

## Sensitive Ecosystem Inventory of Comox Valley Region Attribute Definitions April, 2014

**Table 1.** Polygon attribute fields added to the SEI database in Version 3 to accommodate 2014 disturbance digitizing information.

Field Name	Description
MAPSHEET_5K	The number of the 1:5,000 map sheet grid that overlays the polygon. Values were concatenated when polygon was intersected by multiple map sheet grids.
ID_2003	The polygon ID of the parent polygon from the SEI Version 2 - where a Version 2 polygon was split into two or more polygons in Version 3 to reflect disturbance. The ID_2003 values are not unique. This field allows identification of the Version 2 polygons that were modified by disturbance in Version 3.
MOD_TYPE2	<p>Type of modification made to the SEI polygon. The following code values are present for completed polygon assessments:</p> <p><b>N</b> = No disturbance identified; SEI polygons that are unchanged since the Version 2 assessment will have this value.</p> <p><b>DD</b> = Deleted due to disturbance; the ecosystem is considered no longer viable. Polygons are not physically deleted from the database. This flag functionally toggles the polygon on/off based on the temporal scenario being mapped.</p> <p><b>DF</b> = Deleted due to fragmentation; greater than 25% of the polygon has been fragmented by disturbances too small to be mapped individually. The ecosystem is considered no longer viable.</p> <p><b>DR</b> = Deleted due to remnant assessment; a polygon has been reduced in size due to disturbance, and the remaining ecosystem is deemed no longer viable.</p> <p><b>R</b> = Reduced; some portion of this polygon has been deleted due to disturbance, thus reducing the size of the intact ecosystem. The ecosystem is impacted but likely still viable.</p> <p><b>F</b> = Fragmented; disturbance areas are too small to digitize or are spread throughout a larger polygon and cannot be differentiated. The ecosystem is impacted but likely still viable.</p> <p><b>I</b> = Reinterpretation; a change was made in the ecosystem classification for the polygon.</p>

	<p><b>A</b> = Addition; a new ecosystem identified as part of the Version 3 assessment.</p> <p>Note that the codes A, R, F and I may be used in combination (e.g., RF indicates Reduced and Fragmented; a remaining portion of an ecosystem after disturbed areas are deleted has also been fragmented by smaller disturbances).</p>
ACCUM_MODTYPE	Displays the cumulative modification types from Version 2 and 3. For example, 'F_N' indicates that the polygon was Fragmented in Version 2 and no change was recorded in Version 3.
DIST_TYPE2	Disturbance type which caused the deletion of the polygon or portion of the polygon. Disturbance in Version 3 was recorded as one of two types: either Cleared/Logged or Developed.
DIST_COMM2	Description of the disturbance; used when some explanation is necessary or to provide further detail.
DIST_FRAG2	<p>Disturbance fragmentation; when disturbance areas are too small to digitize, an existing SEI polygon is classified with the degree of fragmentation</p> <ul style="list-style-type: none"> <li>• &lt; 6%</li> <li>• 6 – 25%</li> <li>• &gt; 25%; polygon will be assigned a 'DF' (deleted) attribute in the MOD_TYPE2 field if disturbance exceeds 25%</li> </ul> <p>*Note that an assessment of the degree of fragmentation to polygons was not undertaken in Version 3; polygons were not classified with the degree of fragmentation (&lt;6%, 6-25%) in Version 3. Polygons with &gt;25% fragmentation are marked for deletion.</p>
REV3_REGION	<p>Updated from 1997-2003 field 'REGION' (study area sub-division) because of changes to regional district boundaries since 1997-2003; do not use for data analysis. If a region boundary intersected a polygon the region was identified by polygon centroid. Possible values:</p> <p>NANAIMO STRATHCONA COMOXVALLEY</p>
REV3_SUBUNIT	<p>Updated from 1997-2003 field 'SUBUNIT' because of changes to regional district boundaries since 1997-2003. Possible values:</p> <p>NANAIMO-VI STRATHCONA-VI COMOXVALLEY-VI</p>
REV3_SCALE	Scale of the air photos used in Version 3 (1:10,000).
REV3_DATE	Date of the air photos used in Version 3 to digitize polygons. This date will be August 2012 except a few areas in the north of the project area where 2007 air photos were used because 2012 imagery was not available.

