Ground Inspection

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BRITISH COLUMBIA — GROUND INSPECTION FORM

G ☐ (1) VS V ☐	PHOTO (2)	X:	Y:	DATE (3)
PROJECT ID. (4)		SURV. (5)		
MAP SHEET (6)		PLOT # (7)		POLY. # (8)
UTM ZONE (9)	LAT. / NORTH (10)		LONG. / EAST (11)	
ASPECT (12) °		ELEVATION (13) m		
SLOPE (14) %	SMR (15)		SNR (16)	

MESO SLOPE POSTION (17)
☐ Crest ☐ Mid slope ☐ Depression ☐ Upper slope ☐ Lower slope ☐ Level ☐ Toe

DRAINAGE - MINERAL SOILS (18)
☐ Very rapidly ☐ Rapidly ☐ Well ☐ Mod. well ☐ Imperfectly ☐ Poorly ☐ Very poorly

MOISTURE SUBCLASSES - ORGANIC SOILS (19)
☐ Aqueous ☐ Aquic ☐ Perhumid ☐ Peraquic ☐ Subaquic ☐ Humid

MINERAL SOIL TEXTURE (20)
☐ Sandy (LS,S) ☐ Silty (SiL,Si) ☐ Loamy (SL,L,SCL,FSL) ☐ Clayey (SiCL,CL,SC,SiC,C)

ORGANIC SOIL TEXTURE (21)
☐ Fibric ☐ Mesic ☐ Humic

SURF. ORGANIC HORIZON THICKNESS (22)
☐ 0–40 cm ☐ > 40 cm

HUMUS FORM (23)
☐ Mor ☐ Moder ☐ Mull

ROOT RESTRICTING LAYER (24)
Depth _____ cm Type _____

COARSE FRAGMENT CONTENT (25)
☐ < 20% ☐ 20–35% ☐ 35–70% ☐ > 70%

TERRAIN

COMPONENT: (26) TC1 ☐ TC2 ☐ TC3 ☐

TERRAIN TEXTURE (27)	SURFICIAL MATERIAL (28)	SURFACE EXPRESSION (29)	GEOMORPH PROCESS (30)
1	1	1	1
2	2	2	2

ECOSYSTEM

COMPONENT: (31) EC1 ☐ EC2 ☐ EC3 ☐

BGC UNIT (32)	ECOSECTION (33)
SITE SERIES (34)	SITE MODIFIERS (35)
STRUCTURAL STAGE (36)	CROWN CLOSURE (37) %

ECOSYSTEM POLYGON SUMMARY

	%	SS	SM	ST
EC1				
EC2		(38)		
EC3				

TERRAIN POLYGON SUMMARY

	%	Classification
TC1		
TC2		(39)
TC3		

DOMINANT / INDICATOR PLANT SPECIES

TOTAL % (44)	A:	B:	C:	D:

L.	SPECIES	%	L.	SPECIES	%	L.	SPECIES	%
(40)	(41)	(42)						

COMPLETE ☐ (43) PARTIAL ☐

Tree Mensuration (45)

Spp.	DBH	Ht. Calculation to DBH						Ht. to DBH	Total HT	BH Age	Path Y/N
		Top	Bot	SD	SL	HD	HT				

NOTES (site diagram, exposure, gleying, etc.)

(46)

Introduction

This field guide insert to the Field Manual for Describing Terrestrial Ecosystems describes the coding standards for the data attributes on the Ground Inspection Form (GIF). Where attributes are the same, the coding standards follow those in the Field Manual for Describing Terrestrial Ecosystems (Prov. of B.C. 1998). The Ground Inspection Form is a revision of the Terrestrial Ecosystem Mapping Visual Inspection Form from 1996. Changes and additions were made in reponse to the needs and concerns of users.

