1 SITE DESCRIPTION

Contents

ECOSYSTEM FIELD FORM

BRITISH COLUMBIA

MINISTRY OF FORESTS
BC ENVIRONMENT

DATE	Y	M	D
(1)			

PLOT NO. (2)

PROJECT ID. (3)

FIELD NO. (4)

SURVEYOR(S) (5)

SITE DESCRIPTION

LOCATION

GENERAL LOCATION (6)

FOREST REGION (7)	MAPSHEET (8)	UTM ZONE (9)	LAT./ NORTH. (10)	LONG./ EAST.

AIRPHOTO NO. (11)	X CO-ORD. (12)	Y CO-ORD.	MAP UNIT (13)

SITE INFORMATION

PLOT REPRESENTING (15)

BGC UNIT (16)	SITE SERIES (17)	TRANS./ DISTRIB. (18)	ECOSECTION (19)

MOISTURE REGIME (20)	NUTRIENT REGIME (21)	SUCCESS. STATUS (22)	STRUCT. STAGE (23)	REALM/ CLASS (24)

ELEV. (27) m.	SLOPE (28) %	ASPECT (29) °	MESO SLOPE POS. (30)	SURFACE TOPOG. (31)

NOTES

(34)

SITE DIAGRAM

(14)

SITE DISTURB. (25)	PHOTO ROLL (26)

EXPOS. TYPE (32)	FRAME NOS.

SUBSTRATE (%)

ORG. MATTER		ROCKS	
DEC. WOOD	(33)	MINERAL SOIL	
BEDROCK		WATER	

FS882 (1) HRE 98/5

Field Procedure

Getting Started

1. Record the date, project ID, field number, surveyor(s) name(s), general location, forest region, and ecosection. Copy the plot number to other forms.
2. If air photos are available, record flight line and photo numbers at this time. If GPS co-ordinates are available, record latitude and longitude.
3. Establish the location of plot boundaries.

Measure and Assess

1. Determine the elevation, slope, and aspect.
2. Traverse the entire plot systematically, observing the position of the plot relative to the surrounding landscape, microtopographic features, and the composition of surface substrates. Record meso-slope position, surface topography and percentage of substrate classes.
3. Note any evidence of site disturbance.
4. Assess successional status and structural stage based on site factors and vegetation.
5. Integrate site, soil, and vegetation factors to determine moisture and nutrient regime and biogeoclimatic unit.
6. Based on the foregoing assessments, determine site series. If the site is complex, estimate and record the proportion of the plot represented by each site series and determine the transition / distribution code.
7. If applicable, enter exposure type and realm / class.
8. Sketch a plot diagram.
9. Enter a brief description of key site features under Item 15, "Plot Representing."
10. Check that all the required form information has been collected. Strike through any fields that were not assessed.

Later in the Office

1. Locate the plot on a 1:20 000 map (or other scale), and record the map sheet number. If latitude and longitude were not entered in the field, determine the UTM zone and co-ordinates from the map.

2. Compare elevation recorded in the field with that indicated on a topographic map, and adjust if appropriate.
3. Locate the plot on an air photo and determine *X* and *Y* co-ordinates.
4. Check again that all the required information has been collected and noted on the form.

Refer to the following guides for more information:

- Ministry of Forests (MOF) regional field guides to site identification and interprepation
- *Describing Ecosystems in the Field* (DEIF) manual (Luttmerding et al. 1990)

Completing the Form

Numbered items below refer to circled numbers on the ecosystem field form shown at the beginning of this section. A recommended sequence for completing the form is described under "Field Procedure."

1. Date

Enter two-digit codes for year, month, and day.

2. Plot Number

This is the number printed in red in the top right corner of form. It provides a unique plot identifier for data management purposes. Record this number on all other forms completed for the plot.

3. Project ID

Enter a descriptor that connotes the type of project and provides information about the subject or location of the project. For example:

- ecosystem mapping projects: TEM_BeaverCove
- species inventory: SPP_Woss
- site series classification: BEC_SBSwk1
- wildlife habitat inventory: WHI_grizzly
- site index: SIBEC_Morice

4. Field Number

Use up to eight characters to further identify the plot according to the needs of the specific project.

5. Surveyor(s)

Record the first initial and last name of each person involved in describing the site.

6. General Location

Describe the location of the plot relative to natural features such as mountains or bodies of water and permanent structures such as kilometre signs on main roads.

- Select points of reference that are unlikely to change and are named on maps or are otherwise easily identified.
- Include compass bearings and distances (measured or estimated), where possible.
- More detailed access information may be recorded under Item 34, "Notes."

7. Forest Region

This information can be useful for sorting plot data. Use the following codes:

CAR = Cariboo
KAM = Kamloops
NEL = Nelson
PG = Prince George
PR = Prince Rupert
VAN = Vancouver

8. Map Sheet

Use the B.C. Geographic System to identify the map sheet on which the plot is located (e.g., 93H015). The preferred map scale is 1:20,000.

9. UTM Zone

If using the UTM system to indicate precise plot location, enter the UTM zone number indicated on the map sheet (8–11 within British Columbia). The present standard for UTM data is NAD83. Most new maps follow this standard. Older maps, and some new maps use NAD27 which will cause significant location errors if it is mistaken for NAD83.

10. Latitude/Longitude *or* Northing/Easting

Determine the precise location of plot using the best available topographic base map. Latitude and longitude may also be determined using GPS. While either system may be used, the UTM system is recommended if coordinates are determined from a map.

- For latitude and longitude, note degrees (°), minutes (‘), and seconds (“).
- For UTM system, record northing and easting (NAD83).

11. Air Photo Number

Record the flight line and air photo number.

12. *X/Y* Co-ordinates

Using a plastic air photo grid overlay (2M–79), record values of *X* and *Y* co-ordinates for the intersecting lines closest to the plot location. Place the grid over the photograph *with photo number viewed upright* and the origin of grid axes aligned with the lower left-hand corner. Be sure to align centre and feducial points (points at corners or centre of each side of photograph).

13. Map Unit

If the plot is part of a mapping project, enter coding for the terrestrial ecosystem (TEM) or other map unit (eg., soils, terrain, etc.). TEM unit coding is as follows:

Site series	Site modifier	Structural stage
SS	**mm**	**#xx**

14. Site Diagram

A cross-sectional diagram of plot location in relation to the surrounding landscape is often most useful. Use the diagram to provide additional information about site features or to assist in locating the plot again. Stand structure, mesoslope position, physical features of the surrounding landscape, and plot location relative to identifiable landmarks such as bodies of water or roads can be depicted (Figure 1.1).

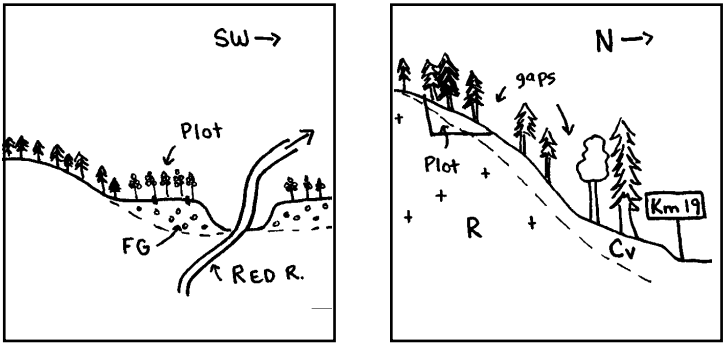


FIGURE 1.1 Examples of site diagrams.

15. Plot Representing

Briefly characterize the site. If the plot was not selected randomly or systematically, describe the key attributes for which it was chosen. For example:

- Open Pl stand; kinnikinnick, lichens on FG terrace
- Young highly productive Fd stand on zonal site
- Sxw– horsetail–ladyfern, Hydromor, Humic Gleysol, on floodplain

16. Biogeoclimatic Unit

Enter a code for the biogeoclimatic zone and subzone. Include variant and phase where applicable. Ministry of Forests maps and regional field guides to site identification and interpretation are the best sources of information. A current listing of codes is given in Appendix 1.1.

