

Appendix 1A. FGDC and ESA Guiding Principles for Vegetation Classification

The guiding principles for the NVCS (FGDC 1997) are listed below. Italics indicate goals that have not been fully achieved to date. Revision of the physiognomic classification standard and completion of the floristic classification methodology standard will address most of these goals.

1. The classification is applicable over extensive areas.
2. *The vegetation classification standard is compatible, wherever possible, with other Earth cover/land cover classification standards.*
3. The classification will avoid developing conflicting concepts and methods through cooperative development with the widest possible range of individuals and institutions.
4. *Application of the classification must be repeatable and consistent.*
5. When possible, the classification standard will use common terminology (*i.e.*, terms should be understandable and jargon should be avoided).
6. For classification and mapping purposes, the classification categories were designed to be mutual exclusive and additive to 100% of an area when mapped within any of the classification's hierarchical levels (Division, Order, Class, Subclass, [Group], Subgroup, Formation, Alliance, or Association). *Guidelines have been developed for those instances where placement of a floristic unit into a single physiognomic classification category is not clear. Additional guidelines will be developed as other such instances occur.*
7. The classification standard will be dynamic, allowing for refinement as additional information becomes available.
8. The NVCS is of existing, not potential, vegetation and is based upon vegetation condition *at the optimal time during the growing season*. The vegetation types are defined on the basis of inherent attributes and characteristics of the vegetation structure, growth form and cover.
9. The NVCS is hierarchical (*i.e.*, aggregatable) to contain a small number of generalized categories at the higher level and an increasingly large number of more detailed categories at the lower levels. The categories are intended to be useful at a range of scales.
10. The upper levels of the NVCS are based primarily on the physiognomy (life form, cover, structure, leaf type) of the vegetation (not individual species). The life forms (*e.g.*, herb, shrub, or tree) in the dominant or uppermost stratum will predominate in the classification of the vegetation type. *Climate and other environmental variables are used to help organize the standard, but physiognomy is the driving factor.*
11. The lower levels of the NVCS are based on actual floristic (vegetation) composition. The data used to describe Alliance and Association types must be collected in the field using standard and documented sampling methods. The Alliance and Association units are derived from these field data. *These floristically-based classes will be nested under the physiognomic classes of the hierarchy.*

The additional guiding principles adopted by the ESA Vegetation Classification Panel (Jennings *et al.* 2002) are as follows:

- 1.** The US-NVC must be based fundamentally on floristic as well as physiognomic units of vegetation that conform to published standards.
- 2.** The US-NVC floristic units must be based on field plot data that meet minimum standards.
- 3.** The US-NVC must be open to change in the sense that any person (independently or representing some institution) is free to submit proposed additions and changes, and that the rules, standards, and opportunities are the same for all potential contributors regardless of their institutional affiliations.
- 4.** The US-NVC must have a formal impartial, scientifically rigorous peer review process for floristic units, whereby proposals to recognize new units or accept units are evaluated.
- 5.** The US-NVC system should be sufficiently robust, well documented, and in the public domain, so that the loss of any of the supporting organizations from the collaborative effort would not result in failure or collapse of the US-NVC and its information system.
- 6.** The chief aim of the US-NVC is to support a basic understanding of vegetation and to serve as a practical tool for the conservation and management of the nation's vegetation resources.

ESA principles 3 and 5 may be somewhat incompatible with Presidential and OMB direction to federal agencies regarding FGDC standards (Executive Order 12906, OMB 1990). Both fail to consider that FGDC standards are mandatory for all federal agencies but optional for all other organizations and individuals. It is, therefore, reasonable and necessary that federal agencies have a greater voice in approving changes to that standard. Continual revision of the NVCS would require constant updating of databases, GIS coverages, and publications, which could prove prohibitively expensive.

Principle 5 assumes that use of the NVCS is voluntary and, therefore, that NVCS database(s) would be at risk if the organization(s) housing them dropped out of the collaboration. Since federal agencies must use the NVCS as an FGDC standard, this fear is unfounded as long as the NVCS database(s) is housed and/or funded by federal agencies. Since the NVCS will be mandatory for federally funded activities, it will collapse only if it fails to meet the needs of federal agencies.

Appendix 1B. Overview of the NVCS Physiognomic Hierarchy

The FGDC (1997) NVCS establishes a hierarchical vegetation classification with nine levels. The top seven levels are primarily based on physiognomy. The two lowest levels, alliance and association, are based on floristic attributes. The seven physiognomic levels are described below. These descriptions include the FGDC definition of the level, classification criteria, and any issues implementation that have hampered implementation of the physiognomic classification standard.

1. Division: “The first level in the classification standard separating Earth cover into either vegetated or non-vegetated categories” (FGDC 1997).

Classification Criteria: The Vegetated Division is defined as “Areas having equal to or greater than 1% or more of the land or water surface with live vegetation cover at the peak of the growing season” (FGDC 1997). Areas with less than 1% live vegetation comprise the Non-vegetated Division. The Non-vegetated Division is subdivided no further. The remaining levels of the physiognomic hierarchy are all subdivisions of the Vegetated Division.

Implementation Issues: Detection of 1% vegetation through remote sensing is not feasible. The MRLC 2000 proposed landcover classes define Barren as less than 20% vegetation cover.

2. Order: “The next level in the hierarchy under Division. The Orders within the Vegetated Division are generally defined by dominant life form (tree, shrub, dwarf shrub, herbaceous, non-vascular)” (FGDC 1997).

Classification Criteria: Orders are classified based on the dominant life form or tallest life form with at least 25% canopy cover. They are based predominantly on vegetation structure.

Implementation Issues: The Nonvascular Dominated Order does not include crustose lichens, which are essentially regarded on non-living at this level of the classification. This has no ecological meaning and appears to represent a bias toward what can be detected through remote sensing.

3. Class: “A level in the classification hierarchy defined by the relative percent canopy cover of the tree, shrub, dwarf shrub, herb, and nonvascular life forms in the uppermost strata during the peak of the growing season” (FGDC 1997).

Classification Criteria: Classes are based on the following structural attributes:

- Tree canopy cover
- Shrub height and canopy cover
- Herbaceous vs non-vascular canopy cover

Implementation Issues: Only two of the five orders are subdivided at the class level, the Tree Dominated and Shrub Dominated Orders. These divisions, based on tree canopy cover and shrub height,

have proved impractical in several classification and mapping projects. Thus, the Order and Class levels may be merged when the physiognomic hierarchy is revised (FGDC 2001a).

4. Subclass: “A level in the classification determined by the predominant leaf phenology of woody plants or the leaf type and periodicity of herbaceous plants” (FGDC 1997).

Classification Criteria: Subclasses are based on the following life form attributes:

- Leaf phenology (e.g. evergreen vs deciduous)
- Gross morphology (e.g. graminoid vs forb)
- Herb periodicity (e.g. annual vs perennial)

5. Group: “A level of the classification defined by a combination of climate, leaf morphology, and leaf phenology” (FGDC 1997).

Classification Criteria: Groups are based on the following life form, structural, and abiotic attributes:

- Climatic Regime (e.g. temperate, tropical, subpolar)
- Leaf morphology (e.g. extremely xeromorphic)
- Leaf phenology (e.g. cold- vs drought-deciduous)
- Presence of a sparse woody layer in grasslands.

Implementation Issues: Climatic regime is not a vegetation attribute, so its use violates FGDC guiding principle number 8 (see Appendix 1A). Additionally, climatic regime cannot be assessed in a one –time visit to a plot.

6. Subgroup: “A level of the hierarchy that splits Natural/Semi-Natural vegetation types from the Planted/Cultivated vegetation types” (FGDC 1997).

Classification Criteria: Subgroups are based on the following definitions:

Natural/Semi-Natural - Areas dominated by native or established vegetation that has not been cultivated or treated with any annual management or manipulation regime. In cases where it cannot be assessed whether the vegetation was planted or cultivated by humans, the vegetation is considered "Natural/Semi-Natural."

Planted/Cultivated - Areas dominated with vegetation which has been planted in its current location by humans and/or is treated with annual tillage, a modified conservation tillage, or other intensive management or manipulation. The majority of vegetation in these areas is planted and/or maintained for the production of food, feed, fiber, or seed.

Implementation Issues: These definitions have proved problematic, particularly in forest plantations of native tree species. The ESA Vegetation Classification Panel has deferred on this issue, stating, "...at this time, no standards for defining naturalness are proposed" (Jennings *et al.* 2002).

7. Formation: "A level of the hierarchy based on ecological groupings of vegetation units with broadly defined environmental and additional physiognomic factors in common. This level is subject to revision as the vegetation Alliances and Associations are organized under the upper levels of the hierarchy" (FGDC 1997).

