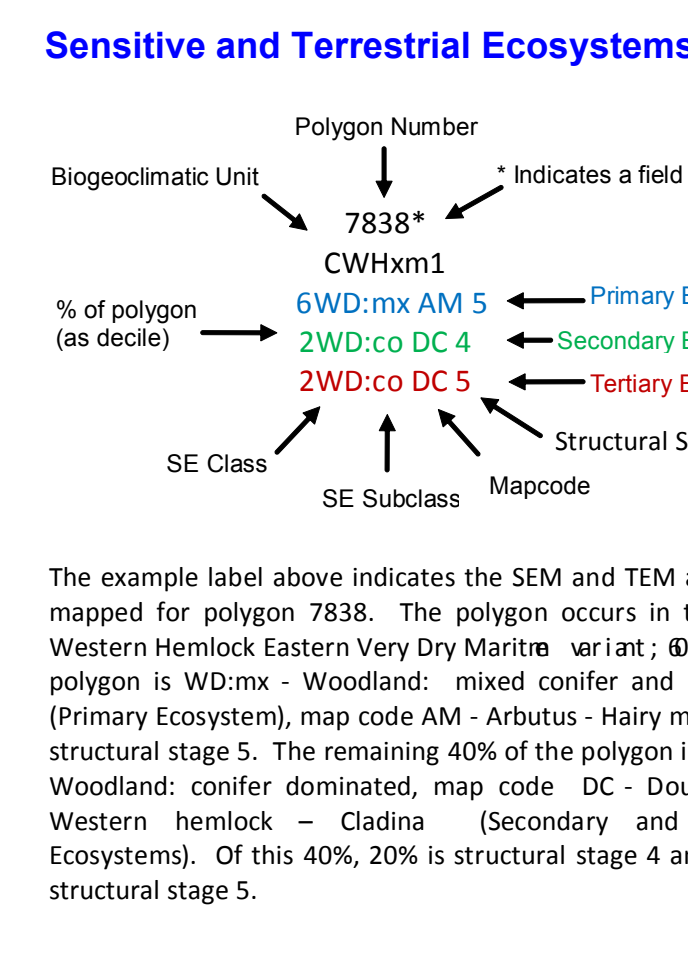
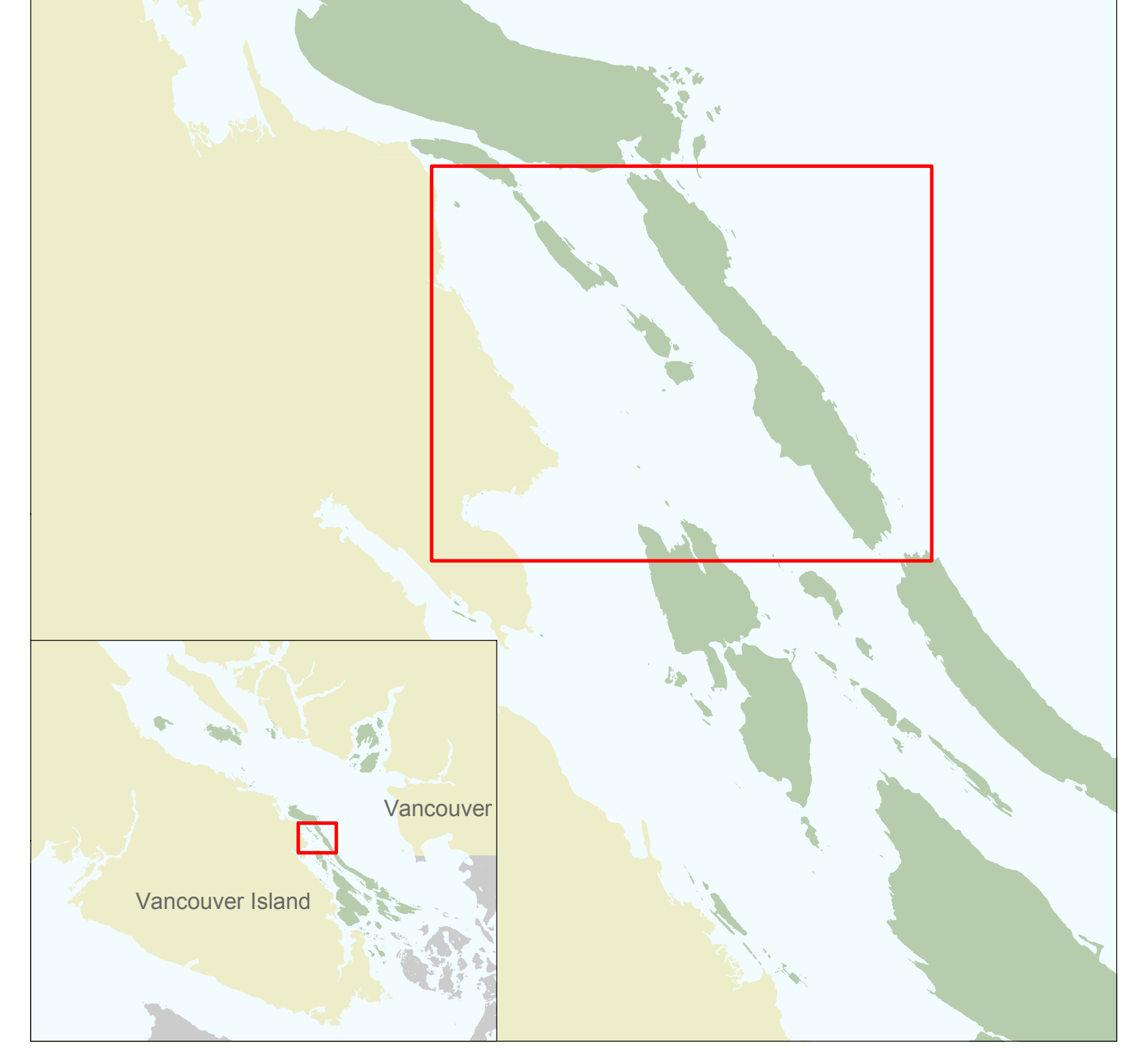
Sensitive Ecosystems are based on the Resource Information Standards Committee (RISC) Standard for Terrestrial Ecosystem Mapping (TEM) in BC. This Sensitive Ecosystems map was created from TEM data using the RISC Standard for Mapping Ecosystems at Risk in BC. Field survey protocols followed 'Describing Terrestrial Ecosystems in the Field' (RISC 1998).