- In areas *distinctly* transitional between two recognized biogeoclimatic units, enter the code for the dominant unit here and mark with an asterisk (*). Identify other unit and explain under "Notes" (Item 34).

17. Site Series

Enter a two-digit site series code and a letter code for site series phases, where recognized, from the appropriate MOF regional field guide to site identification and interpretation. Note the following special cases:

- If two or more distinct site series are present, list in order of predominance, followed by the proportion of the plot represented by each in percent. For example: 01a (70%), 05 (30%).
- Where site characteristics are uniform, but distinctly transitional between two recognized site series, indicate with a dash (e.g., 01a–05).
- If the ecosystem does not resemble a recognized site series, leave this field blank, and explain under "Notes".

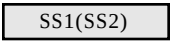
18. Transition / Distribution Codes

For descriptions of complex sites in projects involving systematic or random sampling, enter a one-digit code indicating the proportional distribution of site series within the plot and the presence of transitional site series.

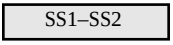
Mostly homogeneous plots (codes 1–3):

SS1

1 A simple homogeneous plot with > 98% of area classified as a single site series (SS1).



2 A homogeneous plot with > 90% of the area classified as SS1; however, site characteristics are grading slightly toward SS2. Less than 10% of the area is distinctly SS2.



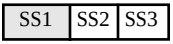
3 A homogeneous plot, but classification is intermediate between SS1 and SS2.

Transitional from one edge of the plot to the other (code 4):

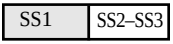
4 Gradual transition from SS1 at one edge of plot to SS2 at other edge, or from SS2 to SS3, with SS1 being the modal site series. In the latter case, SS1 usually represents > 50% of plot.

Two or more distinct site series present (codes 5–8):

5 Two or more distinct site series present, with SS1 representing ≥ 70% of plot area.



6 Two or more distinct site series, with SS1 representing 40–69% of plot area.



7 Two distinct areas in the plot: SS1 represents ≥ 50% of area, and remainder is intermediate between SS2 and SS3.

8 Two distinct areas in the plot: ≥ 50% is intermediate between SS1 and SS2, and remainder is SS3.

19. Ecosection

Enter a three-letter code for the ecosection. See Appendix 1.2 for a current listing of codes.

20. Moisture Regime

Enter a code (0–8) for moisture regime. Base the assessment on environmental factors, soil properties, and indicator plants relative to other sites within same biogeoclimatic unit. Classes are listed with brief descriptions in Table 1.1. Note the following special cases:

- If two or more areas of the plot have a distinctly different moisture regime, enter codes for the dominant and largest sub-dominant class, with the sub-dominant class in parentheses (e.g., 4 (5)).
- If a wide range of moisture regimes is present, list the dominant and sub-dominant class, followed by the range (e.g. 4 (5), 4–6).
- Where moisture regime is *distinctly* transitional between two classes, indicate with "+" or "-" (e.g., 4+).

TABLE 1.1. Soil moisture regime classes[a]

Code	Class	Description	Primary water source
0	Very xeric	Water removed extremely rapidly in relation to supply; soil is moist for a negligible time after precipitation	precipitation
1	Xeric	Water removed very rapidly in relation to supply; soil is moist for brief periods following precipitation	precipitation
2	Subxeric	Water removed rapidly in relation to supply; soil is moist for short periods following precipitation	precipitation
3	Submesic	Water removed readily in relation to supply; water available for moderately short periods following precipitation	precipitation
4	Mesic	Water removed somewhat slowly in relation to supply; soil may remain moist for a significant, but sometimes short period of the year. Available soil moisture reflects climatic inputs	precipitation in moderate- to fine-textured soils and limited seepage in coarse-textured soils
5	Subhygric	Water removed slowly enough to keep soil wet for a significant part of growing season; some temporary seepage and possibly mottling below 20 cm	precipitation and seepage

Code	Class	Description	Primary water source
6	Hygric	Water removed slowly enough to keep soil wet for most of growing season; permanent seepage and mottling; gleyed colours common	seepage
7	Subhydric	Water removed slowly enough to keep water table at or near surface for most of year; gleyed mineral or organic soils; permanent seepage < 30 cm below surface	seepage or permanent water table
8	Hydric	Water removed so slowly that water table is at or above soil surface all year; gleyed mineral or organic soils	permanent water table

[a] More detailed descriptions and keys are given in the DEIF manual (Luttmerding et al. 1990) and in MOF field guides to site identification and interpretation.

21. Nutrient Regime

Enter a code (A–F) for nutrient regime, indicating the available nutrient supply relative to other sites within the same biogeoclimatic unit. Base the assessment on a combination of environmental factors, soil properties, and indicator plants. Features that are strongly expressed may compensate for other factors to create richer or poorer conditions. Classes are listed with some criteria in Table 1.2.

- If two or more areas of plot have a distinctly different nutrient regime, enter the code for the dominant class, and give the range (e.g., C, B–C).
- Where the nutrient regime is *distinctly* transitional between two classes, enter closest class followed by an asterisk and explain under "Notes" (e.g. C*).

22. Successional Status

Enter the two or three-character uppercase code for successional status. Apply these codes where forest succession is expected to occur. Under extreme conditions, stand age may vary from the age ranges suggested here.

TABLE 1.2. Nutrient regime classes and relationships between nutrient regime and site properties

	Oligotrophic	Submesotrophic	Mesotrophic	Permesotrophic	Eutrophic	Hypereutrophic
	A Very poor	**B Poor**	**C Medium**	**D Rich**	**E Very rich**	**F Saline**
Available nutrients	very low	low	average	plentiful	abundant	excess salt accum.
Humus form	Mor	Mor	Mor / Moder	Moder	Moder / Mull	Mull
A horizon	Ae horizon present	Ae horizon present	A horizon absent	A horizon absent / Ah horizon present	Ah horizon present	Ah horizon present
Organic matter content	low (light coloured)	low (light coloured) / medium (inter. in colour)	medium (inter. in colour)	medium (inter. in colour) / high (dark coloured)	high (dark coloured)	high (dark coloured)
C:N Ratio	high	high	high / moderate	moderate	moderate / low	low
Soil depth	extremely shallow	extremely shallow / very shallow to deep	very shallow to deep	very shallow to deep	very shallow to deep	very shallow to deep
Soil texture	coarse textured	coarse textured	coarse textured / medium to fine textured	medium to fine textured	medium to fine textured	medium to fine textured
% Coarse fragments	high	high	high / moderate to low	moderate to low	moderate to low	moderate to low
Parent material mineralogy	base-low	base-low	base-low / base-medium	base-medium	base-medium / base-high	base-high
Soil pH	extremely – mod. acid	extremely – mod. acid / moderately acid – neutral	moderately acid – neutral	moderately acid – neutral / slightly acid – mildly alk.	slightly acid – mildly alk.	slightly acid – mildly alk.
Water pH (wetlands)	< 4–5	4.5–5.5	5.5–6.5	6.5–7.4	7.4+	
Seepage			temporary	temporary →	permanent	

NV = Non-Vegetated:
Vegetation is either *absent* or *less than five percent cover* because of recent severe disturbances such as fire, mass-wasting, or flooding.

PS = Pioneer Seral:
Stage where vegetation occupies a site following the elimination of the original plant cover by a disturbance such as fire, logging, or scalping of the soil surface.

- May also be an early stage of development on talus slopes or erosion scars.

YS = Young Seral:
Young stands of early seral species or communities where self-thinning has not yet occurred.

- Generally young even-aged stands (usually < 60 years old) with an even canopy height.
- Includes dense stagnated pine stands, which may be up to 100 years old.

Young seral stand

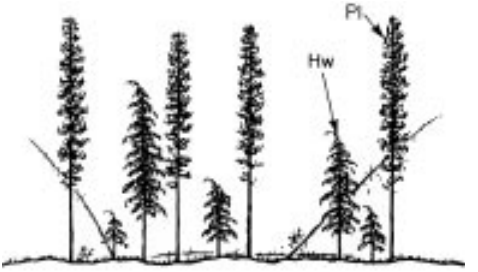
MS = Maturing Seral:
Mid-seral stands of mature age (generally 60–140 years old) that have gone through an initial natural thinning due to species interactions.