Classification Criteria: Formations are based on the following life form, structural, and abiotic attributes:

- Elevation zone (e.g. alpine, submontane)
- Flooding regime (Cowardin 1979).
- Leaf morphology (e.g. xeromorphic)
- Tree crown shape (e.g. cylindrical)
- Presence of sparse tree layer in shrublands
- Leaf phenology and morphology of sparse tree layer in shrublands
- Leaf phenology and morphology of sparse woody layer in grasslands
- Shrub growth form (e.g. suffruticose, cushion, mat)
- Presence of succulents in shrublands
- Leaf phenology of shrubs (e.g. facultative-deciduous)
- Plant height in herbaceous vegetation
- Graminoid rooting habit (e.g. sod-forming vs bunch)

Implementation Issues: The plethora of attributes used to define formations has produced many types that are not mutually exclusive based on their names. Since no diagnostic key has been written for formations, it is impossible to consistently assign plots or associations to formations.

Elevation zones and flooding regime cannot be determined during a one-time plot visit. Recognition of elevation zones as defined by the FGDC (1997) requires a spatial analysis of vegetation patterns following completion of the classification of associations and alliances. Thus, it is impractical to use elevation zone as a top-down classification criterion. Flooding regimes reflect average or modal growing season conditions over several years, which cannot be practically evaluated in the field.

Appendix 1C. Draft Key to FGDC Upper Physiognomic Levels

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This key is not a product of, nor is it endorsed by, the FGDC Vegetation Subcommittee. It was written to improve the author's understanding of the FGDC physiognomic hierarchy and to facilitate comparison of SAF and SRM cover types to the FGDC Vegetation Classification Standard (FGDC-STD-005). FGDC-STD-005 indicates that a simple dichotomous key to the standard will be developed as part of testing and validating the physiognomic levels, but such a key has not yet been completed. It is hoped that this key can serve as a starting point for achieving that objective.

This key is designed to be used in conjunction with the Vegetation Classification Standard (FGDC-STD-005) published by the Vegetation Subcommittee of the Federal Geographic Data Committee in June, 1997. That document should be used together with this key to identify physiognomic vegetation types.

The key identifies the following levels of the 1997 FGDC vegetation hierarchy: Division, Order, Class, Subclass, and Group. Subgroups (natural/semi-natural *versus* planted/cultivated) are omitted from the key to reduce redundancy. Little classification of planted/cultivated types has been done and they were not relevant to the needs of the author. Formations are not included in the key because FGDC-STD-005 does not include enough information to develop a key to Formations. The Formations within many of the natural/semi-natural Subgroups are not inherently mutually exclusive and FGDC-STD-005 does not specify the sequence in which to key them out.

The key is followed by a list of the natural/semi-natural vegetation types in the physiognomic hierarchy, by level, from Division to Formation. As with the key, Subgroups are omitted from the list to reduce redundancy. The list includes all the natural/semi-natural types, other than Subgroups, from FGDC-STD-005 and new types that have been added to the hierarchy by NatureServe (formerly ABI). It includes types that have not yet been identified in the U.S.

Instructions for Using the Key

The key is arranged by physiognomic hierarchy level. Divisions (Vegetated and Non-Vegetated) are identified first. The rest of the key pertains only to the Vegetated Division. Orders within the Vegetated Division are keyed out first, followed by Classes within each Order, Subclasses within each Class, and Groups within each Subclass.

The key is dichotomous, with couplets of two leads each (for example, 1a and 1b). Choose the couplet which best fits the plot or stand you are trying to assign to a physiognomic type. Each choice will lead you to either the name of a vegetation type or to another couplet. Names of Orders, Classes, and Subclasses are followed by a number in parentheses. This number indicates the couplet where the key to the next level of the hierarchy begins. For example, Shrub Dominated Order is followed by (12) in lead 5a, indicating that the key to Classes within the Shrub Dominated Order begins at couplet 12. The code for each vegetation type is listed at the right-hand margin of the key. However, no codes have been established for the Division and Order levels of the hierarchy.

Terminology in the key follows the FGDC Vegetation Classification Standard (FGDC 1997) cited above. The glossary in that document should be consulted when using the key. Terms with precise technical definitions have been italicized and put in quotes in the key. For example, “*winter-rain*” in lead 31a. The definitions of such terms in FGDC-STD-005 should be consulted before choosing which lead to follow. FGDC-STD-005 should be consulted for any other terms that are unclear.

Once a plot or stand has been keyed to the Group level, turn to p. 12 for a list of possible formations. Use the Group code to locate the Formations within the Group to which the plot or stand keyed.

List of FGDC Vegetation Types

The List of FGDC Vegetation Types (p. 10) uses the following conventions:

The list is arranged by hierarchy level and code. All Divisions are listed first, followed by all the orders, *etc.*

Italicized codes and names indicated types that have not yet been identified in the U.S. (Example: *IVC Mixed evergreen-deciduous dwarf-shrubland* Subclass on p. 10)

Codes and names in bold text indicate a new type that is not included in FGDC-STD-005. These have been added to the classification by NatureServe, but have not yet been formally approved by the FGDC Vegetation Subcommittee. (Example: **VIC2** Temperate or subpolar alga vegetation Group on p. 11)

Parentheses within type names indicates terms that are an implied part of the name based on the type’s position in the hierarchy, but are not included in FGDC-STD-005. (Example: IA2Na Temperate (broad-leaved) evergreen rainforest Formation on p. 12)

Caveats and Disclaimers

As noted above, this key has not been produced or approved by the FGDC Vegetation Subcommittee. The author accepts sole responsibility for any errors in this key. It is provided on an “as is” basis with no warranty. After all, free advice is worth only what you pay for it.

Corrections or editorial suggestions may be e-mailed to the author at dtart@fs.fed.us.

Key to FGDC Existing Vegetation Hierarchy

Code

- 1a. Vegetation cover <1% Non-Vegetated Division
- 1b. Vegetation cover >1% Vegetated Division (2)

KEY TO ORDERS (within the Vegetated Division)

- 2a. Vegetation cover excluding crustose lichens \leq 10% No Dominant Life Form Order
= Sparse Vegetation Class (27) VII
- 2b. Vegetation cover excluding crustose lichens >10% 3
- 3a. Total tree (woody plants \geq 5m tall) canopy cover \geq 25% Tree Dominated Order (11)
- 3b. Total tree canopy cover < 25% 4
- 4a. Shrub (woody plants \geq 0.5m tall), dwarf-shrub (woody plants < 0.5m tall), herb, and nonvascular plant cover each less than tree cover Tree Dominated Order (11)
- 4b. Shrub, dwarf-shrub, herb, and/or nonvascular plant cover greater than tree cover 5
- 5a. Total shrub (woody plants \geq 0.5m tall) canopy cover \geq 25% Shrub Dominated Order (12)
- 5b. Total shrub canopy cover <25% 6
- 6a. Dwarf-shrub (woody plants <0.5m tall), herb, and nonvascular plant cover each less than shrub cover Shrub Dominated Order (12)
- 6b. Dwarf-shrub, herb, and/or nonvascular plant cover greater than shrub cover 7
- 7a. Total dwarf-shrub (woody plants <0.5m tall) canopy cover \geq 25% Shrub Dominated Order (12)
- 7b. Total dwarf-shrub cover < 25% 8
- 8a. Herb and nonvascular plant cover each less than dwarf-shrub cover Shrub Dominated Order (12)
- 8b. Herb and/or nonvascular plant cover greater than dwarf-shrub cover 9
- 9a. Total herb cover \geq 25% Herb Dominated Order
= Herbaceous Vegetation Class (22) V
- 9b. Total herb Cover < 25% 10
- 10a. Herb cover greater than total cover of bryophytes, noncrustose lichens, and alga Herb Dominated Order
= Herbaceous Vegetation Class (22) V
- 10b. Herb cover less than total cover of bryophytes, noncrustose lichens, and alga Nonvascular Dominated Order
= Nonvascular Vegetation Class (25) VI

KEYS TO CLASSES

Key to Classes within the Tree Dominated Order

- 11a. Total tree canopy cover \geq 61% Closed Tree Canopy Class (14) I
- 11b. Total tree canopy cover < 61% Open Tree Canopy Class (16) II

Key to Classes within the Shrub Dominated Order

- 12a. Total shrub (woody plants \geq 0.5m tall) canopy cover \geq 25% Shrubland Class (18) III
- 12b. Total shrub canopy cover < 25% 13

	<u>Code</u>
13a. Shrub canopy cover > dwarf-shrub (woody plants < 0.5m tall) canopy cover Shrubland Class (18)	III
13b. Shrub canopy cover < dwarf-shrub canopy cover Dwarf-shrubland Class (20)	IV