This Form is designed for use wherever "quick" ecological inspections are required. It can be used to record information "on-the-ground" or from the air or viewscapes. The former are generally termed **ground inspections**; the latter **visual inspections**. Visual inspections provide very brief polygon or site summary information and although they are usually conducted from the air or viewscapes, they can include very quick, on-the-ground inspections. Ground inspections provide more detailed information, as they are completed at a site, and are used to characterize certain features of the site, or to confirm the presence of ecosystem and/or terrain units within a polygon.

In Terrestrial Ecosystem Mapping, ground and visual inspections provide important site information to assist the mapping process.

While over 50 data fields are presented on the GIF and described in this document, not all are required for every project. The objectives of a study will determine the data to be collected. Project objectives may also require attributes not presented on this form. In these cases, the 'Notes' section can be used and additional fields appended to the database.

For more information on data coding descriptions and standards refer to the following publications:

1. Ministry of Forests (MoF) Regional field guides for site identification and interpretation
2. Describing Ecosystems in the Field (Luttmerding et al. 1990)
3. Standard for Terrestrial Ecosystem Mapping (TEM) in British Columbia (Resources Inventory Committee 1998)
4. Terrain Classification System for British Columbia, Version 2 (Howes and Kenk 1997)

A GIF data entry software system, GRAVITI (GRound And Visual Inspection TEM Interface), has been developed and is available on the Ministry of Forests FTP site (ftp://ftp.hre.for.gov.bc.ca/pub/GIF).

Site Ground Inspection Data Requirements

In general, when completing a ground inspection for a single site, record data for each of the following fields, as appropriate:

Numbered items refer to numbered fields on the Ground Inspection Form (pg. 3 & 4)

1. The G (ground) box
2. Photo no. (with x and y coordinates)
3. Date
4. Project ID.
5. Surveyor(s)
6. Mapsheet
7. Plot number
8. Polygon number

9-11. UTMs or Latitude / Longitude

12. Aspect
13. Elevation (m)
14. Slope (%)
15. Soil moisture regime (SMR)
16. Soil nutrient regime (SNR)
17. Meso slope position
18. Drainage—mineral soil
19. Moisture subclass—organic soil
20. Mineral soil texture or
21. Organic soil texture
22. Surface organic horizon thickness
23. Humus form
24. Depth to (cm), and Type of root restricting layer
25. Coarse fragments (%) (of rooting zone)
27. Terrain texture
28. Surficial material
29. Surface expression
30. Geomorphological processes
32. BGC unit
33. Ecosection
34. Site series (SS)
35. Site modifiers (SM)
36. Structural stage (ST)
37. Crown closure
44. Total % cover (by stratum)
41. Dominant / Indicator plant species list
42. Percent cover
43. Plant list complete or partial
46. Notes

Polygon Ground Inspection Data Requirements

In most cases, when completing a polygon ground inspection the following fields would be used:

Numbered items refer to numbered fields on the Ground Inspection Form (pg. 3 & 4)

1. The G (ground) box
2. Photo no. (with x and y coordinates)
3. Date
4. Project ID.
5. Surveyor(s)
6. Mapsheet
7. Plot number
8. Polygon number

32. BGC unit
33. Ecosection
38. Ecosystem polygon summary
39. Terrain polygon summary
46. Notes

If a site ground inspection is being done in conjunction with the polygon ground inspection, the appropriate Terrain Component and / or Ecosystem Component should be checkmarked and the site ground inspection data requirements be completed as listed above.

Recommended Data for Site and Polygon Visual Inspections

Visual inspections can be completed for either polygon or site inspections. As these are quick inspections and are often completed from the air or viewscapes, much less information is collected. An accurate description of the location is essential; all other fields are optional. Generally, a visual inspection has a purpose: e.g., confirm ecosystem unit, check polygon components, evaluate soil texture, and the fields that are completed will reflect that purpose.

The following fields are often completed:

Numbered items refer to numbered fields on the Ground Inspection Form (pg. 3 & 4).