- One age class in the overstorey and regeneration in a much younger age class, composed of same species, and/or climax species, and/or species with greater shade tolerance.

Maturing seral stand

OS = Overmature Seral:
Stands dominated by the original overstorey species at a "decadent" age (usually > 140 years old).

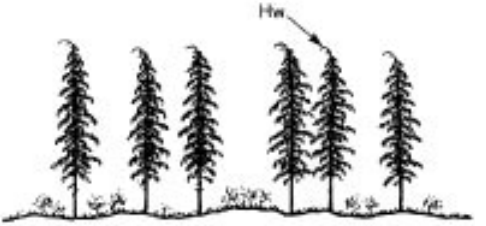
- Tree species in the main upper canopy are dying.
- Typically a secondary tree canopy consisting of same species or a more shade-tolerant species; some individuals belonging to second generation may have entered the main canopy.



Overmature seral stand

YC = Young Climax:
Stand is composed of species in proportions typical of the climax expected for the site, but the community structure expected at climax has not developed.

- Differs from climax stage in being even-aged and young (< 80 years old), and having a uniform canopy height.



Young climax stand

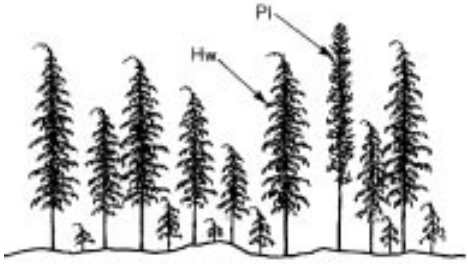
YCC = Young Climatic Climax:
Young stands (< 80 years old) on zonal sites, composed of the same species expected in climatic climax stands; differ from MCC stands in having a stand structure that is more or less even-aged and of uniform height class.

YEC = Young Edaphic Climax:
Young stands (usually < 80 years old) composed of the same species expected at climax on a site edaphically different from a "zonal" site.

- Differs in stand structure from the MEC in being more or less even-aged and of uniform height class.
- Examples include a young spruce stand on a wet site, or a young Douglas-fir stand on a dry, south-facing slope.

MC = Maturing Climax:
Stands composed of species expected to be present in the climax stand; stand has undergone natural thinning, gaps have been created, and a structure similar to that expected at climax has developed.

- Differs from the YC in having a better-developed understorey and a more or less continuous age and height class distribution, although a gap may exist between the older or upper class and the next class.
- Some remnants of the earlier stand may remain, but they should not have any effect on the density or structure of the stand. Removal of a tree would not cause a significant response in the growth or establishment of the climax trees.



Maturing climax stand

MCC = Maturing Climatic Climax:
Stands on zonal sites composed of the species representative of the climatic climax, and approaching a continuous age and height class distribution.

- There may be a gap between the main canopy and the continuous age and height class distribution of the regeneration.
- Stands are at least 80–120 years old, but usually much older.

MEC = Maturing Edaphic Climax:
Differs from MCC stands in species composition and site conditions (occurs on azonal sites); soil properties differ primarily in terms of soil moisture and nutrient regime.

- Species differences may be in stand or understorey.
- Examples include grassland communities on coarse-textured or shallow soils; spruce–horsetail communities on floodplains; bogs and fens in large depressional areas; cedar–devil's club communities on moist, rich sites in a BGC unit where cedar–hemlock–oakfern communities occur on zonal sites.

DC = Disclimax:
A self-perpetuating community that strongly differs in species composition from the edaphic or climatic climax expected for the site; normal succession has been arrested by an external physical or anthropogenic factor.

- Results from changes to the physical characteristics of the site, associated with disturbances such as fire, intensive grazing, or avalanche.

NOTE: The codes **EC** or **CC**, for Edaphic Climax or Climatic Climax, may be used where it is difficult to determine whether the successional status is "young" or "maturing."

23. Structural Stage[1]

In the assessment of structural stage, structural features and age criteria should be considered. Use numeric and lowercase alphabetic codes unless otherwise directed. Modifiers for structural stage (Figure 1.2) and stand composition are optional. Separate modifier codes from the structural stage code with a slash (e.g., 7/mC; 3b/D). Uppercase codes in parentheses are used in Vegetation Resources Inventory (Resource Inventory Committee, 1997).

Post-disturbance stages, or environmentally limited structural development:

1 (SB) **Sparse/bryoid** Initial stages of primary and secondary succession; bryophytes and lichens often dominant; time since disturbance < 20 years for normal forest succession, may be prolonged (50–100+ years) where there is little or no soil development (bedrock, boulder fields); total shrub and herb cover < 20%; total tree cover < 10%.

[1] Structural stage categories and modifiers presented here draw on schemes proposed by Hamilton (1988), Oliver and Larson (1990), Weetman et al. (1990), and Vegetation Inventory Working Group (1995).

1a (SP) **Sparse** – less than 10% vegetation cover; or

1b (BR) **Bryoid** – bryophyte and lichen-dominated communities (> 50% of total vegetation cover).

Stand initiation stages or environmentally induced structural development:

2 (H) **Herb** Early successional stage or herb communities maintained by environmental conditions or disturbance (e.g., snow fields, avalanche tracks, wetlands, flooding, grasslands, intensive grazing, intense fire damage); dominated by herbs (forbs, graminoids, ferns); some invading or residual shrubs and trees may be present; tree cover < 10%, shrubs ≤ 20% or < 33% of total cover, herb-layer cover > 20%, or ≥ 33% of total cover; time since disturbance < 20 years for normal forest succession; many non-forested communities are perpetually maintained in this stage.

2a (FO) **Forb-dominated** – includes non-graminoid herbs and ferns;

2b (GR) **Graminoid-dominated** – includes grasses, sedges, reeds, and rushes;

2c (AQ) **Aquatic** – floating or submerged; does not include sedges growing in marshes with standing water (classed as 2b); or

2d (DS) **Dwarf shrub-dominated** – dominated by dwarf woody species such as *Arctostaphylos alpina, Salix reticulata, Rhododendron lapponicum, Cassiope tetragona* (see Table 3.1 in Vegetation section).

3 (SH) **Shrub/Herb** Early successional stage or shrub communities maintained by environmental conditions or disturbance; dominated by shrubby vegetation; seedlings and advance regeneration may be abundant; tree cover < 10%, shrub cover > 20% or ≥ 33% of total cover.

3a (LS) **Low shrub** – dominated by shrubby vegetation < 2 m tall; seedlings and advance regeneration may be abundant; time since disturbance < 20 years for normal forest succession; may be perpetuated indefinitely by environmental conditions or disturbance; or

3b (TS) **Tall shrub** – dominated by shrubby vegetation that is 2–10 m tall; seedlings and advance regeneration may be abundant; time since disturbance < 40 years for normal forest succession; may be perpetuated indefinitely.

Stem exclusion stage:

4 (PS) **Pole/Sapling** Trees > 10 m tall, typically densely stocked, have overtopped shrub and herb layers; younger stands are vigorous (usually > 10–15 years old); older stagnated stands (up to 100 years old) are also included; self-thinning and vertical structure not yet evident in the canopy – this often occurs by age 30 in vigorous broadleaf stands, which are generally younger than coniferous stands at the same structural stage; time since disturbance < 40 years for normal forest succession; up to 100+ years for dense (5000 – 15000+ stems per ha) stagnant stands.

5 (YF) **Young Forest** Self-thinning has become evident and the forest canopy has begun to differentiate into distinct layers (dominant, main canopy, and overtopped); vigorous growth and a more open stand than in the PS stage; begins as early as age 30 and extends to 50–80 years; time since disturbance generally 40–80 years, depending on tree species and ecological conditions.

Understorey reinitiation stages:

6 (MF) **Mature Forest** Trees established after the last disturbance have matured; a second cycle of shade-tolerant trees may have become established; understories become well developed as the canopy opens up; time since disturbance generally 80–140 years for BGC group A[2] and 80–250 years for group B[3].