KEYS TO SUBCLASSES

Key to Subclasses within the Closed Tree Canopy Class

14a. Evergreen species contribute > 75% of the total tree cover Evergreen Closed Tree Canopy (29)	IA
14b. Evergreen species contribute ≤ 75% of the total tree cover 15	
15a. Deciduous species contribute > 75% of the total tree cover Deciduous Closed Tree Canopy (37)	IB
15b. Deciduous species contribute ≤ 75% of the total tree cover Mixed Evergreen-Deciduous Closed Tree Canopy (39)	IC

Key to Subclasses within the Open Tree Canopy Class

16a. Evergreen species contribute > 75% of the total tree cover Evergreen Open Tree Canopy (42)	IIA
16b. Evergreen species contribute ≤ 75% of the total tree cover 17	
17a. Deciduous species contribute > 75% of the total tree cover Deciduous Open Tree Canopy (46)	IIB
17b. Deciduous species contribute ≤ 75% of the total tree cover Mixed Evergreen-Deciduous Open Tree Canopy (49)	IIC

Key to Subclasses within the Shrubland Class

18a. Evergreen species contribute > 75% of the total shrub cover Evergreen Shrubland (51)	IIIA
18b. Evergreen species contribute ≤ 75% of the total shrub cover 19	
19a. Deciduous species contribute > 75% of the total shrub cover Deciduous Shrubland (55)	IIIB
19b. Deciduous species contribute ≤ 75% of the total shrub cover Mixed Evergreen-Deciduous Shrubland (57)	IIIC

Key to Subclasses within the Dwarf-Shrubland Class

20a. Evergreen species contribute > 75% of the total dwarf-shrub cover Evergreen Dwarf-Shrubland (59)	IVA
20b. Evergreen species contribute ≤ 75% of the total shrub cover 21	
21a. Deciduous species contribute > 75% of the total dwarf-shrub cover Deciduous Dwarf-Shrubland (60)	IVB
21b. Deciduous species contribute ≤ 75% of the total dwarf-shrub cover Mixed Evergreen-Deciduous Dwarf-Shrubland (62)	IVC

Key to Subclasses within the Herbaceous Vegetation Class (Herb Dominated Order)

22a. Non-emergent herbs structurally supported by water and rooted in substrate contribute > 50% of total herbaceous canopy Hydromorphic Rooted Vegetation (75)	VC
22a. Non-emergent herbs structurally supported by water and rooted in substrate contribute ≤ 50% of total herbaceous canopy 23	
23a. Perennial graminoids contribute > 50% of total herbaceous canopy Perennial Graminoid Vegetation (64)	VA
23b. Perennial graminoids contribute ≤ 50% of total herbaceous canopy 24	
24a. Perennial forbs, including ferns and biennials, contribute > 50% of total herbaceous canopy Perennial Forb Vegetation (74)	VB
24b. Perennial forbs, including ferns and biennials, contribute ≤ 50% of total herbaceous canopy Annual Graminoid or Forb Vegetation (76)	VD

Key to Subclasses within the Nonvascular Vegetation Class (Nonvascular Dominated Order)

	<u>Code</u>
25a. Bryophytes generally dominate the nonvascular plant cover Bryophyte Vegetation (77)	VIA
25b. Bryophytes do not dominate the nonvascular plant cover 26	
26a. Foliose or fruticose lichens generally dominate the nonvascular plant cover Lichen Vegetation (78)	VIB
26b. Foliose or fruticose lichens do not dominate the nonvascular plant cover Alga Vegetation (79)	VIC

Key to Subclasses within the Sparse Vegetation Class (Vegetation Not Dominant Order)

27a. Vegetation characterized by plants growing in fissures of , or growing adnate on; cliffs, level to gently sloping bedrock, or pahoehoe lava flows Consolidated Rock Sparse Vegetation (80)	VIIA
27b. Vegetation not characterized by plant growing on consolidated rock substrates 28	
28a. Vegetation characterized by plants growing in or on boulder to gravel-sized substrates Boulder, Gravel, Cobble, or Talus Sparse Vegetation (81)	VIIB
28b. Vegetation not characterized by plants growing on gravel-sized or larger substrates Unconsolidated Material Sparse Vegetation (82)	VIIC

KEYS TO GROUPS

Key to Groups within the Evergreen Closed Tree Canopy Subclass

29a. Tree layer dominated by broad-leaved evergreen species 30	
29b. Tree layer not dominated by broad-leaved evergreen species 35	
30a. Tree layer dominated by species with stiff leaves that remain firm even when wilted 31	
30b. Tree layer not dominated by species with stiff leaves that remain firm even when wilted 32	
31a. Stand has a “ <i>winter-rain</i> ” climatic regime (with hot, dry summers) Winter-rain broad-leaved evergreen sclerophyllous closed tree canopy	IA6
31b. Stand has a “ <i>tropical or subtropical</i> ” climatic regime Tropical or subtropical broad-leaved evergreen sclerophyllous closed tree canopy	IA5
32a. Tree layer dominated by species that shed some leaves during the dry season 33	
32b. Climate is characterized by year-round rainfall; trees do not shed leaves due to drought 34	
33a. Stand has a “ <i>tropical or subtropical</i> ” climatic regime Tropical or subtropical broad-leaved seasonal evergreen closed tree canopy	IA3
33b. Stand has a “ <i>temperate</i> ” climatic regime Temperate broad-leaved seasonal evergreen closed tree canopy	IA4
34a. Stand has a “ <i>tropical or subtropical</i> ” climatic regime Tropical or subtropical broad-leaved evergreen rainforest	IA1
34b. Stand has a “ <i>temperate or subpolar</i> ” climatic regime Temperate or subpolar broad-leaved evergreen rainforest	IA2
35a. Tree layer dominated by needle and/or scale-leaved species 36	
35b. Tree layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought Extremely xeromorphic evergreen closed tree canopy	IA9

		<u>Code</u>
36a. Stand has a “ <i>tropical or subtropical</i> ” climatic regime	Tropical or subtropical needle-leaved evergreen closed tree canopy	IA7
36b. Stand has a “ <i>temperate</i> ” climatic regime	Temperate needle-leaved evergreen closed tree canopy	IA8

Key to Groups within the Deciduous Closed Tree Canopy Subclass

37a. Tree layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic deciduous closed tree canopy	IB3
37b. Tree layer not dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	38	
38a. Tree layer dominated by species which drop leaves in response to an annual dry season	Drought-deciduous closed tree canopy	IB1
38b. Tree layer dominated by species which drop leaves in response to annual winter frost and freezing temperatures	Cold-deciduous closed tree canopy	IB2

Key to Groups within the Mixed Evergreen-Deciduous Closed Tree Canopy Subclass

39a. Tree layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic mixed evergreen-deciduous closed tree canopy	IC4
39b. Tree layer not dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	40	
40a. Tree layer composed of drought-deciduous and evergreen species	Tropical or subtropical semi-deciduous closed tree canopy	IC1
40b. Tree layer composed of cold-deciduous and evergreen species.	41	
41a. Evergreen tree species are predominantly broad-leaved	Mixed broad-leaved evergreen – cold-deciduous closed tree canopy	IC2
41b. Evergreen tree species are predominantly needle-leaved	Mixed needle-leaved evergreen – cold-deciduous closed tree canopy	IC3

Key to Groups within the Evergreen Open Tree Canopy Subclass

42a. Tree layer dominated by broad-leaved evergreen species	43	
42b. Tree layer not dominated by broad-leaved evergreen species	44	
43a. Stand has a “ <i>tropical or subtropical</i> ” climatic regime	Tropical or subtropical broad-leaved evergreen open tree canopy	IIA1
43b. Stand has a “ <i>temperate</i> ” climatic regime	Temperate broad-leaved evergreen open tree canopy	IIA2
44a. Tree layer dominated by needle and/or scale-leaved species	45	
44b. Tree layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic evergreen open tree canopy	IIA5
45a. Stand has a “ <i>tropical or subtropical</i> ” climatic regime	Tropical or subtropical needle-leaved evergreen open tree canopy	IIA3
45b. Stand has a “ <i>temperate or subpolar</i> ” climatic regime	Temperate or subpolar needle-leaved evergreen open tree canopy	IIA4

Key to Groups within the Deciduous Open Tree Canopy Subclass

		<u>Code</u>
46a. Tree layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic deciduous open tree canopy	IIB3
46b. Tree layer not dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	47	
47a. Tree layer dominated by species which drop leaves in response to an annual dry season	Tropical or subtropical drought-deciduous open tree canopy	IIB1
47b. Tree layer dominated by species which drop leaves in response to annual winter frost and freezing temperatures	Cold-deciduous open tree canopy	IIB2