1. Checkmark V (visual) box
2. Photo no. (with x and y coordinates)
3. Date
4. Project ID
5. Surveyor(s)
6. Mapsheet
7. Plot number
8. Polygon number

9-11. UTM or Latitude / Longitude (if completing a SITE inspection)

32. BGC unit

33. Ecosection

One or more of the following:

34. Site series (SS)
35. Site modifiers (SM)
36. Structural stage (ST)
38. Ecosystem polygon summary
39. Terrain polygon summary

Site Ground Inspection Field Procedure

Getting Started

1. Select the sample plot. Project objectives will determine how plot locations are selected.
2. Checkmark the "G" (ground) box. Record the date, project id., surveyor(s) name(s), mapsheet number, plot number, polygon number (if available), BGC unit and ecosection.
3. Locate the plot on the air photo, pinprick the site and record the plot number on the back of the photo. Record the airphoto number and X and Y coordinates.
4. Record latitude and longitude, using field GPS or UTM, using TRIM maps.
5. Locate and excavate a soil pit to a depth of about 50 cm.

Measure and Assess

1. Determine the aspect, elevation, and slope.
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.
3. Assess the soils and determine humus form, soil drainage or soil moisture subclass, soil texture and percent coarse fragments. Record the depth and type of root restricting layer, if any, and the depth of the surface organic horizon.
4. Record the terrain texture, surficial material, surface expression and geomorphological processes.
5. Record the dominant and indicator plant species, noting layer. Evaluate the percent cover by species and total for each layer. Checkmark whether the species list recorded is complete or partial.
6. Confirm BGC unit. Integrate site, soil and vegetation factors to determine soil moisture and soil nutrient regimes, and site series. Evaluate conditions for ecosystem unit site modifiers.
7. Determine the structural stage and crown closure.

8. Describe the key site features under Notes. Draw a site diagram, if important features can be effectively depicted.
9. Check to be sure that all required fields have been completed.

Later in the office

1. If not done in the field, locate the plot on an appropriate scale map and record the mapsheet number and the UTM zone and coordinates.
2. Compare elevation recorded in the field with that indicated on a topographic map, and adjust if appropriate.
3. Using an air photo grid, determine the x and y coordinates of the plot.
4. Check again to be sure that all required fields have been completed.

Polygon Ground Inspection Field Procedure

Getting Started

1. Determine polygon to be inspected. Locate the polygon on the ground and confirm location.
2. Checkmark the "G" (ground) box. Record the date, project id., surveyor(s) name(s), mapsheet number, polygon number (if available), BGC unit and ecosection.
3. Locate and pinprick the polygon on the air photo and record the flight line and airphoto number. If desired, record an inspection number in the "Plot" field and on the back of the photo.

Measure and Assess

1. Review the ecosystem and terrain pretyping of the polygon.
2. Traverse the polygon to survey each ecosystem and terrain component.
3. Based on observed site, soil and ecosystem characteristics, identify the ecosystem and terrain units and determine the percentage of the polygon represented by each (to a maximum of three components).
4. Record the site series, site modifiers and structural stage for each ecosystem component and/or;
5. Record the terrain texture, surficial material, surface expression and geomorphological processes for each terrain component.

Later in the office

1. Locate the polygon on an appropriate scale map, and record the mapsheet number (if not already done).
2. Record the polygon number (if not already done).
3. Check again to be sure that all required fields have been completed.

Visual Inspection Field Procedure

Getting Started

1. Select site or polygon to be checked. This will be determined by project objectives, sampling plan, and sampling-to-date.
2. Checkmark the "V" (visual) box. Record the date, project id., surveyor(s) name(s), mapsheet number, plot number, polygon number (if available), BGC unit and ecosection (it may be more efficient to have entered most of this information in the office).
3. Locate the plot or polygon on the air photo. Pinprick the specific location of a site inspection or the polygon for a polygon inspection and record the inspection number on the back of the air photo. Record the flight line and airphoto number.
4. Record latitude and longitude (using field GPS) or UTM (using TRIM maps) for site inspections.