Old-growth stage:

7 (OF) **Old Forest** Old, structurally complex stands comprised mainly of shade-tolerant and regenerating tree species, although older seral and long-lived trees from a disturbance such as fire may still dominate the upper canopy; snags and coarse woody debris in all stages of decomposition and patchy understories typical; understories may include tree species uncommon in the canopy, because of inherent limitations of these species under the given conditions; time since disturbance generally > 140 years for BGC group A[2] and > 250 years for group B[3].

[2] **BGC Group A** includes BWBSdk, BWBSmw, BWBSwk, BWBSvk, ESSFdc, ESSFdk, ESSFdv, ESSFxc, ICHdk, ICHdw, ICHmk1, ICHmk2, ICHmw1, ICHmw3, MS, SBPS, SBSdh, SBSdk, SBSdw, SBSmc, SBSmh, SBSmk, SBSmm, SBSmw, SBSwk1 (on plateau), and SBSwk3.

[3] **BGC Group B** includes all other biogeoclimatic units.

Stand composition modifiers (stages 3–7 only)

C = coniferous (> 75% of total tree cover is coniferous)

B = broadleaf (> 75% of total tree cover is broadleaf)

M = mixed (neither coniferous or broadleaf account for > 75% of total tree cover)

Structural stage modifiers (stages 4–7 only) (see Figure 1.2):

s = single-storied Closed forest stand dominated by the overstorey crown class (dominant and co-dominant trees); intermediate and suppressed trees comprise less than 20% of all crown classes combined[4]; advance regeneration in the understorey is generally sparse.

t = two-storied Closed forest stand co-dominated by distinct overstorey and intermediate crown classes; the suppressed crown class is lacking or comprises less than 20% of all crown classes combined[4]; advance regeneration variable.

m = multistoried Closed forest stand with all crown classes well represented; each of the intermediate and suppressed classes comprise greater than 20% of all crown classes combined[4]; advance regeneration variable.

i = irregular Forest stand with very open overstorey and intermediate crown classes (totalling less than 30% cover), with well developed suppressed crown class; advance regeneration variable.

h = shelterwood Forest stand with very open overstorey (less than 20% cover) with well developed suppressed crown class and/or advance regeneration in the understorey. Intermediate crown class generally absent.

24. Realm/Class

Currently applied to wetland and riparian ecosystems only. Enter the following codes for realm or group, where applicable, and class.

Terrestrial realm, transition group:

Tc **Shrub carr** Low-shrub-dominated ecosystem in frost-prone basins; never inundated and seasonally saturated; usually extremely mounded, shrubs on elevated sites; herb and moss layers diverse, often dominated by forbs and grasses.

[4] Based on either basal area or percent cover estimates.

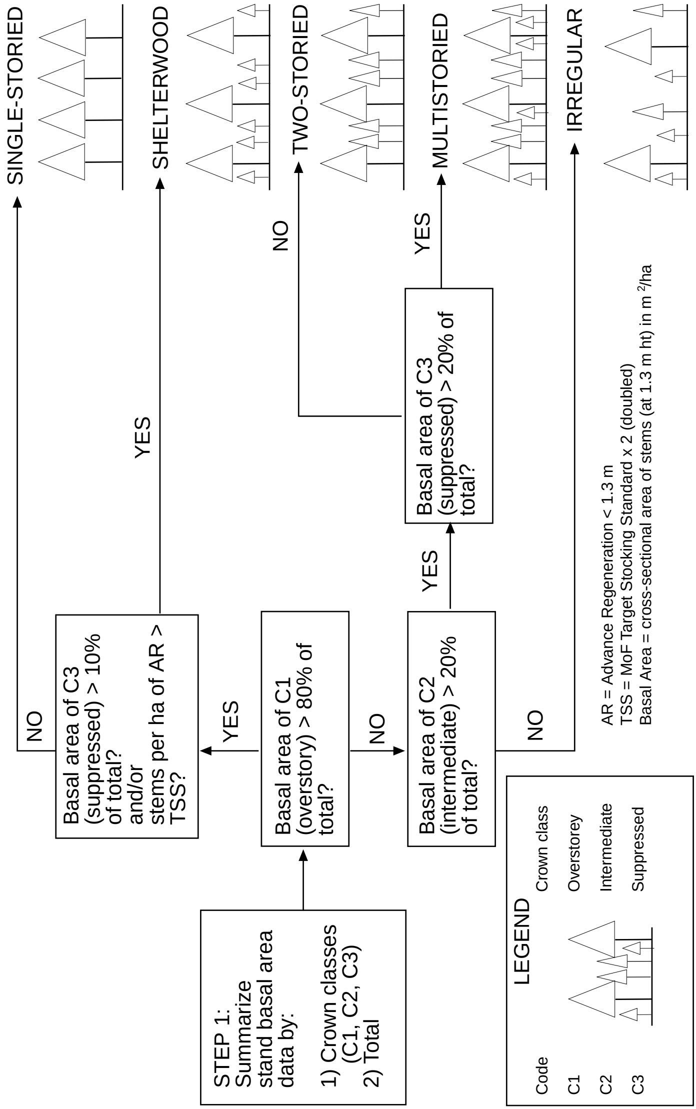


FIGURE 1.2. Stand structure modifiers.

Th **High meadow** Mainly in subalpine and alpine regions; lush forb-rich flora; persistent snowpack and prolonged growing season seepage.

Tm **Wet meadow** Develop on mineral materials; periodically saturated, seldom inundated; diverse community of grasses, low sedges, rushes (*Juncus* spp.), and forbs.

Ts **Saline meadow** Occur in dry interior areas of province around saline lakes and in shallow depressions that dry out early in the growing season; high soil salinities; water table often remains high; salt-tolerant plants.

Terrestrial realm, flood group:

Fl **Low bench** Flooded at least every other year for moderate periods of growing season; plant species adapted to extended flooding and abrasion; low or tall shrub physiognomy most common.

Fm **Middle bench** Flooded every 1–6 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 bench** Only periodically and briefly inundated by high waters, but lengthy subsurface flow in the rooting zone; typically conifer-dominated floodplains of larger coastal rivers.

Ff **Fringe** Narrow linear communities along open water bodies where there is no floodplain; irregular flooding at depth, moderated microclimate, improved light regime (in forested areas), and/or mechanical disturbance by ice.

Wetland realm:

Wb **Bog** Nutrient-poor peatlands (pH < 4.5) characterized by plant communities with a large component of ericaceous shrubs and *Sphagnum* mosses.

Wf **Fen** Nutrient-medium peatlands fed by ground or surface water sources; dominated by sedges, grasses, reeds, and brown mosses; non-ericaceous shrubs common.

Wm **Marsh** Mineral wetland that retains shallow surface water for much of growing season; dominated by emergent sedges, grasses, rushes, or reeds.

Ws **Swamp** Treed or shrubby mineral wetland; water table at or near surface for most of year; if peat present, mainly dark and well decomposed; high cover of broadleaf or coniferous trees or tall shrubs, forbs and leafy mosses.

Ww Shallow water Distinct wetlands transitional between wetlands and aquatic ecosystems; characterized by rooted aquatics and standing water < 2 m deep in mid-summer.

Estuarine Realm:

Em Salt marsh Tidally influenced wetland dominated by graminoid emergents; alternately flooded and exposed with daily tides; both marine and fresh water sources.

Ed Salt meadow Tidally influenced herbaceous wetlands in upper intertidal and supratidal zones of estuaries; tidal flooding less frequent than daily.

Es Salt swamp Treed or shrubby mineral wetlands in brackish lagoons; occasional tidal flooding and subsequent evaporation; waterlogged, highly saline soil.

25. Site Disturbance

Note any events that have caused vegetation and soil characteristics to differ from those expected at climax for the site. Be as specific as possible, including codes for the category and specific types of disturbance separated by periods. Record up to three different types of disturbance, separated by slashes. For example, enter **L.c./E.l.bb** for a clearcut that has been broadcast burned. If existing codes are inadequate, enter an "X" here and explain under "Notes".