Key to Groups within the Mixed Evergreen-Deciduous Open Tree Canopy Subclass

48a. Tree layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic mixed evergreen-deciduous open tree canopy	IIC4
48b. Tree layer not dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	49	
49a. Tree layer composed of “ <i>drought-deciduous</i> ” and evergreen species	Tropical or subtropical semi-deciduous open tree canopy	IIC1
49b. Tree layer composed of “ <i>cold-deciduous</i> ” and evergreen species.	50	
50a. Evergreen tree species are predominantly broad-leaved	Mixed broad-leaved evergreen – cold-deciduous open tree canopy	IIC2
50b. Evergreen tree species are predominantly needle-leaved	Mixed needle-leaved evergreen – cold-deciduous open tree canopy	IIC3

Key to Groups within the Evergreen Shrubland Subclass

51a. Shrub layer dominated by broad-leaved species	52	
51b. Shrub layer not dominated by broad-leaved species	53	
52a. Stand has a “ <i>tropical</i> or <i>subtropical</i> ” climatic regime	Tropical or subtropical broad-leaved evergreen shrubland	IIIA1
52b. Stand has a “ <i>temperate</i> ” climatic regime	Temperate broad-leaved evergreen shrubland	IIIA2
53a. Shrub layer dominated by needle or scale-leaved species	Needle-leaved evergreen shrubland	IIIA3
53b. Shrub layer not dominated by needle or scale-leaved species	54	
54a. Shrub layer dominated by “ <i>microphyllous</i> ” species (i.e. individual leaf surface area < 1 square inch)	Microphyllous evergreen shrubland	IIIA4
54b. Shrub layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic evergreen shrubland	IIIA5

Key to Groups within the Deciduous Shrubland Subclass

55a. Shrub layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic deciduous shrubland	IIIB3
55b. Shrub layer not dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	56	
56a. Shrub layer dominated by species which drop leaves in response to an annual dry season	Drought-deciduous shrubland	IIIB1
56b. Shrub layer dominated by species which drop leaves in response to annual winter frost and freezing temperatures	Cold-deciduous shrubland	IIIB2

Key to Groups within the Mixed Evergreen-Deciduous Shrubland Subclass

		<u>Code</u>
57a. Shrub layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic mixed evergreen-deciduous shrubland	IIIC3
57b. Shrub layer not dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	58	
58a. Shrub layer composed of “ <i>drought-deciduous</i> ” and evergreen species	Mixed evergreen – drought-deciduous shrubland	IIIC1
58b. Shrub layer composed of “ <i>cold-deciduous</i> ” and evergreen species.	Mixed evergreen – cold-deciduous shrubland	IIIC2

Key to Groups within the Evergreen Dwarf-Shrubland Subclass

59a. Dwarf shrub layer dominated by needle-leaved, scale-leaved, or “ <i>microphyllous</i> ” species	Needle-leaved or microphyllous evergreen dwarf-shrubland	IVA1
59b. Dwarf shrub layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic evergreen dwarf-shrubland	IVA2

Key to Groups within the Deciduous Dwarf-Shrubland Subclass

60a. Dwarf shrub layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic deciduous dwarf-shrubland	IVB3
60b. Dwarf shrub layer not dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	61	
61a. Dwarf shrub layer dominated by species which drop leaves in response to an annual dry season	Drought-deciduous dwarf-shrubland	IVB1
61b. Dwarf shrub layer dominated by species which drop leaves in response to annual winter frost and freezing temperatures	Cold-deciduous dwarf-shrubland	IVB2

Key to Groups within the Mixed Evergreen-Deciduous Dwarf-Shrubland Subclass

62a. Dwarf shrub layer dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	Extremely xeromorphic mixed evergreen - deciduous dwarf-shrubland	IVC3
62b. Shrub layer not dominated by “ <i>xeromorphic</i> ” species adapted to extreme drought	63	
63a. Shrub layer composed of “ <i>drought-deciduous</i> ” and evergreen species	Mixed evergreen – drought-deciduous dwarf-shrubland	IVC1
63b. Shrub layer composed of “ <i>cold-deciduous</i> ” and evergreen species.	Mixed evergreen – cold-deciduous dwarf-shrubland	IVC2

Key to Groups within the Perennial Graminoid Vegetation Subclass

64a. Stand has a “ <i>tropical</i> or <i>subtropical</i> ” climatic regime	66	
64b. Stand has a “ <i>temperate, subpolar, or polar</i> ” climatic regime	65	
65a. Stand has a “ <i>temperate</i> or <i>subpolar</i> ” climatic regime	69	
65b. Stand has a “ <i>polar</i> ” climatic regime	72	
66a. Total tree (woody plants \geq 5m tall) canopy cover $>$ 10%	Tropical or subtropical grassland with a sparse tree layer	VA2
66b. Total tree canopy cover \leq 10%	67	

		<u>Code</u>
67a. Total shrub (woody plants $\geq 0.5\text{m}$ tall and $<5\text{m}$ tall) canopy cover $>10\%$	Tropical or subtropical grassland with a sparse shrub layer	VA3
67b. Total shrub canopy cover $\leq 10\%$		68
68a. Total dwarf shrub (woody plants $<0.5\text{m}$ tall) canopy cover $>10\%$	Tropical or subtropical grassland with a sparse dwarf shrub layer	VA4
68b. Total dwarf shrub canopy cover $\leq 10\%$	Tropical or subtropical grassland	VA1
69a. Total tree (woody plants $\geq 5\text{m}$ tall) canopy cover $>10\%$	Temperate or subpolar grassland with a sparse tree layer	VA6
69b. Total tree canopy cover $\leq 10\%$		70
70a. Total shrub (woody plants $\geq 0.5\text{m}$ tall and $<5\text{m}$ tall) canopy cover $>10\%$	Temperate or subpolar grassland with a sparse shrub layer	VA7
70b. Total shrub canopy cover $\leq 10\%$		71
71a. Total dwarf shrub (woody plants $<0.5\text{m}$ tall) canopy cover $>10\%$	Temperate or subpolar grassland with a sparse dwarf shrub layer	VA8
71b. Total dwarf shrub canopy cover $\leq 10\%$	Temperate or subpolar grassland	VA5
72a. Total shrub (woody plants $\geq 0.5\text{m}$ tall and $<5\text{m}$ tall) canopy cover $>10\%$	Polar grassland with a sparse shrub layer	VA10
72b. Total shrub canopy cover $\leq 10\%$		73
73a. Total dwarf shrub (woody plants $<0.5\text{m}$ tall) canopy cover $>10\%$	Polar grassland with a sparse dwarf shrub layer	VA11
73b. Total dwarf shrub canopy cover $\leq 10\%$	Polar grassland	VA9

Key to Groups within the Perennial Forb Vegetation Subclass

74a. Stand has a “ <i>tropical</i> or <i>subtropical</i> ” climatic regime	Tropical or subtropical perennial forb vegetation	VB1
74b. Stand has a “ <i>temperate</i> or <i>subpolar</i> ” climatic regime	Temperate or subpolar perennial forb vegetation	VB2

Key to Groups within the Hydromorphic Rooted Vegetation Subclass

75a. Stand has a “ <i>tropical</i> or <i>subtropical</i> ” climatic regime	Tropical or subtropical hydromorphic rooted vegetation	VC1
75b. Stand has a “ <i>temperate</i> or <i>subpolar</i> ” climatic regime	Temperate or subpolar hydromorphic rooted vegetation	VC2

Key to Groups within the Annual Graminoid or Forb Vegetation Subclass

76a. Stand has a “ <i>tropical</i> or <i>subtropical</i> ” climatic regime	Tropical or subtropical annual graminoid or forb vegetation	VD1
76b. Stand has a “ <i>temperate</i> or <i>subpolar</i> ” climatic regime	Temperate or subpolar annual graminoid or forb vegetation	VD2

Key to Groups within the Bryophyte Vegetation Subclass

77a. Stand has a “ <i>temperate</i> or <i>subpolar</i> ” climatic regime	Temperate or subpolar bryophyte vegetation	VIA1
77b. Stand does not have a “ <i>temperate</i> or <i>subpolar</i> ” climatic regime	Unclassified Group	

Key to Groups within the Lichen Vegetation Subclass

	<u>Code</u>
78b. Stand has a “ <i>temperate</i> or <i>subpolar</i> ” climatic regime	Temperate or subpolar lichen vegetation VIB1
78a. Stand has a “ <i>tropical</i> or <i>subtropical</i> ” climatic regime	Tropical or subtropical lichen vegetation VIB2