Measure and Assess

Record the information required by the project objectives. This will generally be data to aid in the labelling of polygons or the delineation of polygon boundaries. For example:

- Ecosystem unit components with representative percentages
- Terrain components, with representative percentages
- Identifiable features such as crown closure, major plant species, slope position, elevation, and / or aspect
- Notes on site series transitions, peculiar aspects of site or polygon, wildlife sign, etc.

Later in the office

1. Locate the plot or polygon on an appropriate scale map and confirm the location information.
2. If latitude and longitude were not entered in the field (for a site inspection), determine the UTM zone and coordinates from the map.

Completing the Form

Numbered items refer to numbered fields on the Ground Inspection Form (pages: 3 and 4)

1. Ground or Visual Inspection

Tick the appropriate box (G _ vs. V _) indicating the type of survey being done: Ground (G) or Visual (V).

2. Air Photo Number

Record the flight line and air photo number (Photo), e.g., BCC206 No0040. Determine and record the *x* and *y* coordinates (X:, Y:) using an air photo grid.

3. Date

Enter 2-digit codes for year, month, and day, e.g., 97-06-21.

4. Project ID

Enter a descriptor for the type of project and the location. [see Site Description, Item 3 (p. 5)[1]

5. Surveyor(s)

Record the first initial and last name of each person involved in the inspection (Surv.).

6. Mapsheet

Using the BC Geographic System, identify the mapsheet where the inspection is located, e.g., 93H 015.

7. Plot Number

Record a project-specific number. In combination with the project identification, it will provide a unique identifier. Also record on any additional forms completed for the inspection.

8. Polygon Number

If the inspection is part of a mapping project, record the polygon number (Poly.) where the ground or visual inspection is located. The polygon number will be unique to the project and / or the mapsheet (e.g., 001).

9. UTM Zone

If using the UTM system to indicate precise plot location, enter the UTM zone indicated on the mapsheet (8–11 within BC).

[1] See Resources Inventory Committee. 1998a.

10 - 11. Latitude/Longitude or Northing/Easting

Determine the precise location of the plot (Lat. / North. & Long. / East) using the best available topographic base map. Latitude and longitude may be determined using GPS. Although either method 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 (NAD 83 only).

12. Aspect

Record the orientation of the slope, measured by compass, in degrees (enter due north as 0°; level ground as “999”).

13. Elevation

Record elevation, in metres, using an altimeter. Confirm by consulting a topographic map.

14. Slope

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

15. Soil Moisture Regime

Enter a code (0–8) for soil moisture regime (SMR) [see Site Description, Item 20 (p. 9)][1].

16. Soil Nutrient Regime

Enter a code (A–F) for soil nutrient regime (SNR) [see Site Description, Item 21 (p. 11)][1].

17. Meso Slope Position

Checkmark the appropriate box to indicate the position of the plot relative to the localized catchment area [see Site Description, Item 30 (p. 25)][1].

18. Drainage - Mineral Soils

Checkmark the box for the appropriate drainage class. Drainage describes the speed and extent at which water is removed from a mineral soil, in relation to supply [see Soil Description, Item 14 (p. 21)][1].

19. Moisture Subclasses - Organic Soils

If assessing a site with an organic soil, checkmark the box for the appropriate soil moisture subclass [see Soil Description, Item 14 (p. 23)][1].

20. Mineral Soil Texture

Determine soil texture in the rooting zone of the soil profile and tick the appropriate box [see Soil Description, Item 27 (p. 40)][1].

[1] See Resources Inventory Committee. 1998a.

21. Organic Soil Texture

If assessing an organic soil, determine the fabric of the surface tier (0-40 cm) and tick the appropriate box. Use the definitions of Of, Om, and Oh horizons to determine fibric, mesic and humic, respectively [see Soil Description, Item 16 (p. 26)] [1].

22. Surface Organic Horizon Thickness

Measure the surface organic horizon, in cm, from the top of the ground surface to the top of the first mineral horizon. Checkmark the appropriate box.