A. Atmosphere-related effects

Use these codes if causative factors are no longer in effect or are isolated incidents. If effects are ongoing, code as an "Exposure Type" (Item 32).

e. climatic extremes
- **co** extreme cold
- **ht** extreme heat
- **gl** glaze ice
- **ha** severe hail
- **sn** heavy snow

p. atmospheric pollution
- **ac** acid rain
- **to** toxic gases

w. windthrow

B. Biotic effects

b. beaver tree cutting
d. domestic grazing/browsing
w. wildlife grazing/browsing (5.1)[5]
e. excrement accumulation (other than that normally associated with grazing/browsing) (5.1)[5]

i. insects (4.2)[5]
  ki insect kill
  in infestation
p. disease (4.2)[5]
v. aggressive vegetation

D. Disposals
c. chemical spill or disposal
e. effluent disposal
g. domestic garbage disposal
o. oil spill or disposal
r. radioactive waste disposal or exposure

F. Fires
c. overstorey crown fire
g. light surface (ground) fire
r. repeated light surface fires
s. severe surface fire
i. repeated severe surface fires
l. burning of logging slash
  bb broadcast burn
  pb piled and burned
  wb burned windrows

L. Forest harvesting
l. land clearing (includes abandoned agriculture)
a. patch cut system
  wr with reserves
c. clearcut system (if slashburned, see also "Fires")
  wr with reserves (patch retention)
d. seed tree system
  un uniform
  gr grouped
e. selection system
  gr group selection
  si single tree
  st strip
s. shelterwood system
  un uniform
  gr group
  st strip
  ir irregular
  na natural
  nu nurse tree
o. coppice

[5] Record type or species under "Notes" using codes given in Appendix 4.2 of the Mensuration section or Appendix 5.1 of the Wildlife Habitat Assessment section of this manual.

M. Plant or site modification effects

- **c.** herbicide use (chemical)
- **f.** fertilization (specify type under "Notes")
- **i.** irrigation
- **g.** seeded or planted to grasses
- **h.** seeded or planted to herbs
- **s.** planted or seeded to shrubs
- **t.** planted or seeded to trees

P. Gathering or removal of plant products

- **f.** firewood gathering
- **m.** mushrooms
- **o.** moss
- **s.** shrubs (e.g., salal, falsebox)
- **x.** other (specify under "Notes")

S. Soil disturbance

- **a.** cultivation (agricultural)
- **c.** compaction
- **g.** gouging (> 5 cm into mineral soil)
- **s.** scalping (forest floor removed)
- **f.** sidecast / fill
- **r.** road bed, abandoned
- **t.** railway, abandoned
- **e.** excavation
- **m.** mining effects
  - **pt** placer tailings
  - **rq** rock quarrying (including open pit mines)
  - **ta** tailings
- **p.** mechanical site preparation
  - **bb** brush blading
  - **ds** drag scarification (anchor chain or shark fin)
  - **dt** disc trenching
  - **md** mounding
  - **ps** patch scarification
  - **vp** V-plowing
  - **xx** other (specify under "Notes")

T. Terrain-related effects

- **a.** avalanche
- **d.** recent deglaciation
- **e.** eolian (active deflation or deposition)
- **s.** terrain failures (active / recent slumps, slides, solifluction, etc.)
- **v.** volcanic activity

W. Water-related effects

- **i.** inundation (including temporary inundation resulting from beaver activity)
- **s.** temporary seepage (usually artificially induced; excludes intermittent seepage resulting from climatic conditions)
- **d.** water table control (diking, damming)
- **e.** water table depression (associated with extensive water extraction from wells)

X. Miscellaneous
(For other disturbance types, enter “X” and describe under "Notes")

26. Photo Roll and Frame Numbers

If photographs are taken, note the roll and frame numbers.

27. Elevation

Determine in the field using an altimeter. Accuracy of the measurement can be confirmed by consulting a topographic map. Record in *metres* with an estimate of accuracy.

28. Slope

Record *percent* slope gradient, measured with a clinometer or similar instrument.

29. Aspect

Record the orientation of the slope, measured by compass, in *degrees*.

- Enter due north as 0°.
- For level ground, enter “999."

30. Mesoslope Position

Indicate the position of plot relative to the localized catchment area (see Figure 1.3).

CR Crest The generally convex uppermost portion of a hill; usually convex in all directions with no distinct aspect.

UP Upper Slope The generally convex upper portion of the slope immediately below the crest of a hill; has a specific aspect.

MD Middle Slope Area between the upper and lower slope; the surface profile is generally neither distinctly concave nor convex; has a straight or somewhat sigmoid surface profile with a specific aspect.

LW Lower Slope The area toward the base of a slope; generally has a concave surface profile with a specific aspect.

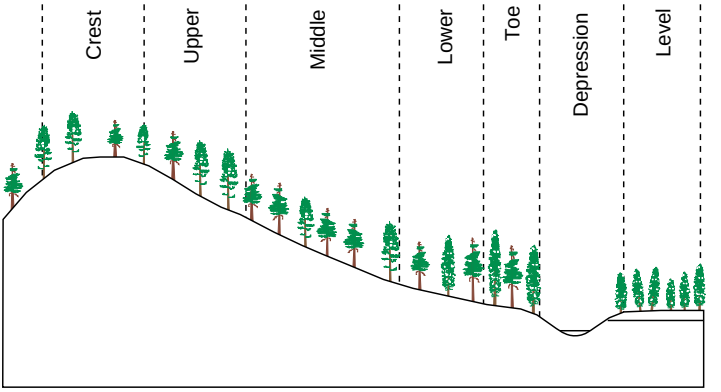


FIGURE 1.3. Mesoslope position.

TO Toe The area demarcated from the lower slope by an abrupt decrease in slope gradient; seepage is typically present.

DP Depression Any area concave in all directions; may be at the base of a meso-scale slope or in a generally level area.

LV Level Any level meso-scale area not immediately adjacent to a meso-scale slope; the surface profile is generally horizontal and straight with no significant aspect.

31. Surface Topography

Note the general surface shape and the size, frequency, and type of microtopographic features. Describe to the level that best represents what you see, separating coding with periods (e.g., code a generally straight surface that is slightly mounded as **ST.sl.mnd** and a generally concave surface that is relatively flat as **CC.smo**).

General surface shape:

CC. Concave – surface profile is mainly "hollow" in one or several directions

CV. Convex – surface profile is mainly "rounded" like the exterior of a sphere

ST. Straight – surface profile is linear, either flat or sloping in one direction

Size and frequency of microtopographic features:

mc. micro – low relief features (< 0.3 m high) with minimal effect on

vegetation

sl. **slightly** – prominent features (0.3–1m high) spaced > 7 m apart

md. **moderately** – prominent features (0.3–1m high) spaced 3–7 m apart

st. **strongly** – prominent features (0.3–1m high) spaced 1–3 m apart

sv. **severely –** prominent features (0.3–1m high) spaced < 1 m apart

ex. **extremely** – very prominent features (> 1 m high) spaced > 3 m apart

ul. **ultra** – very prominent features (> 1 m high) spaced < 3 m apart

Types of microtopographic features:

cha **channelled** – incised water tracks or channels

dom **domed** – raised bogs

gul **gullied** – geomorphic ridge and ravine patterns

hmk **hummocked** – mounds composed of organic materials

lob **lobed** – solifluction lobes

mnd **mounded** – mounds composed of mineral materials

net **netted** – net vegetation patterns from freeze-thaw action in alpine or subarctic terrain

pol **polygonal** – polygonal patterns associated with permafrost

rib **ribbed** – wetland pattern with raised ridges perpendicular to direction of water flow

smo **smooth** – surface relatively flat

tus **tussocked** – associated with tussock-forming graminoids

32. Exposure Type

Note significant localized atmospheric and climate-related factors reflected in atypical soil and / or vegetation features. If existing codes are inadequate, enter an "**X**" and explain under "Notes". If there is no evidence of exposure to anomalous conditions, enter "**NA**."

AT **Atmospheric toxicity** For example, where highly acid or alkaline precipitation, or chemically toxic fumes from industrial plants affect soil chemistry and morphology, and the type and growth form of vegetation.

- Soil indicators – unusually high or low pH values; accumulations of chemicals normally either absent or present in small quantities.
- Vegetation indicators – defoliated areas; diseased or dead standing species; presence of several species tolerant to abnormal chemical accumulations.