Key to Groups within the Alga Vegetation Subclass

79a. Stand has a “ <i>tropical</i> or <i>subtropical</i> ” climatic regime	Tropical or subtropical alga vegetation VIC1
79b. Stand has a “ <i>temperate</i> or <i>subpolar</i> ” climatic regime	Temperate or subpolar alga vegetation ** VIC2

Key to Groups in the Consolidated Rock Sparse Vegetation Subclass

80a. Stand located on a “ <i>very steep</i> ” to perpendicular rock face	Sparsely vegetated cliffs VIIA1
80b. Stand located on level to “ <i>gently sloping</i> ” bedrock	Sparsely vegetated pavement VIIA2

Key to Groups in the Boulder, Gravel, Cobble, or Talus Sparse Vegetation Subclass

81a. Stand located on a “ <i>talus</i> or <i>scree</i> ” slope	Sparsely vegetated talus/scree slopes VIIB1
81b. Stand located on a rock-covered flat	Sparsely vegetated rock flats VIIB2

Key to Groups within the Unconsolidated Material Sparse Vegetation Subclass

82a. Stand located on an “ <i>ash</i> ” deposit	Sparsely vegetated ash deposits VIIC5
82b. Stand not located on an “ <i>ash</i> ” deposit	83
83a. Stand located on “ <i>sand</i> ”	84
83b. Stand located on “ <i>soil</i> ”	85
84a. Stand located on a “ <i>sand dune</i> ”	Sparsely vegetated sand dunes VIIC1
84b. Stand located on a “ <i>sand flat</i> ”	Sparsely vegetated sand flats VIIC2
85a. Stand located on a “ <i>soil slope</i> ”	Sparsely vegetated soil slopes VIIC3
85b. Stand located on a “ <i>soil flat</i> ”	Sparsely vegetated soil flats VIIC4

** This is a new group that had been added to the hierarchy since 1997, but has not been formally adopted by the FGDC Vegetation Subcommittee.

List of FGDC Vegetation Types by Hierarchical Level

Italics indicate that type has not yet been identified in U.S. Bold text indicates a new type, not in FGDC 1997.

Level	Code	Name
Division	--	Non-vegetated
	--	Vegetated
Order	--	Tree Dominated
	--	Shrub Dominated
	--	Herbaceous Dominated
	--	Nonvascular Dominated
	--	No dominant life form
Class	I	Closed Tree Canopy
	II	Open Tree Canopy
	III	Shrubland
	IV	Dwarf Shrubland
	V	Herbaceous Vegetation
	VI	Nonvascular Vegetation
	VII	Sparse Vegetation
Subclass	IA	Evergreen closed tree canopy
	IB	Deciduous closed tree canopy
	IC	Mixed evergreen – deciduous closed tree canopy
	IIA	Evergreen open tree canopy
	IIB	Deciduous open tree canopy
	IIC	Mixed evergreen – deciduous open tree canopy
	IIIA	Evergreen shrubland
	IIIB	Deciduous shrubland
	IIIC	Mixed evergreen – deciduous shrubland
	IVA	Evergreen dwarf-shrubland
	IVB	Deciduous dwarf-shrubland
	IVC	<i>Mixed evergreen – deciduous dwarf-shrubland</i>
	VA	Perennial graminoid vegetation
	VB	Perennial forb vegetation
	VC	Hydromorphic rooted vegetation
	VD	Annual graminoid or forb vegetation
	VIA	Bryophyte vegetation
	VIB	Lichen vegetation
	VIC	Alga vegetation
	VIIA	Consolidated rock sparse vegetation
	VIIIB	Boulder, gravel, cobble, or talus sparse vegetation
	VIIIC	Unconsolidated material sparse vegetation
	Group	IA1
IA2		<i>Temperate or subpolar broad-leaved evergreen rainforest</i>
IA3		Tropical or subtropical broad-leaved seasonal evergreen closed tree canopy
IA4		Temperate broad-leaved seasonal evergreen closed tree canopy
IA5		Tropical or subtropical broad-leaved evergreen sclerophyllous closed tree canopy
IA6		Winter-rain broad-leaved evergreen sclerophyllous closed tree canopy
IA7		Tropical or subtropical needle-leaved evergreen closed tree canopy
IA8		Temperate or subpolar needle-leaved evergreen closed tree canopy
IA9		<i>Extremely xeromorphic evergreen closed tree canopy</i>
IB1		Drought-deciduous closed tree canopy
IB2		Cold-deciduous closed tree canopy
IB3		<i>Extremely xeromorphic deciduous closed tree canopy</i>
IC1		Tropical or subtropical semi-deciduous closed tree canopy
IC2		Mixed broad-leaved evergreen - cold-deciduous closed tree canopy
IC3		Mixed needle-leaved evergreen - cold-deciduous closed tree canopy
IC4		<i>Extremely xeromorphic mixed evergreen - deciduous closed tree canopy</i>

Level	Code	Name
Group	IIA1	Tropical or subtropical broad-leaved evergreen open tree canopy
	IIA2	Temperate broad-leaved evergreen open tree canopy
	IIA3	Tropical or subtropical needle-leaved evergreen open tree canopy
	IIA4	Temperate or subpolar needle-leaved evergreen open tree canopy
	IIA5	Extremely xeromorphic evergreen open tree canopy
	<i>IIB1</i>	<i>Tropical or subtropical drought-deciduous open tree canopy</i>
	IIB2	Cold-deciduous open tree canopy
	IIB3	Extremely xeromorphic deciduous open tree canopy
	<i>IIC1</i>	<i>Tropical or subtropical semi-deciduous open tree canopy</i>
	IIC2	Mixed broad-leaved evergreen - cold-deciduous open tree canopy
	IIC3	Mixed needle-leaved evergreen - cold-deciduous open tree canopy
	<i>IIC4</i>	<i>Extremely xeromorphic mixed evergreen - deciduous open tree canopy</i>
	IIIA1	Tropical or subtropical broad-leaved evergreen shrubland
	IIIA2	Temperate broad-leaved evergreen shrubland
	IIIA3	Needle-leaved evergreen shrubland
	IIIA4	Microphyllous evergreen shrubland
	IIIA5	Extremely xeromorphic evergreen shrubland
	IIBB1	Drought-deciduous shrubland
	IIBB2	Cold-deciduous shrubland
	IIBB3	Extremely xeromorphic deciduous shrubland
	<i>IIIC1</i>	<i>Mixed evergreen – drought-deciduous shrubland</i>
	IIIC2	Mixed evergreen – cold-deciduous shrubland
	IIIC3	Extremely xeromorphic mixed evergreen – deciduous shrubland
	IVA1	Needle-leaved or microphyllous evergreen dwarf-shrubland
	IVA2	Extremely xeromorphic evergreen dwarf-shrubland
	<i>IVB1</i>	<i>Drought-deciduous dwarf-shrubland</i>
	IVB2	Cold-deciduous dwarf-shrubland
	IVB3	Extremely xeromorphic deciduous shrubland
	<i>IVC1</i>	<i>Mixed evergreen – drought-deciduous dwarf-shrubland</i>
	<i>IVC2</i>	<i>Mixed evergreen – cold-deciduous dwarf-shrubland</i>
	<i>IVC3</i>	<i>Extremely xeromorphic mixed evergreen – deciduous dwarf-shrubland</i>
	VA1	Tropical or subtropical grassland
	<i>VA2</i>	<i>Tropical or subtropical grassland with a sparse tree layer</i>
	VA3	Tropical or subtropical grassland with a sparse shrub layer
	<i>VA4</i>	<i>Tropical or subtropical grassland with a sparse dwarf-shrub layer</i>
	VA5	Temperate or subpolar grassland
	VA6	Temperate or subpolar grassland with a sparse tree layer
	VA7	Temperate or subpolar grassland with a sparse shrub layer
	VA8	Temperate or subpolar grassland with a sparse dwarf-shrub layer
	<i>VA9</i>	<i>Polar grassland</i>
	VA10	Polar grassland with a sparse shrub layer
	<i>VA11</i>	<i>Polar grassland with a sparse dwarf-shrub layer</i>
	VB1	Tropical or subtropical perennial forb vegetation
	VB2	Temperate or subpolar perennial forb vegetation
	VC1	Tropical or subtropical hydromorphic rooted vegetation
VC2	Temperate or subpolar hydromorphic rooted vegetation	
VD1	Tropical or subtropical annual grasslands or forb vegetation	
VD2	Temperate or subpolar annual grasslands or forb vegetation	
VIA1	Temperate or subpolar bryophyte vegetation	
VIB1	Temperate or subpolar lichen vegetation	
VIB2	Tropical or subtropical lichen vegetation	
VIC1	Tropical or subtropical alga vegetation	
VIC2	Temperate or subpolar alga vegetation	