23. Humus Form

Examine the humus form profile and tick the appropriate box [see Soil Description, Item 7 (p. 15), and Appendix 2.3 (p. 57)][1].

24. Root Restricting Layer

Identify and record the type of root restricting layer, if present. Measure and record the depth in cm. from the ground surface (top of the uppermost soil horizon, including organic horizons) to this layer. Enter a letter code for type. [see Soil Description, Item 11 (p. 20)][1].

25. Coarse Fragment Content

Estimate the percent coarse fragment (>2 mm diameter) volume in the rooting zone of the soil profile and tick the appropriate box for the range.

26. Terrain Component

A maximum of three terrain components (TC1, TC2, TC3) may be denoted in a complex polygon (for TEM projects). TC1 represents the dominant terrain component for the polygon; TC2 and TC3 represent secondary terrain components. If a polygon is labeled 70% colluvial blanket, 20% colluvial veneer, and 10% rock, and the particular site that you are describing is a veneer, the box beside TC2 should be ticked. If a polygon contains only one terrain component (e.g., 100% colluvial blanket), then TC1 should be ticked.

27 - 30. Terrain Classification

Fields are provided for recording terrain texture, surficial material, surface expression and geomorphologic processes (Geomorph Process). Up to three codes can be used in each of these fields. The first line on the form is for the uppermost stratigraphic layer; the second for an underlying layer. Codes and definitions are provided, see Soil Description, Item 5 (p. 8)][1]. Refer to Terrain Classification System for British Columbia (Howes and Kenk 1997) for further information.

[1] See Resources Inventory Committee. 1998a.

31. Ecosystem Component

A maximum of three ecosystem components may be described in a complex polygon (for TEM projects). EC1 represents the dominant ecosystem component for the polygon; EC2 and EC3 represent secondary ecosystem components. If a polygon is labeled 50% open water, 30% great bulrush marsh and 20% field sedge meadow, and the site that you are describing is the field sedge meadow component, the box beside EC3 should be ticked. If a polygon contains only one ecosystem component (e.g., 100% sedge fen), then EC1 should be ticked.

32. Biogeoclimatic Unit

Enter a code for the biogeoclimatic zone and subzone; include variant and phase where applicable. For current listing of codes see Site Description, Appendix 1.1, (p. 31)[1]. Transitional areas can be coded. [see Site Description, Item 16 (p. 8)][1].

33. Ecosection

Enter a three-letter code for the ecosection. For current listing of codes see Site Description, Appendix 1.2, (p. 38)[1].

34. 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 for site identification and interpretation. Use two-letter codes for TEM projects (letter codes and "typical" environmental conditions for all site series are provided in file 'map_code.xls' on the site: ftp://wldux2.env.gov.bc.ca/pub/TEM).

Note the following special cases:

- 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.

35. Site Modifiers

Record up to two site modifier codes (one letter each) to indicate atypical conditions relating to site series (Table 1.1). For example, if a site series is typically described as significant slope, warm aspect, with deep, medium textured soils **but** the site you are describing has a shallow soil, record an "s" to indicate this site modifier. Full descriptions of site modifiers are found in Appendix 1.1. See Soil Description, Appendix 2.4 for soil texture codes.

[1] See Resources Inventory Committee. 1998a.

TABLE 1.1. Quick Guide to Site Modifiers[2]