FLAG_2014	Polygons needing to be field checked were given a 'Y' code. These polygons included modification types of R, F or A and any polygons that were overlapped by wetland or terrestrial herbaceous ecosystems displayed in reference layers.
FLD_CHECK2	Indicates that site has been visited. This field allows for * to be added in future if field check is completed
CODE2	Two-letter ecosystem abbreviation used for thematic mapping. This value is the first two letters of the ECOSYSTEM1 field. In Version 3, the MOD_TYPE2 code of DD, DR or DF was entered where that polygon had been deleted due to disturbance.

**Table 2.** Existing polygon attribute fields in the SEI database that were updated in Version 3 to reflect the fact that modifications have been made.

Field Name	Field Created (Year)	Description
POLYGON_ID	1997	Unique identification number. The letter prefix refers to the preliminary study area sub-divisions and should not be used for data analysis by sub-unit, use the "Ecoregion" field instead. Numbers with different letter suffixes do not indicate association with polygons containing same number. (i.e. N0034A is not associated with N0034B). Where "-R1", "-R2", etc. are appended, this denotes that a given Version 1 polygon has been spatially modified (e.g., split due to disturbance). Where '.#' is added to '-R#' e.g. S1279-R2.1, this denotes that a polygon which was spatially modified in Version 2 has been spatially modified again in Version 3. For polygons that were spatially modified in Version 3 but not in Version 2, an '-R0' is appended and then a '#.' e.g. S65012-R0.1.
VERSION	1997	Database version (3).
MAPSHEET	1997	TRIM map sheet number on which the polygon is located
HECTARES	1997	Total area of the polygon in hectares, calculated digitally
ECOSYSTEM1	1997	Version 3 primary ecosystem code. For a complete list of ecosystem values and their interpretations, see Table 4 below.
ECOSYSTEM2	1997	Version 3 secondary ecosystem code. For a complete list of ecosystem values and their interpretations, see Table 4 below.

**Table 3.** Core TEM polygon and project attributes added to the SEI database in Version 3.

Field Name	Description
Year_Surv	The year (yyyy) in which the ecosystem mapping for the project is completed (2014).
Date_Rec	The date (yyyy-mm-dd) project and polygon data is entered into the database.
Eco_Map	The person (M. Jones) who originally captured the Terrestrial Ecosystem Mapping data.
Dig_Cap	The public or private-sector individual or organization responsible for digital data capture. Possible values: 'Original Data Capture: CVLT'; 'Original Data Capture: Axys Environmental Consulting, Second Revision: CVLT' or 'Original Data Capture: Integrated Mapping Technologies, First Revision: Axys Environmental Consulting, Second Revision: CVLT'
Proj_Com	Used to describe the sequence of mapping. Possible values: 'First disturbance mapping of polygons added in 2003'; 'Second disturbance mapping of original SEI polygons'; or 'First disturbance mapping of SEI polygons in 2014'.
ECP_TAG	Concatenation of Mapsheet Number and Polygon Number used for unique identification of a polygon.
Source	Source of the data used to determine ecological polygon units. Note that data may be used from previous studies.
Eco_Sec	A component of the hierarchical Ecoregion Classification System of British Columbia which describes areas of major physiographical and minor macroclimatic or oceanographic variation. (Demarchi, 1996).
Bgc_Zone	A first-rank unit in the hierarchical Biogeoclimatic Ecosystem Classification (BGC) system of the Ministry of Forests. Coding follows the Field Manual for Describing Terrestrial Ecosystems, (RIC, 1998).
Bgc_Subzon	A second-rank unit in the BGC system occurring within particular zones. Coding follows the Field Manual for Describing Terrestrial Ecosystems, (RIC, 1998).
Bgc_Vrt	A third-rank unit in the BGC system occurring within particular subzones. Coding follows the Field Manual for Describing Terrestrial Ecosystems, (RIC, 1998)