Level	Code	Name	
Group	VIIA1	Sparsely vegetated cliffs	
	VIIA2	Sparsely vegetated pavement	
	VIIB1	Sparsely vegetated talus/scree slopes	
	VIIB2	Sparsely vegetated rock flats	
	VIIC1	Sparsely vegetated sand dunes	
	VIIC2	Sparsely vegetated sand flats	
	VIIC3	Sparsely vegetated soil slopes	
	VIIC4	Sparsely vegetated soil flats	
	VIIC5	<i>Sparsely vegetated ash deposits</i>	
	SubgroupC	Planted/Cultivated...
....N		Natural/Semi-natural...	* <i>Applies to all the above groups.</i>
Formation (<i>Natural/Semi-natural only</i>)			
	IA1Na	Lowland tropical or subtropical rainforest	
	IA1Nb	Submontane tropical or subtropical rainforest	
	IA1Nc	Montane tropical or subtropical rainforest	
	IA1Nd	Montane tropical or subtropical cloud forest	
	IA1Ne	<i>Subalpine tropical or subtropical rainforest</i>	
	IA1Nf	<i>Temporarily flooded tropical or subtropical rainforest</i>	
	IA1Ng	<i>Semipermanently flooded tropical or subtropical rainforest</i>	
	IA1Nh	<i>Saturated tropical or subtropical evergreen rainforest</i>	
	IA1Ni	<i>Tidal tropical or subtropical rainforest</i>	
	IA1Nj	<i>Seasonally flooded tropical or subtropical rainforest</i>	
	IA2Na	<i>Temperate (broad-leaved) evergreen rainforest</i>	* Parentheses indicate terms that are an implied part
	IA2Nb	<i>Subpolar (broad-leaved) evergreen rainforest</i>	of the name based on the FGDC hierarchy.
	IA2Nc	<i>Temporarily flooded temperate (broad-leaved) evergreen rainforest</i>	
	IA2Nd	<i>Seasonally flooded temperate (broad-leaved) evergreen rainforest</i>	
	IA3Na	Lowland tropical or subtropical seasonal (<i>broad-leaved</i>) evergreen closed tree canopy	
	IA3Nb	<i>Submontane tropical or subtropical seasonal (broad-leaved) evergreen closed tree canopy</i>	
	IA3Nc	Montane tropical or subtropical seasonal (<i>broad-leaved</i>) evergreen closed tree canopy	
	IA3Nd	<i>Subalpine tropical or subtropical (seasonal broad-leaved) evergreen closed tree canopy</i>	
	IA3Ne	<i>Temporarily flooded tropical or subtropical seasonal (broad-leaved) evergreen closed tree canopy</i>	
	IA3Nf	<i>Seasonally flooded tropical or subtropical seasonal (broad-leaved) evergreen closed tree canopy</i>	
	IA3Ng	<i>Semipermanently flooded tropical or subtropical seasonal (broad-leaved) evergreen closed tree canopy</i>	
	IA4Na	Lowland temperate seasonal (<i>broad-leaved</i>) evergreen closed tree canopy	
	IA4Nb	<i>Submontane temperate seasonal (broad-leaved) evergreen closed tree canopy</i>	
	IA4Nc	<i>Montane temperate seasonal (broad-leaved) evergreen closed tree canopy</i>	
	IA4Nd	<i>Subalpine temperate (seasonal broad-leaved) evergreen closed tree canopy</i>	
	IA4Ne	Temporarily flooded temperate seasonal (<i>broad-leaved</i>) evergreen closed tree canopy	
	IA4Nf	<i>Seasonally flooded temperate seasonal (broad-leaved) evergreen closed tree canopy</i>	
	IA4Ng	Saturated temperate seasonal (<i>broad-leaved</i>) evergreen closed tree canopy	
	IA5Na	Lowland tropical or subtropical broad-leaved evergreen sclerophyllous closed tree canopy	
	IA5Nb	<i>Temporarily flooded tropical or subtropical broad-leaved evergreen sclerophyllous closed tree canopy</i>	
	IA5Nc	Seasonally flooded tropical or subtropical broad-leaved evergreen sclerophyllous closed tree canopy	
	IA5Nd	Semipermanently flooded tropical or subtropical broad-leaved evergreen sclerophyllous closed tree canopy	
	IA5Ne	Saturated tropical or subtropical broad-leaved evergreen sclerophyllous closed tree canopy	
	IA5Nf	<i>Tidal tropical or subtropical broad-leaved evergreen sclerophyllous closed tree canopy</i>	
	IA6Na	<i>Giant lowland or submontane winter-rain (broad-leaved) evergreen sclerophyllous closed tree canopy</i>	
	IA6Nb	Lowland or submontane winter-rain (<i>broad-leaved</i>) evergreen sclerophyllous closed tree canopy	
	IA7Na	Lowland or submontane tropical or subtropical needle-leaved evergreen closed tree canopy	
	IA7Nb	<i>Montane or subalpine tropical or subtropical needle-leaved evergreen closed tree canopy</i>	
	IA7Nc	<i>Temporarily flooded tropical or subtropical needle-leaved evergreen closed tree canopy</i>	

Level	Code	Name
Formation	IA8Na	Giant temperate or subpolar needle-leaved evergreen closed tree canopy
	IA8Nb	Rounded-crowned temperate or subpolar needle-leaved evergreen closed tree canopy
	IA8Nc	Conical-crowned temperate or subpolar needle-leaved evergreen closed tree canopy
	IA8Nd	Cylindrical-crowned temperate or subpolar needle-leaved evergreen closed tree canopy
	IA8Ne	Temporarily flooded temperate or subpolar needle-leaved evergreen closed tree canopy
	IA8Nf	Seasonally flooded temperate or subpolar needle-leaved evergreen closed tree canopy
	IA8Ng	Saturated temperate or subpolar needle-leaved evergreen closed tree canopy
	IA8Nh	<i>Tidal temperate or subpolar needle-leaved evergreen closed tree canopy</i>
	IA9Na	<i>Sclerophyllous extremely xeromorphic evergreen closed tree canopy</i>
	IA9Nb	<i>Succulent extremely xeromorphic evergreen closed tree canopy</i>
	IB1Na	Lowland or submontane drought-deciduous closed tree canopy
	IB1Nb	<i>Montane or cloud drought-deciduous closed tree canopy</i>
	IB2Na	Lowland or submontane cold-deciduous closed tree canopy
	IB2Nb	Montane or boreal cold-deciduous closed tree canopy
	IB2Nc	<i>Subalpine or subpolar cold-deciduous closed tree canopy</i>
	IB2Nd	Temporarily flooded cold-deciduous closed tree canopy
	IB2Ne	Seasonally flooded cold-deciduous closed tree canopy
	IB2Nf	Semipermanently flooded cold-deciduous closed tree canopy
	IB2Ng	Saturated cold-deciduous closed tree canopy
	IB2Nh	Tidal cold-deciduous closed tree canopy
	IB3Na	<i>Extremely xeromorphic deciduous thorn closed tree canopy</i>
	IC1Na	<i>Lowland tropical or subtropical semi-deciduous closed tree canopy</i>
	IC1Nc	<i>Cloud or montane tropical or subtropical semi-deciduous closed tree canopy</i>
	IC1Nc	Seasonally flooded tropical or subtropical semi-deciduous closed tree canopy
	IC1Nd	<i>Saturated tropical or subtropical semi-deciduous closed tree canopy</i>
	IC2Na	Mixed broad-leaved evergreen – cold-deciduous closed tree canopy
	IC2Nb	Temporarily flooded mixed (<i>broad-leaved</i>) evergreen – cold-deciduous closed tree canopy
IC2Nc	Seasonally flooded mixed broad-leaved evergreen – cold-deciduous closed tree canopy	
IC2Nd	Saturated mixed broad-leaved evergreen – cold-deciduous closed tree canopy	
IC2Ne	Tidal mixed broad-leaved evergreen – cold-deciduous closed tree canopy	
IC3Na	Mixed needle-leaved evergreen – cold-deciduous closed tree canopy	
IC3Nb	Temporarily flooded mixed needle-leaved evergreen – cold-deciduous closed tree canopy	
IC3Nc	Seasonally flooded mixed needle-leaved evergreen – cold-deciduous closed tree canopy	
IC3Nd	Saturated mixed needle-leaved evergreen – cold-deciduous closed tree canopy	
IC3Ne	Tidal mixed needle-leaved evergreen – cold-deciduous closed tree canopy	
IC4Na	<i>Extremely xeromorphic mixed evergreen - deciduous thorn closed tree canopy</i>	
IIA1Na	Tropical or subtropical broad-leaved evergreen open tree canopy	
IIA1Nb	Temporarily flooded tropical or subtropical broad-leaved evergreen open tree canopy	
IIA1Nc	Seasonally flooded tropical or subtropical broad-leaved evergreen open tree canopy	
IIA1Nd	Semipermanently flooded tropical or subtropical broad-leaved evergreen open tree canopy	
IIA1Ne	Tidal tropical or subtropical broad-leaved evergreen open tree canopy	
IIA2Na	Temperate broad-leaved evergreen open tree canopy	
IIA2Nb	Seasonally flooded temperate broad-leaved evergreen open tree canopy	
IIA2Nc	Saturated temperate broad-leaved evergreen open tree canopy	
IIA3Na	Tropical or subtropical needle-leaved evergreen open tree canopy	
IIA3Nb	Temporarily flooded tropical or subtropical needle-leaved evergreen open tree canopy	
IIA3Nc	Seasonally flooded tropical or subtropical needle-leaved evergreen open tree canopy	
IIA3Nd	Saturated tropical or subtropical needle-leaved evergreen open tree canopy	
IIA4Na	Rounded-crowned temperate or subpolar needle-leaved evergreen open tree canopy	
IIA4Nb	Conical-crowned temperate or subpolar needle-leaved evergreen open tree canopy	
IIA4Nc	Cylindrical-crowned temperate or subpolar needle-leaved evergreen open tree canopy	
IIA4Nd	Temporarily flooded temperate or subpolar needle-leaved evergreen open tree canopy	