		Moisture	
a	active floodplain	**x**	drier than typical (optional)
g	gullying occurring	**y**	moister than typical (optional)
h	hummocky terrain (optional)	**Soil**	
j	gentle slope, < 25% in interior, < 35% in CWH, CDF, MH	**c**	coarse–textured soils, S and LS, also SL, L, SCL with >70% coarse fragment volume
k	cool northerly or easterly aspects (285°—135°); slope 25–100% in interior, 35–100% in CWH, CDF and MH)	**d**	deep soil (> 100 cm to bedrock)
		f	fine–textured soils, Si, SiL with < 20% coarse fragment volume and C, SiC, SiCL, CL, SC, HC with < 35% coarse fragment volume
n	fan or cone		
q	very steep slope (> 100 %) on cool aspects (285°—135°)	**m**	medium - textured soils, SL, L, SCL with < 70% coarse fragment volume, Si and SiL with > 20% coarse fragment volume, and C, SiC, SiCL, CL, SC, and HC with > 35% coarse fragment volume
r	ridge (optional)		
t	terrace		
w	warm southerly or westerly aspects (135°—285°); slope 25–100% in interior, 35–100% in CWH, CDF and MH)	**p**	on deep organics or a peaty surface (15—60 cm)
		s	shallow soils (20—100 cm to bedrock)
z	very steep slope (> 100%) on warm aspects (135°—285°)	**v**	very shallow soils (< 20 cm to bedrock)

[2] See APPENDIX 1.1 for further details.

36. Structural Stage

Record structural stage. [see Site Descricription, Item 23 (pg. 16)]. Use numeric and lower case alphabetic codes unless otherwise directed. Modifiers for stand structure and stand composition are optional. Separate modifier codes from the structural stage code with a slash (e.g., 7/mC; 3b/D).

37. Crown Closure

Describes the percentage of ground area covered by the vertically projected crowns of the tree cover within the polygon. Record crown closure using a percentage value from 0-99 %.

38. Ecosystem Polygon Summary

Up to three different ecosystem components can be described within a polygon with the following information.

Ecosystem components (EC1-EC3):
Denotes the three possible ecosystem components.

Percent (%):
Enter the percentage of the whole polygon represented by each ecosystem component. The sum of the three values must total 100 percent.

Site series (SS):
Enter a two-letter site series symbol for each ecosystem component (refer to Item 34, above).

Site modifiers (SM):
Enter site modifiers for each ecosystem component (refer to Item 35, above).

Structural Stage (ST):
Enter the structural stage for each ecosystem component (refer to Item 36, above).

39. Terrain Polygon Summary

Up to three terrain components can be described within a polygon with the following information.

Terrain components (TC1 -TC3):
Denotes the three possible terrain components.

[1] See Resources Inventory Committee. 1998a.

Percent (%):
Enter the percentage of the whole polygon represented by each terrain component. The sum of the three values must total 100 percent.

Classification:
Classify each terrain component in the polygon, referring to the information presented in Items 27-30 (above). Enter up to three descriptors each, in sequence, for terrain texture, surficial material, surface expression, and geomorphological processes.

40. Layer
Enter the layer codes for each of the plant species [see Vegetation, Vegetation Layers (p. 5)][1].

41. Dominant/Indicator Plant Species
List the dominant and indicator species using provincial plant species codes [see Vegetation, Species Lists (p. 6)][1].

42. Percent Cover
Record the percent cover for each species as a percentage of the sample area (plot).

43. Plant List Complete or Partial
Checkmark the appropriate box to indicate if the vegetation list is comprehensive (Complete) or lists only a portion of the plants observed at the site (Partial).

44. Total %
Estimate the total percent cover for each layer indicated (A, B, C, D) as a percentage of the sample area (plot) [see Vegetation, Vegetation Layers (p. 5)] [1].

45. Tree Mensuration
Enter information, as required by project objectives [see Mensuration, Chapter 4][1].

46. Notes
Record additional information here, for example:
- further characterization of the site
- information to assist in relocating the plot
- explanation of unusual entries elsewhere on the form
- data specific to a particular project that is not accommodated elsewhere on the forms
- site diagram [see Site Description, Item 14 (p. 7)][1].

[1] See Resources Inventory Committee. 1998a.

References

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* GRAVITI Software is available for download on the Ministry of Forests, Research Branch's and Ministry of Environment, Lands and Parks, Resources Inventory Branch's web sites.
[Access sites through: http://www.gov.bc.ca].