CA **Cold air drainage** Downslope areas through which cold air passes; often grade into frost pockets, but differ in that cold air does

not accumulate in them. Soil and vegetation indicators are similar to those for “FR," but the influence of cold temperatures is usually not as pronounced.

FR **Frost** Cold air accumulation in depressions and valley bottoms associated with high night-time surface cooling and / or cold air drainage. Frost pockets are often surrounded by slopes leading to the higher elevations from which the cold air originates.

- Soil indicators – wet conditions and / or deep organic accumulations.
- Vegetation indicators – species normally found in colder conditions than those of the general area, such as *Abies lasiocarpa* in the IDF zone; the presence of frost-hardy shrubs and herbs, such as scrub birch, marsh cinquefoil, and / or shrubby cinquefoil; abundant frost cracks on the trunks of trees.

IN **Insolation** Sites subjected to radiant solar heating to a significantly greater degree than on associated flat or gently sloping ground. Generally on SE, S, and SW aspects with slopes > 20–50%, depending on climate.

- Soil indicators – weaker than average soil profile development, reflecting a drier environment, or occasionally soil profiles with darker-coloured surface horizons.
- Vegetation indicators – heat-tolerant species; reduced tree growth; slow or sparse tree regeneration; open crown cover, and tree regeneration in distinct age groups, reflecting a history of wetter and drier years.

RN **Localized rainshadow** Valleys that are protected from the prevailing winds so that they are significantly drier than surrounding areas.

- Soil indicators – weaker soil development resulting from less precipitation, or different soil development because of significantly different vegetation.
- Vegetation indicators – plant communities or species indicative of a drier local climate.

SA **Saltspray** Areas that receive saltspray from a marine environment, affecting the type and growth form of the vegetation, and the chemical and morphological characteristics of the soil.

- Soil indicators – high pH and conductivity, presence of white salt accumulations as distinct crystals, and weak profile development.
- Vegetation indicators – an abundance of salt-tolerant species, and slow growth of many species.

SF **Fresh water spray** Areas adjacent to waterfalls and large rapids that

receive spray from the rushing water; the resulting vegetation is noticably different from other areas adjacent to the river or stream.

- Soil indicators – moister soils.
- Vegetation indicators – species characteristic of moister sites are present or more abundant.

SN **Snow accumulation** Areas that receive significantly more snow than surrounding areas, which results in different vegetation.

- Soil indicators – poorer soil development resulting from the shorter snow-free period, or moister soils because of the longer snow melt period.
- Vegetation indicators – species adapted to greater snow accumulations (i.e., resistant to breakage), or a shorter growing season; or vegetation displaying the effects of a shorter growing season more than in adjacent areas; or species or communities indicative of moister conditions because of greater snow melt.

WI **Wind** Site is directly influenced by strong winds; for example, on exposed mountain tops, along seashores or large lakes, or where "wind funnelling" occurs because of the convergence of valleys in the direction of wind flow.

- Soil indicators – weak soil development because of scalped (eroded) profiles; evidence of soil erosion on windward side and deposition on leeside; duning.
- Vegetation indicators – strongly reduced height growth and gnarled growth form with tree tops and branches oriented downwind; wind-shorn thickets of trees or shrubs (wind-shorn surface of vegetation follows the outline of any object providing wind protection).

X **Miscellaneous** – Describe under "Notes".

33. Surface Substrate

Enter the proportion of the ground surface covered by each class of substrate. The total for all six classes should sum to 100%. Enter "**0**" if a substrate class is not present. Classes are defined as follows:

Organic matter Surficial accumulations of organic materials, including the following:

- organic layers ≥ 1 cm thick overlying mineral soil, cobbles, stones, or bedrock;
- layers of decaying wood < 10 cm thick;
- large animal droppings; and
- areas covered by mats of bunchgrasses (mats include L horizons).
- Areas of living grass or forb cover where mineral soil is visible

between stems are classed as mineral soil, as are exposed Ah or Ap horizons.

Decaying wood Fallen trees, large branches on the ground surface, and partially buried stumps with an exposed edge.

- Does not include freshly fallen material that has not yet begun to decompose.
- May be covered with mosses, lichens, liverworts, or other plants.
- If an organic layer has developed over the wood, decaying wood must be ≥ 10 cm thick, otherwise it is classed as "organic matter."

Bedrock Exposed consolidated mineral material.

- May have a partial covering of mosses, lichens, liverworts, or other epilithic plants.
- Does not qualify as bedrock if covered by unconsolidated mineral or organic material ≥ 1 cm in thickness.

Rock (cobbles and stones) Exposed unconsolidated rock fragments > 7.5 cm in diameter.

- May be covered by mosses, lichens, liverworts; or an organic layer < 1 cm in thickness.
- Does not include gravels < 7.5 cm in diameter.

Mineral Soil Unconsolidated mineral material of variable texture not covered by organic materials.

- May have a partial cover of mosses, lichens, and liverworts.
- Often associated with cultivation, tree tip-ups, active erosion or deposition, severe fires, trails, or late snow retention areas.
- Includes small cobbles and gravel < 7.5 cm in diameter.

Water Streams, puddles, or areas of open water in bogs or fens.

34. Notes

Record additional information that:

- further characterizes the site;
- assists in finding the plot again;
- explains unusual entries elsewhere on the form; or
- relates to a particular project which is not accommodated elsewhere on the forms.

APPENDIX 1.1 Biogeoclimatic Units of British Columbia

Zone	Subzone	Variant	Name
AT			**Alpine Tundra Zone**
			(no subzones recognized currently)
BG			**Bunchgrass Zone**
	BGxh		Very Dry Hot BG
		BGxh1	Okanagan BGxh
		BGxh2	Thompson BGxh
		BGxh3	Fraser BGxh
	BGxw		Very Dry Warm BG
		BGxw1	Nicola BGxw
		BGxw2	Alkali BGxw
BWBS			**Boreal White and Black Spruce Zone**
	BWBSdk		Dry Cool BWBS
		BWBSdk1	Stikine BWBSdk
		BWBSdk2	Liard BWBSdk
	BWBSmw		Moist Warm BWBS
		BWBSmw1	Peace BWBSmw
		BWBSmw2	Fort Nelson BWBSmw
	BWBSwk		Wet Cool BWBS
		BWBSwk1	Murray BWBSwk
		BWBSwk2	Graham BWBSwk
		BWBSwk3	Kledo BWBSwk
	BWBSvk		Very Wet Cool BWBS
CDF			**Coastal Douglas-fir Zone**
	CDFmm		Moist Maritime CDF
CWH			**Coastal Western Hemlock Zone**
	CWHxm		Very Dry Maritime CWH
		CWHxm1	Eastern CWHxm
		CWHxm2	Western CWHxm
	CWHdm		Dry Maritime CWH
	CWHds		Dry Submaritime CWH

Zone	Subzone	Variant	Name
		CWHds1	Southern CWHds
		CWHds2	Central CWHds
	CWHmm		Moist Maritime CWH
		CWHmm1	Submontane CWHmm
		CWHmm2	Montane CWHmm
	CWHms		Moist Submaritime CWH
		CWHms1	Southern CWHms
		CWHms2	Central CWHms
	CWHwh		Wet Hypermaritime CWH
		CWHwh1	Submontane CWHwh
		CWHwh2	Montane CWHwh
	CWHwm		Wet Maritime CWH
	CWHws		Wet Submaritime CWH
		CWHws1	Submontane CWHws
		CWHws2	Montane CWHws
	CWHvh		Very Wet Hypermaritime CWH
		CWHvh1	Southern CWHvh
		CWHvh2	Central CWHvh
	CWHvm		Very Wet Maritime CWH
		CWHvm1	Submontane CWHvm
		CWHvm2	Montane CWHvm
		CWHvm3	Central CWHvm
ESSF			**Engelmann Spruce – Subalpine Fir Zone**
	ESSFxc		Very Dry Cold ESSF
	ESSFxv		Very Dry Very Cold ESSF
		ESSFxv1	West Chilcotin ESSFxv
		ESSFxv2	Big Creek ESSFxv
	ESSFdk		Dry Cool ESSF
	ESSFdku		Upper Dry Cool ESSF
	ESSFdc		Dry Cold ESSF
		ESSFdc1	Okanagan ESSFdc
		ESSFdc2	Thompson ESSFdc
	ESSFdv		Dry Very Cold ESSF
	ESSFmw		Moist Warm ESSF
		ESSF mwh	Hemlock Phase, ESSFmw
	ESSFmm		Moist Mild ESSF
		ESSFmm1	Raush ESSFmm
		ESSFmm2	Robson ESSFmm
	ESSFmk		Moist Cool ESSF
	ESSFmc		Moist Cold ESSF
	ESSFmv		Moist Very Cold ESSF
		ESSFmv1	Nechako ESSFmv