Level	Code	Name	
Formation	IIA4Ne IIA4Nf IIA4Ng	Seasonally flooded temperate or subpolar needle-leaved evergreen open tree canopy Saturated temperate or subpolar needle-leaved evergreen open tree canopy Tidal temperate or subpolar needle-leaved evergreen open tree canopy	
	IIA5Na <i>IIA5Nb</i>	Sclerophyllous extremely xeromorphic evergreen open tree canopy <i>Succulent extremely xeromorphic evergreen open tree canopy</i>	
	<i>IIB1Na</i> <i>IIB1Nb</i>	<i>Lowland or submontane (tropical or subtropical) broad-leaved drought-deciduous open tree canopy</i> <i>Montane and cloud (tropical or subtropical) drought-deciduous open tree canopy</i>	
	<i>IIB1Nc</i> <i>IIB1Nd</i>	<i>Temporarily flooded tropical or subtropical drought-deciduous open tree canopy</i> <i>Seasonally flooded tropical or subtropical drought-deciduous open tree canopy</i>	
	IIB2Na IIB2Nb IIB2Nc IIB2Nd IIB2Ne IIB2Nf	Cold-deciduous open tree canopy Temporarily flooded cold-deciduous open tree canopy Seasonally flooded cold-deciduous open tree canopy Semipermanently flooded cold-deciduous open tree canopy Saturated cold-deciduous open tree canopy Tidal cold-deciduous open tree canopy	* Same name as group
	IIB3Na	Thorn extremely xeromorphic deciduous open tree canopy	
	<i>IIC1Na</i>	<i>Tropical or subtropical semi-deciduous open tree canopy</i>	* Same name as group
	IIC2Na	Mixed broad-leaved evergreen – cold-deciduous open tree canopy	* Same name as group
	IIC3Na IIC3Nb IIC3Nc	Mixed needle-leaved evergreen – cold-deciduous open tree canopy Seasonally flooded mixed needle-leaved evergreen – cold-deciduous open tree canopy Saturated mixed needle-leaved evergreen – cold-deciduous open tree canopy	* Same name as group
	<i>IIC4Na</i>	<i>Mixed evergreen – deciduous thorn (extremely xeromorphic) open tree canopy</i>	
	IIIA1Na IIIA1Nb IIIA1Nc	Tropical or subtropical broad-leaved evergreen shrubland Hemi-sclerophyllous tropical or subtropical broad-leaved evergreen shrubland Sclerophyllous tropical or subtropical broad-leaved evergreen shrubland	* Same name as group
	<i>IIIA1Nd</i>	<i>Tropical or subtropical broad-leaved evergreen shrubland with a sparse broad-leaved evergreen tree layer</i>	
	IIIA1Ne IIIA1Nf IIIA1Ng IIIA1Nh IIIA1Ni	Temporarily flooded tropical or subtropical broad-leaved evergreen shrubland Seasonally flooded tropical or subtropical broad-leaved evergreen shrubland Semipermanently flooded tropical or subtropical broad-leaved evergreen shrubland Saturated tropical or subtropical broad-leaved evergreen shrubland Tidal tropical or subtropical broad-leaved evergreen shrubland	
	IIIA2Na IIIA2Nb IIIA2Nc <i>IIIA2Nd</i>	Temperate broad-leaved evergreen shrubland Hemi-sclerophyllous temperate broad-leaved evergreen shrubland Sclerophyllous temperate broad-leaved evergreen shrubland <i>Suffruticose temperate broad-leaved evergreen shrubland</i>	* Same name as group
	<i>IIIA2Ne</i> IIIA2Nf	<i>Temperate broad-leaved evergreen shrubland with a sparse broad-leaved evergreen tree layer</i> Temperate broad-leaved evergreen shrubland with a sparse cold-deciduous tree layer	
	IIIA2Ng IIIA2Nh IIIA2Ni IIIA2Nj	Temporarily flooded temperate broad-leaved evergreen shrubland Seasonally flooded temperate broad-leaved evergreen shrubland Saturated temperate broad-leaved evergreen shrubland Saturated temperate broad-leaved evergreen shrubland with a sparse needle-leaved or mixed evergreen tree layer	
	<i>IIIA2Nk</i> IIIA2Nl	<i>Saturated temperate broad-leaved evergreen shrubland with a sparse cold-deciduous tree layer</i> Tidal temperate broad-leaved evergreen shrubland	
	IIIA3Na <i>IIIA3Nb</i>	Needle-leaved evergreen shrubland <i>Saturated needle-leaved evergreen shrubland</i>	* Same name as group
	IIIA4Na IIIA4Nb IIIA4Nc IIIA4Nd IIIA4Ne	Microphyllous evergreen shrubland Intermittently flooded microphyllous evergreen shrubland Temporarily flooded microphyllous evergreen shrubland Seasonally flooded microphyllous evergreen shrubland Tidal microphyllous evergreen shrubland	* Same name as group

Level	Code	Name	
Formation	IIIA5Na	Broad-leaved and microphyllous evergreen extremely xeromorphic subdesert shrubland	
	IIIA5Nb	Facultatively deciduous extremely xeromorphic subdesert shrubland	
	IIIA5Nc	Succulent extremely xeromorphic subdesert shrubland	
	<i>IIIA5Nd</i>	<i>Tidal extremely xeromorphic subdesert shrubland</i>	
	IIIA5Ne	Extremely xeromorphic subdesert shrubland with a sparse tree layer	
	IIIB1Na	Lowland drought-deciduous shrubland	
	IIIB2Na	Temperate cold-deciduous shrubland	
	IIIB2Nb	Subalpine or subpolar cold-deciduous shrubland	
	IIIB2Nc	Intermittently flooded cold-deciduous shrubland	
	IIIB2Nd	Temporarily flooded cold-deciduous shrubland	
	IIIB2Ne	Seasonally flooded cold-deciduous shrubland	
	IIIB2Nf	Semipermanently flooded cold-deciduous shrubland	
	IIIB2Ng	Saturated cold-deciduous shrubland	
	IIIB2Nh	Tidal cold-deciduous shrubland	
	IIIB3Na	Extremely xeromorphic deciduous subdesert shrubland without succulents	
	IIIB3Nb	Intermittently flooded extremely xeromorphic deciduous subdesert shrubland	
	<i>IIIC1Na</i>	<i>Lowland mixed evergreen – drought-deciduous shrubland</i>	
	IIIC2Na	Mixed evergreen – cold-deciduous shrubland	
	<i>IIIC2Nb</i>	<i>Mixed evergreen – cold-deciduous shrubland with a sparse needle-leaved evergreen tree layer</i>	
	IIIC2Nc	Intermittently flooded mixed evergreen – cold-deciduous shrubland	
	<i>IIIC2Nd</i>	<i>Seasonally flooded mixed evergreen – cold-deciduous shrubland</i>	
	IIIC2Ne	Saturated mixed evergreen – cold-deciduous shrubland	
	IIIC2Nf	Saturated mixed evergreen – cold-deciduous shrubland with a sparse needle-leaved evergreen tree layer	
	<i>IIIC3Na</i>	<i>Extremely xeromorphic (mixed evergreen –) deciduous subdesert shrubland with succulents</i>	
	IIIC3Nb	(<i>Extremely xeromorphic</i>) Mixed evergreen – deciduous subdesert shrubland	
	IVA1Na	Caespitose needle-leaved or microphyllous evergreen dwarf-shrubland	
	IVA1Nb	Creeping or matted needle-leaved or microphyllous evergreen dwarf-shrubland	
	IVA1Nc	Cushion needle-leaved or microphyllous evergreen dwarf-shrubland	
	IVA1Nd	Needle-leaved or microphyllous evergreen dwarf-shrubland with a sparse needle-leaved evergreen tree layer	
	IVA1Ne	Temporarily flooded needle-leaved or microphyllous evergreen dwarf-shrubland	
	IVA1Nf	Seasonally flooded needle-leaved or microphyllous evergreen dwarf-shrubland	
	IVA1Ng	Saturated needle-leaved or microphyllous evergreen dwarf-shrubland	
	<i>IVA1Nh</i>	<i>Saturated needle-leaved or microphyllous evergreen dwarf-shrubland with a sparse needle-leaved evergreen tree layer</i>	
	IVA2Na	Extremely xeromorphic evergreen subdesert dwarf-shrubland	
	IVA2Nb	Facultatively deciduous subdesert dwarf-shrubland	
	IVA2Nc	Tidal needle-leaved or microphyllous evergreen dwarf-shrubland	
	IVB1Na	Caespitose drought-deciduous dwarf-shrubland	
	IVB1Nb	Creeping or matted drought-deciduous dwarf-shrubland	
	IVB1Nc	Cushion drought-deciduous dwarf-shrubland	
	IVB2Na	Caespitose cold-deciduous dwarf-shrubland	
	IVB2Nb	Creeping or matted cold-deciduous dwarf-shrubland	
	IVB2Nc	Cushion cold-deciduous dwarf-shrubland	
	IVB2Nd	Saturated cold-deciduous dwarf-shrubland	
	IVB3Na	Extremely xeromorphic deciduous subdesert dwarf-shrubland without succulents	
	IVC1Na	Mixed evergreen – drought-deciduous dwarf-shrubland	* Same name as group.
	<i>IVC2Na</i>	<i>Mixed evergreen – cold-deciduous dwarf-shrubland</i>	* Same name as group.