Sdec_1	The proportion of the polygon covered by Component 1, in deciles. Deciles in components 1-3 must total 10 (e.g., 5-3-2, if the first two deciles total 10 then the third decile is left blank e.g. 6-4). Decile 1 must be greater or equal to Decile 2, which must be greater or equal to Decile 3.
Realm_1	The Realm is the broadest level of distinction within the ecosystem component and it delineates major biotic types that reflect gross differences in water abundance, quality, and source. Coding follows the Field Manual for Describing Terrestrial Ecosystems, (RIC, 1998).
Class_1	There is a more refined division of the Group reflecting ecosystems that have broadly similar vegetation physiognomy, hydrology, and water quality. Coding follows the Field Manual for Describing Terrestrial Ecosystems, (RIC, 1998)
Site_S1	Categorizes sites based on their ability to produce specific climax vegetation within a particular BGC Subzone or Variant. Coding follows the standards found at: <a href="http://www.elp.gov.bc.ca/rib/wis/tem/">http://www.elp.gov.bc.ca/rib/wis/tem/</a> and the MoF Field Guides to Site Units.
Strct_S1	The structure of the vegetation cover at a point in time. The structure of a plant community changes over time, progressing from a pioneer stage to a climax stage. Coding follows the provincial listing of the approved mapcodes in the Provincial Site Series Mapping Codes And Typical Environmental Conditions.
Stand_A1	Differentiates forest stands based on coniferous, broadleaf and mixed stand composition. Coding follows the provincial listing of the approved mapcodes in the Provincial Site Series Mapping Codes And Typical Environmental Conditions.
Sdec_2	See Sdec_1
Realm_2	See Realm_1
Class_2	See Class_1
Site_S2	See Site_S1
Strct_S2	See Strct_S1
Stand_A2	See Stand_A1
Sdec_3	See Sdec_1
Realm_3	See Realm_1
Class_3	See Class_1
Site_S3	See Site_S1
Strct_S3	See Strct_S1
Stand_A3	See Stand_A1
Poly_Com	Used to record any pertinent information regarding the polygon.

**Table 4.** Possible Values for Primary or Secondary Ecosystem Code.

*Coastal Bluff (CB)*

Coastal Bluff ecosystems are found on the coast from the water's edge to lands just above the high tide mark. Many distinct plant communities have developed in response to this relatively harsh environment of crashing waves, currents, tides, winds, heat, storms and salt spray. Coastal Bluff ecosystems have been divided into two distinct categories:

CB - Vegetated rocky islets and shorelines; and

CB:cl - Vegetated coastal cliffs and bluffs.

These two categories encompass several different landforms that provide specialized wildlife habitats, and support distinct plant communities.

*Seasonally Flooded Agricultural Fields (FS)*

Seasonally Flooded Agricultural Fields are lands that have been modified for agricultural use, but have important wildlife habitat value during specific times of the year. These fields are located primarily in low-lying areas such as valley bottoms and deltas of large alluvial rivers and creeks. In some cases they are found on moisture-receiving sites, usually in association with lake shores, or lowlands adjacent to coastal bays. They are often former wetlands, and in many cases, are located adjacent to surviving wetlands such as marshes, swamps, and wet meadows. In such cases, other environmental factors such as poor drainage or a high water table contribute to flooding during the winter, fall and rainy season.

*Terrestrial Herbaceous (HT)*

Terrestrial Herbaceous ecosystems are open wildflower meadows and grassy hilltops, usually interspersed with moss-covered rock outcrops. They typically occur as small openings in forested areas with gentle to moderate slopes not exceeding 30% grades. They are located from outside the salt spray zone near shorelines, to the summits of local hills and mountains within the study area. Three categories of Terrestrial herbaceous ecosystem are recognized for this project:

HT – Sites with continuous vegetation cover;

HT:ro – Sites with rock outcrops as a dominant feature; and

HT:sh – Sites with more than 20% shrub cover.

*Older Forest (OF)*

Older Forest is defined as conifer-dominated forest with an average tree age of 100 years or greater. The trees are generally large and tall, reaching up to 1.5m in diameter and over 50m in height. Older Forest is often found in combination with Older Second Growth Forest (SG) and occasionally with Terrestrial Herbaceous ecosystems (HT). Two categories are identified for this project:

OF:co – Coniferous forest stands; and

OF:mx – Coniferous forest stands comprised of more than 15% deciduous trees.

*Riparian (RI)*

Riparian ecosystems occur on floodplains adjacent to lakes, streams and rivers where high soil moisture and light conditions support distinct soils and plant communities. They vary in width from less than one metre along stream banks to more than 100 metres near large rivers.

Riparian ecosystems are divided into categories based on structural stage and the presence of gullies. They are often a complex or more than one structural stage because of their highly dynamic nature; the dominant stage is listed first (e.g., RI:4:5:6:g).