Zone	Subzone	Variant	Name
		ESSFmv2	Bullmoose ESSFmv
		ESSFmv3	Omineca ESSFmv
		ESSFmv4	Graham ESSFmv
	ESSFwm		Wet Mild ESSF
	ESSFwk		Wet Cool ESSF
		ESSFwk1	Cariboo ESSFwk
		ESSFwk2	Misinchinka ESSFwk
	ESSFwc		Wet Cold ESSF
		ESSFwc1	Columbia ESSFwc
		ESSFwc2	Northern Monashee ESSFwc
		ESSFwc3	Cariboo ESSFwc
		ESSFwc4	Selkirk ESSFwc
	ESSFwv		Wet Very Cold ESSF
	ESSFvc		Very Wet Cold ESSF
	ESSFvv		Very Wet Very Cold ESSF
	ESSFxcp		Very Dry Cold Parkland ESSF
	ESSFxvp		Very Dry Very Cold Parkland ESSF
		ESSFxvp1	West Chilcotin ESSFxvp
		ESSFxvp2	Big Creek ESSFxvp
	ESSFdkp		Dry Cool Parkland ESSF
	ESSFdcp		Dry Cold Parkland ESSF
		ESSFdcp1	Okanagan ESSFdcp
		ESSFdcp2	Thompson ESSFdcp
	ESSFdvp		Dry Very Cold Parkland ESSF
	ESSFmwp		Moist Warm Parkland ESSF
	ESSFmwph		Hemlock Phase, ESSFmwp
	ESSFmmp		Moist Mild Parkland ESSF
		ESSFmmp1	Raush ESSFmmp
		ESSFmmp2	Robson ESSFmmp
	ESSFmkp		Moist Cool Parkland ESSF
	ESSFmcp		Moist Cold Parkland ESSF
	ESSFmvp		Moist Very Cold Parkland ESSF
		ESSFmvp1	Nechako ESSFmvp
		ESSFmvp2	Bullmoose ESSFmvp
		ESSFmvp3	Omineca ESSFmvp
		ESSFmvp4	Graham ESSFmvp
	ESSFwmp		Wet Mild Parkland ESSF
	ESSFwcp		Wet Cold Parkland ESSF
		ESSFwcp2	Northern Monashee ESSFwcp
		ESSFwcp3	Cariboo ESSFwcp
		ESSFwcp4	Selkirk ESSFwcp
	ESSFwvp		Wet Very Cold Parkland ESSF
	ESSFvcp		Very Wet Cold Parkland ESSF
	ESSFvvp		Very Wet Very Cold Parkland ESSF

Zone	Subzone	Variant	Name
ICH			**Interior Cedar – Hemlock Zone**
	ICHxw		Very Dry Warm ICH
	ICHdw		Dry Warm ICH
	ICHdk		Dry Cool ICH
	ICHmw		Moist Warm ICH
		ICHmw1	Golden ICHmw
		ICHmw2	Columbia-Shuswap ICHmw
		ICHmw3	Thompson ICHmw
	ICHmm		Moist Mild ICH
	ICHmk		Moist Cool ICH
		ICHmk1	Kootenay ICHmk
		ICHmk2	Thompson ICHmk
		ICHmk3	Horsefly ICHmk
	ICHmc		Moist Cold ICH
		ICHmc1	Nass ICHmc
		ICHmc1a	Amabilis Fir Phase, ICHmc1
		ICHmc2	Hazelton ICHmc
	ICHwk		Wet Cool ICH
		ICHwk1	Wells Gray ICHwk
		ICHwk1c	Cold Air Phase, ICHwk1
		ICHwk2	Quesnel ICHwk
		ICHwk3	Goat ICHwk
		ICHwk4	Cariboo ICHwk
	ICHwc		Wet Cold ICH
	ICHvk		Very Wet Cool ICH
		ICHvk1	Mica ICHvk
		ICHvk1c	Cold Air Phase, ICHvk1
		ICHvk2	Slim ICHvk
	ICHvc		Very Wet Cold ICH
IDF			**Interior Douglas-fir Zone**
	IDFxh		Very Dry Hot IDF
		IDFxh1	Okanagan IDFxh
		IDFxh1a	Grassland Phase, IDFxh1
		IDFxh1b	Steep South Phase, IDFxh1
		IDFxh2	Thompson IDFxh
		IDFxh2a	Grassland Phase, IDFxh2
		IDFxh2b	Steep South Phase, IDFxh2
	IDFxw		Very Dry Warm IDF
	IDFxm		Very Dry Mild IDF
	IDFdw		Dry Warm IDF

Zone	Subzone	Variant	Name
	IDFdm		Dry Mild IDF
		IDFdm1	Kettle IDFdm
		IDFdm2	Kootenay IDFdm
	IDFdk		Dry Cool IDF
		IDFdk1	Thompson IDFdk
		IDFdk1a	Grassland Phase, IDFdk1
		IDFdk1b	Steep South Phase, IDFdk1
		IDFdk2	Cascade IDFdk
		IDFdk2b	Steep South Phase, IDFdk2
		IDFdk3	Fraser IDFdk
		IDFdk4	Chilcotin IDFdk
	IDFmw		Moist Warm IDF
		IDFmw1	Okanagan IDFmw
		IDFmw2	Thompson IDFmw
		IDFmw2a	Grassland Phase, IDFmw2
	IDFww		Wet Warm IDF
MH			**Mountain Hemlock Zone**
	MHmm		Moist Maritime MH
		MHmm1	Windward MHmm
		MHmm2	Leeward MHmm
		MHmm2e	Engelmann Spruce Phase, MHmm2
	MHwh		Wet Hypermaritime MH
		MHwh1	Windward MHwh
		MHwh2	Leeward MHwh
	MHmmp		Moist Maritime Parkland MH
		MHmmp1	Windward MHmmp
		MHmmp2	Leeward MHmmp
		MHmmp2e	Engelmann Spruce Phase, MHmmp2
	MHwhp		Wet Hypermaritime Parkland MH
		MHwhp1	Windward MHwhp
		MHwhp2	Leeward MHwhp
MS			**Montane Spruce Zone**
	MSxk		Very Dry Cool MS
	MSxv		Very Dry Very Cold MS
	MSdm		Dry Mild MS
		MSdm1	Okanagan MSdm
		MSdm2	Thompson MSdm
	MSdk		Dry Cool MS
	MSdc		Dry Cold MS

Zone	Subzone	Variant	Name
		MSdc1	Bridge MSdc
		MSdc2	Tatlayoko MSdc
	MSdv		Dry Very Cold MS
PP			**Ponderosa Pine Zone**
	PPxh		Very Dry Hot PP
		PPxh1	Okanagan PPxh
		PPxh1a	Grassland Phase, PPxh1
		PPxh2	Thompson PPxh
		PPxh2a	Grassland Phase, PPxh2
	PPdh		Dry Hot PP
		PPdh1	Kettle PPdh
		PPdh2	Kootenay PPdh
SBPS			**Sub-Boreal Pine – Spruce Zone**
	SBPSxc		Very Dry Cold SBPS
	SBPSdc		Dry Cold SBPS
	SBPBmk		Moist Cool SBPS
	SBPSmc		Moist Cold SBPS
SBS			**Sub-Boreal Spruce Zone**
	SBSdh		Dry Hot SBS
		SBSdh1	McLennan SBSdh
		SBSdh2	Robson SBSdh
	SBSdw		Dry Warm SBS
		SBSdw1	Horsefly SBSdw
		SBSdw2	Blackwater SBSdw
		SBSdw3	Stuart SBSdw
	SBSdk		Dry Cool SBS
	SBSmh		Moist Hot SBS
	SBSmw		Moist Warm SBS
	SBSmm		Moist Mild SBS
	SBSmk		Moist Cool SBS
		SBSmk1	Mossvale SBSmk
		SBSmk2	Williston SBSmk
	SBSmc		Moist Cold SBS
		SBSmc1	Moffat SBSmc
		SBSmc2	Babine SBSmc
		SBSmc3	Kluskus SBSmc