Structural Stage & Biogeoclimatic Units

Structural Stage	Descriptor
0	No Structural Stage (usually rock or open water)
1	Sparse/bryoid
2	Herb
3	Shrub/Herb
4	Pole/Sapling
5	Young Forest
6	Mature Forest
7	Old Forest
Biogeoclimatic Units	Descriptor
CDfmm	Coastal Douglas-fir
MRfmm	Maritime Sbc

Terrestrial Ecosystem Map Codes and Site Unit Names

Map Code	Site Unit Name	Map Code	Site Unit Name	Map Code	Site Unit Name	Map Code	Site Unit Name
CDfmm	Forest	AS	Aspen - Slough sedge	E01	Tufted hairgrass - Meadow barley estuarine meadow	WR1	Silka sedge - Peat moss fen
CS	Western redcedar - Slough sedge	EM02	Glasswort - Meadow barley estuarine marsh	WR2	Sweet gale - Silka sedge fen	RE	Reservoir
OW	Black cottonwood - willow	EM03	Sea purslane saltgrass	WR3	Slender sedge - White beak rush fen	RW	Rural residential
DA	Douglas fir - Shore Pine - Arbutus	EM05	Lynx's sedge estuarine marsh	WR05	Cattail marsh	RZ	Road surface
DD	Douglas fir - Grand Fir - Oregon Grape	FC	Fescue - Carnes	WR0	Silka sedge - Heritock patchy marsh	LR	Urban
DO	Douglas fir - Oregongrass	HL	Heritock - Labrador tea	Wd0	Pink sedge - Silka sedge swamp	Map Code	Site Unit Name
DS	Douglas fir - Salal	LM	Dune grass - Beach pea	Wd1	Silka willow - Pacific willow - Skunk cabbage swamp	BE	Beach
GO	Garry oak - Ocean spray	OM	Garry oak - moss			Map Code	Site Unit Name
LS	Slaw pine - Sitka spruce	OR	Ocean spray - rose			CL	Cliff
RC	Western redcedar - Skunk cabbage	CF	Cultivated field			LA	Lake
RF	Western redcedar - Grand Fir - Fireweed	RA	North rose - Pacific crab apple	CO	Cultivated orchard	OW	Open water (< 2m deep)
RP	Western redcedar - Douglas fir - Oregon beaked moss	SC	Cladonia - Wallrock's selaginia	ES	Exposed soil	PD	Pond (> 2m deep)
RR	Western redcedar - Inoparyium	SL	Sedge - Western liliopsis	GC	Golf course	RI	River
RS	Western redcedar - Snowberry	SS	Silka - Sedge wetland	GP	Gravel pit	RO	Rock outcrop
RV	Western redcedar - Vanilla leaf	W00	Labrador tea - Bog laurel - Peat moss bog	IN	Industrial		



The example label above indicates the SEM and TEM attributes of a mapped for polygon 7838. The polygon occurs in the Coast Western Hemlock Eastern Very Dry Marine wetland, 6% of the polygon is WDCm - Woodland: mixed conifer and broadleaf (Primary Ecosystem), map code AM - Arbutus - Hairy manzanita, structural stage 5. The remaining 40% of the polygon is WD-co-Woodland: conifer dominated, map code DC - Douglas-fir - Western hemlock - Cladonia (Secondary and Tertiary 3 Ecosystems). Of this 40%, 20% is structural stage 4 and 20% is structural stage 5.