RI:g – Riparian gullies;

RI:1 – Sparsely vegetated areas and gravel bars: moss and lichen dominated, <10% treed, <20% shrub/herb;

RI:2 – Herb: herb dominated, <20% shrub, <10% treed;

RI:3 – Shrub/herb: >20% shrub, <10% treed;

RI:4 – Deciduous pole/sapling stands: trees >10m tall, densely stocked, 10-40 years old;

RI:5 – Young deciduous forest: self-thinning evident, 40-80 years old;

RI:6 – Mature coniferous-deciduous forest: 80-250 years old; and

RI:7 – Older forest: >250 years old

*Older Second Growth Forest (SG)*

Older Second Growth Forests are the most common forested ecosystem in the SEI study area. They function as both essential habitat areas for many wildlife species, and as primary connections between ecosystems in the highly fragmented landscape of the Georgia Basin. All Second Growth Forests have been disturbed by logging or other human disturbance since the settlement of Vancouver Island and the Gulf Islands began in the middle of the 19th century. There are two distinct sub-categories of Older Second Growth Forest in the SEI study area:

SG:co - Large stands of conifer dominated forest between 60 and 100 years old with less than 15% deciduous trees; and

SG:mx – Stands with more than 15% deciduous tree cover.

*Sparsely Vegetated (SV)*

Coverage consists mainly of sand, gravel or bedrock and little vegetation. Several distinct plant communities have adapted to this harsh coastal environment characterized by crashing waves, salt spray, shifting sands, exposure to winds and sun, and (with regard to the cliffs and bluffs) low moisture and nutrient conditions. Sparsely Vegetated ecosystems encompass three unique landforms that provide specialized wildlife habitats and support newly-developing plant communities:

SV:cl - Inland cliffs and bluffs;

SV:sd - Coastal sand dunes; and

SV:sp - Coastal gravel and sand spits.

#### *Woodland (WD)*

Woodlands are open forested areas comprised of pure stands of Garry oak and mixed stands of Douglas-fir/Garry oak and Douglas-fir/arbutus. Remnant stands of trembling aspen are also found in wetter sites. Their understorey is characterized by a rich mosaic of wildflowers, grasses, shrubs and mosses. Woodlands are found on south facing slopes of rocky knoll and bedrock dominated areas. The disturbance or soil conditions of such areas restrict the establishment of closed conifer forest and promote Garry oak regeneration. Woodlands also occur in combination with other ecosystems such as older Douglas-fir forest (OF), Older Second Growth Forest (SG) and Terrestrial Herbaceous (HT).

#### *Wetland (WN)*

Wetland ecosystems are characterized by seasonal or year-round water, either at or above the soil surface or within the root zone of plants. They are found in areas of flat, undulating terrain and colder wetter climate. Wetlands encompass a range of plant communities which includes western redcedar/skunk cabbage swamps, cattail marshes, Sphagnum moss dominated bogs and coastal salt marshes. The six Wetland classes recognized by the SEI include:

WN:bg – Bog: Acidic, nutrient-poor wetlands that characteristically support Sphagnum mosses and ericaceous shrubs such as Labrador tea and bog-rosemary. Being generally isolated from mineral rich groundwater or surface water, their primary source of water and nutrients is from rainfall;

WN:fn – Fen: Underlain by sedge or brown moss peat, fens are closely related to bogs. In addition to rainfall, fens receive mineral and nutrient-enriched water from upslope drainage or groundwater. Thus a broader range of plants, including shrubs and small trees, is able to grow;

WN:ms – Marsh: Characterized by permanent, seasonal or diurnal flooding of nutrient-rich waters. They include: freshwater marshes which are dominated by rushes, sedges and grasses; saltwater marshes; and estuarine marshes occurring at the mouths of most of the major rivers;

WN:sp – Swamp: Wooded wetlands dominated by 25% or more cover of flood-tolerant trees or shrubs. Characterized by periodic flooding and nearly permanent sub-surface waterflow through mixtures of mineral and organic materials, swamps are high in nutrient, mineral and oxygen content.

WN:sw - Shallow Water: Wetlands characterized by water less than 2 m in depth in midsummer, support less than 5% rooted vegetation. They serve as important habitat for waterfowl and support fish, insects and amphibians.

WN:wm – Wet Meadow: Wetlands which receive water from run-off or seepage, and provide a grassy overall mixture of flood tolerant grasses, low sedges, rushes and forbs. Wetlands often occur as mosaics of several classes (e.g. WN:ms:sp:sw) or are transitional between two classes. In addition, Wetlands may occur in complexed units with other ecosystems such as Seasonally Flooded Agricultural Fields (FS), Riparian (RI) and Older Second Growth (SG).