Zone	Subzone	Variant	Name
	SBSwk		Wet Cool SBS
		SBSwk1	Willow SBSwk
		SBSwk2	Finlay-Peace SBSwk
		SBSwk3	Takla SBSwk
		SBSwk3a	Douglas-fir Phase, SBSwk3
	SBSvk		Very Wet Cool SBS
SWB			**Spruce – Willow – Birch Zone**
	SWBdk		Dry Cool SWB
	SWBdks		Dry Cool Scrub SWB
	SWBmk		Moist Cool SWB
	SWBmks		Moist Cool Scrub SWB
	SWBvk		Very Wet Cool SWB
	SWBvks		Very Wet Cool Scrub SWB

APPENDIX 1.2. Ecosections of British Columbia

Ecoregion	Ecosection	Code
COAST AND MOUNTAINS		
CASCADE RANGES	Northwestern Cascade Ranges	**NWC**
CASCADIA CONTINENTAL SHELF	Vancouver Island Shelf	**VIS**
COASTAL GAP	Hecate Lowland	**HEL**
	Kitimat Ranges	**KIR**
HECATE CONTINENTAL SHELF	Dixon Entrance	**DIE**
	Hecate Strait	**HES**
	Queen Charlotte Sound	**QCS**
	Queen Charlotte Strait	**QCT**
NASS BASIN		**NAB**
NASS RANGES		**NAR**
NORTHERN COASTAL MOUNTAINS	Alaska Panhandle Mountains	**APM**
	Alsek Ranges	**ALR**
	Boundary Ranges	**BOR**
PACIFIC RANGES	Eastern Pacific Ranges	**EPR**
	Northern Pacific Ranges	**NPR**
	Outer Fiordland	**OUF**
	Southern Pacific Ranges	**SPR**
QUEEN CHARLOTTE LOWLAND		**QCL**
QUEEN CHARLOTTE RANGES	Skidegate Plateau	**SKP**
	Windward Queen Charlotte Mtns.	**WQC**
WESTERN VANCOUVER ISLAND	Nahwitti Lowland	**NWL**
	Northern Island Mountains	**NIM**
	Windward Island Mountains	**WIM**
GEORGIA DEPRESSION		
EASTERN VANCOUVER ISLAND	Leeward Island Mountains	**LIM**
	Nanaimo Lowland	**NAL**
LOWER MAINLAND	Fraser Lowland	**FRL**
	Georgia Lowland	**GEL**
GEORGIA-PUGET BASIN	Juan de Fuca Strait	**JDF**
	Southern Gulf Islands	**SGI**
	Strait of Georgia	**SOG**
CENTRAL INTERIOR		
BULKLEY RANGES		**BUR**
CHILCOTIN RANGES	Central Chilcotin Ranges	**CCR**
	Western Chilcotin Ranges	**WCR**
FRASER PLATEAU	Bulkley Basin	**BUB**
	Cariboo Basin	**CAB**
	Cariboo Plateau	**CAP**
	Chilcotin Plateau	**CHP**

Ecoregion	Ecosection	Code
	Fraser River Basin	**FRB**
	Nazko Upland	**NAU**
	Nechako Upland	**NEU**
	Quesnel Lowland	**QUL**
	Western Chilcotin Upland	**WCU**
SUB-BOREAL INTERIOR		
CENTRAL CANADIAN ROCKY MOUNTAINS	Hart Foothills	**HAF**
	Hart Ranges	**HAR**
	Misinchinka Ranges	**MIR**
	Peace Foothills	**PEF**
FRASER BASIN	Babine Upland	**BAU**
	McGregor Plateau	**MCP**
	Nechako Lowland	**NEL**
OMINECA MOUNTAINS	Eastern Skeena Mountains	**ESM**
	Manson Plateau	**MAP**
	Parsnip Trench	**PAT**
	Southern Omineca Mountains	**SOM**
SKEENA MOUNTAINS	Northern Skeena Mountains	**NSM**
	Southern Skeena Mountains	**SSM**
SOUTHERN INTERIOR MOUNTAINS		
COLUMBIA HIGHLANDS	Bowron Valley	**BOV**
	Quesnel Highland	**QUH**
	Shuswap Highland	**SHH**
NORTHERN COLUMBIA MOUNTAINS	Cariboo Mountains	**CAM**
	Central Columbia Mountains	**CCM**
	Eastern Purcell Mountains	**EPM**
	McGillivray Range	**MCR**
	Northern Kootenay Mountains	**NKM**
	Southern Columbia Mountains	**SCM**
EASTERN CONTINENTAL RANGES	Front Ranges	**FRR**
NORTHERN CONTINENTAL DIVIDE	Border Ranges	**BRR**
	Crown of the Continent	**COC**
SELKIRK-BITTERROOT FOOTHILLS	Selkirk Foothills	**SFH**
SOUTHERN ROCKY MOUNTAIN TRENCH	Big Bend Trench	**BBT**
	East Kootenay Trench	**EKT**
	Upper Fraser Trench	**UFT**
WESTERN CONTINENTAL RANGES	Central Park Ranges	**CPK**
	Northern Park Ranges	**NPK**
	Southern Park Ranges	**SPK**
SOUTHERN INTERIOR		
INTERIOR TRANSITION RANGES	Leeward Pacific Ranges	**LPR**
	Pavilion Ranges	**PAR**
	Southern Chilcotin Ranges	**SCR**

Ecoregion	Ecosection	Code
OKANOGAN HIGHLAND	Southern Okanogan Basin	**SOB**
	Southern Okanogan Highland	**SOH**
NORTHERN CASCADE RANGES	Hozameen Range	**HOR**
	Okanagan Range	**OKR**
THOMPSON-OKANAGAN PLATEAU	Northern Okanagan Basin	**NOB**
	Northern Okanagan Highland	**NOH**
	Northern Thompson Upland	**NTU**
	Southern Thompson Upland	**STU**
	Thompson Basin	**THB**
BOREAL PLAINS		
CENTRAL ALBERTA UPLAND	Clear Hills	**CLH**
	Halfway Plateau	**HAP**
SOUTHERN ALBERTA UPLAND	Kiskatinaw Plateau	**KIP**
PEACE RIVER BASIN	Peace Lowland	**PEL**
TAIGA PLAINS		
HAY RIVER LOWLAND	Fort Nelson Lowland	**FNL**
MUSKWA PLATEAU		**MUP**
NORTHERN ALBERTA UPLAND	Etsho Plateau	**ETP**
	Maxhamish Upland	**MAU**
	Petitot Plain	**PEP**
NORTHERN BOREAL MOUNTAINS		
HYLAND HIGHLAND		**HYH**
LIARD BASIN	Liard Plain	**LIP**
NORTHERN CANADIAN ROCKY MOUNTAINS	Eastern Muskwa Ranges	**EMR**
	Muskwa Foothills	**MUF**
	Western Muskwa Ranges	**WMR**
BOREAL MOUNTAINS AND PLATEAUS	Cassiar Ranges	**CAR**
	Kechika Mountains	**KEM**
	Southern Boreal Plateau	**SBP**
	Stikine Plateau	**STP**
	Teslin Plateau	**TEP**
	Tuya Range	**TUR**
SOUTHERN YUKON LAKES	Teslin Basin	**TEB**
ST. ELIAS MOUNTAINS	Icefield Ranges	**ICR**
YUKON-STIKINE HIGHLANDS	Tagish Highland	**TAH**
	Tahltan Highland	**THH**
	Tatshenshini Basin	**TAB**