APPENDIX 1.1 Site Modifiers for Atypical Conditions

Code	Criteria
Topography	
a	active floodplain[1] – the site series occurs on an active fluvial floodplain (level or very gently sloping surface bordering a river that has been formed by river erosion and deposition), where evidence of active sedimentation and deposition is present.
g	gullying[1] occurring – the site series occurs within a gully, indicating a certain amount of variation from the typical, or the site series has gullying through out the area being delineated.
h	hummocky[1] terrain (optional modifier) – the site series occurs on hummocky terrain, suggesting a certain amount of variability. Commonly, hummocky conditions are indicated by the terrain surface expression but occasionally they occur in a situation not described by terrain features.
j	gentle slope – the site series occurs on gently sloping topography (less than 25% in the interior, less than 35% in the CWH, CDF, and MH zones).
k	cool aspect – the site series occurs on cool, northerly or easterly aspects (285°–135°), on moderately steep slopes (25%–100% slope in the interior and 35%–100% slope in the CWH, CDF and MH zones).
n	fan[1] – the site series occurs on a fluvial fan (most common), or on a colluvial fan or cone.
q	very steep cool aspect – the site series occurs on very steep slopes (greater than 100% slope) with cool, northerly or easterly aspects (285°–135°).
r	ridge[1](optional modifier) – the site series occurs throughout an area of ridged terrain, or it occurs on a ridge crest.
t	terrace[1] – the site series occurs on a fluvial or glaciofluvial terrace, lacustrine terrace, or rock cut terrace.
w	warm aspect – the site series occurs on warm, southerly or westerly aspects (135°–285°), on moderately steep slopes (25%–100% slope in the interior and 35%–100% slope in the CWH, CDF and MH zones).
z	very steep warm aspect – the site series occurs on very steep slopes (greater than 100%) on warm, southerly or westerly aspects (135°–285°).

Code	Criteria
Moisture	
x	drier than typical (optional modifier) – describes part of the range of conditions for circummesic ecosystems with a wide range of soil moisture regimes or significantly different site conditions. For example, SBSmc2/01 (Sxw–Huckleberry) has three site phases described, and the submesic phase can be labeled with the "drier than average" modifier (e.g., SBx). This code should be applied only after consultation with the Regional Ecologist.
y	moister than typical (optional modifier) – describes part of the range of conditions for circummesic ecosystems with a wide range of soil moisture regimes or significantly different site conditions. For example, SBSmk1/06 (Sb–Huckleberry–Spirea) is "typically" described as submesic to mesic. When this site series is found on subhygric or hygric sites, the "y" modifier is used (e.g., BHy). This code should be applied only after consultation with the Regional Ecologist.
Soil	
c	coarse-textured soils[2] - the site series occurs on soils with a coarse texture, including sand and loamy sand, and also sandy loam, loam, and sandy clay loam with greater than 70% coarse fragment volume.
d	deep soil – the site series occurs on soils greater than 100 cm to bedrock.
f	fine textured soils[2] - the site series occurs on soils with a fine texture including silt and silt loam with less than 20% coarse fragment by volume and clay, silty clay, silty clay loam, clay loam, sandy clay and heavy clay with less than 35% coarse fragment by volume.
m	medium-textured soils[2] - the site series occurs on soils with a medium texture, including sandy loam, loam and sandy clay loam with less than 70% coarse fragment by volume, silt loam and silt with more than 20% coarse fragment by volume, and clay, silty clay, silty clay loam, clay loam, sandy clay and heavy clay with more than 35% coarse fragment by volume.
p	peaty material – the site series occurs on deep organics or a peaty surface (15–60 cm)[3] over mineral materials (e.g., on organic materials of sedge, sphagnum, or decomposed wood).
s	shallow soils – the site series occurs where soils are considered to be shallow to bedrock (20–100 cm).
v	very shallow soils – the site series occurs where soils are considered to be very shallow to bedrock (less than 20 cm).

[1] Howes and Kenk 1997

[2] Soil textures have been grouped specifically for the purposes of ecosystem mapping

[3] Canada Soils Survey Committee, 1987

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