Level	Code	Name
Formation	<i>IVC3Na</i> <i>IVC3Nb</i>	<i>(Extremely xeromorphic mixed evergreen-) Deciduous subdesert dwarf-shrubland with succulents</i> <i>(Extremely xeromorphic) Mixed evergreen – deciduous subdesert dwarf-shrubland</i>
	<i>VA1Na</i> <i>VA1Nb</i> <i>VA1Nc</i> <i>VA1Nd</i> <i>VA1Ne</i>	Tall tropical or subtropical grassland <i>Medium-tall sod tropical or subtropical grassland</i> Medium-tall bunch tropical or subtropical grassland <i>Short sod tropical or subtropical grassland</i> <i>Short bunch tropical alpine grassland</i>
	<i>VA1Nf</i> <i>VA1Ng</i> <i>VA1Nh</i> <i>VA1Ni</i>	<i>Temporarily flooded tropical or subtropical grassland</i> Seasonally flooded tropical or subtropical grassland Semipermanently flooded tropical or subtropical grassland Tidal tropical or subtropical grassland
	<i>VA2Na</i> <i>VA2Nb</i> <i>VA2Nc</i> <i>VA2Nd</i> <i>VA2Ne</i> <i>VA2Nf</i>	<i>Tall tropical or subtropical grassland with a sparse mainly broad-leaved evergreen tree layer</i> <i>Tall tropical or subtropical grassland with a sparse broad-leaved drought-deciduous tree layer</i> <i>Medium-tall tropical or subtropical grassland with a sparse broad-leaved evergreen tree layer</i> <i>Medium-tall tropical or subtropical grassland with a sparse broad-leaved drought-deciduous tree layer</i> <i>Medium-tall tropical or subtropical grassland with a sparse needle-leaved evergreen or mixed tree layer</i> <i>Medium-tall tropical or subtropical grassland with a sparse xeromorphic or succulent tree layer</i>
	<i>VA2Ng</i> <i>VA2Nh</i> <i>VA2Ni</i> <i>VA2Nj</i>	<i>Temporarily flooded tropical or subtropical grassland with a sparse broad-leaved evergreen tree layer</i> <i>Temporarily flooded tropical or subtropical grassland with a sparse broad-leaved deciduous tree layer</i> <i>Seasonally flooded tropical or subtropical grassland with a sparse needle-leaved evergreen tree layer</i> <i>Seasonally flooded tropical or subtropical grassland with a sparse needle-leaved deciduous tree layer</i>
	<i>VA3Na</i> <i>VA3Nb</i> <i>VA3Nc</i>	<i>Tall tropical or subtropical grassland with a sparse broad-leaved evergreen or semi-evergreen shrub layer</i> <i>Tall tropical or subtropical grassland with a sparse broad-leaved drought-deciduous shrub layer</i> Medium-tall tropical or subtropical grassland with a sparse broad-leaved evergreen or semi-evergreen shrub Layer
	<i>VA3Nd</i> <i>VA3Ne</i> <i>VA3Nf</i> <i>VA3Ng</i> <i>VA3Nh</i>	<i>Medium-tall tropical or subtropical grassland with a sparse drought-deciduous shrub layer</i> <i>Medium-tall tropical or subtropical grassland with a sparse xeromorphic (often thorny) shrub layer</i> Short tropical or subtropical grassland with a sparse broad-leaved evergreen or semi-evergreen shrub layer <i>Short tropical or subtropical grassland with a sparse drought-deciduous shrub layer (includes thorny shrubs)</i> <i>Short alpine bunch tropical or subtropical grassland with a sparse evergreen shrub layer</i>
	<i>VA3Ni</i>	<i>Temporarily flooded tropical or subtropical grassland with a sparse evergreen broad-leaved shrub layer</i>
	<i>VA4Na</i>	<i>Short bunch tropical or subtropical grassland with a sparse needle-leaved or microphyllous evergreen dwarf-shrub layer</i>
	<i>VA5Na</i> <i>VA5Nb</i> <i>VA5Nc</i> <i>VA5Nd</i> <i>VA5Ne</i> <i>VA5Nf</i> <i>VA5Ng</i> <i>VA5Nh</i>	Tall sod temperate grassland (includes sod or mixed sod-bunch graminoids) Tall bunch temperate grassland Medium-tall sod temperate or subpolar grassland (includes sod or mixed sod-bunch graminoids) Medium-tall bunch temperate or subpolar grassland Short sod temperate or subpolar grassland (includes sod or mixed sod-bunch graminoids) Short bunch temperate or subpolar grassland Short alpine or subalpine sod grassland Short alpine or subalpine dry bunch grassland
	<i>VA5Ni</i> <i>VA5Nj</i> <i>VA5Nk</i> <i>VA5Nl</i> <i>VA5Nm</i> <i>VA5Nn</i>	Intermittently flooded temperate or subpolar grassland Temporarily flooded temperate or subpolar grassland Seasonally flooded temperate or subpolar grassland Semipermanently flooded temperate or subpolar grassland Saturated temperate or subpolar grassland Tidal temperate or subpolar grassland
	<i>VA6Na</i> <i>VA6Nb</i> <i>VA6Nc</i> <i>VA6Nd</i> <i>VA6Ne</i> <i>VA6Nf</i> <i>VA6Ng</i> <i>VA6Nh</i> <i>VA6Ni</i>	<i>Tall temperate grassland with a sparse broad-leaved evergreen tree layer</i> Tall temperate grassland with a sparse needle-leaved evergreen tree layer Tall temperate grassland with a sparse cold-deciduous tree layer <i>Tall temperate grassland with a sparse mixed needle-leaved evergreen or cold-deciduous tree layer</i> <i>Medium-tall temperate grassland with a sparse broad-leaved evergreen or semi-evergreen tree layer</i> Medium-tall temperate or subpolar grassland with a sparse needle-leaved evergreen or mixed tree layer Medium-tall temperate or subpolar grassland with a sparse cold-deciduous tree layer <i>Short temperate or subpolar grassland with a sparse broad-leaved evergreen or semi-evergreen tree layer</i> <i>Short temperate or subpolar grassland with a sparse cold-deciduous tree layer</i>

Level	Code	Name
Formation	VA6Nj	<i>Intermittently flooded temperate or subpolar grassland with a sparse needle-leaved evergreen tree layer</i>
	VA6Nk	<i>Temporarily flooded temperate or subpolar grassland with a sparse broad-leaved evergreen tree layer</i>
	VA6Nl	<i>Temporarily flooded temperate or subpolar grassland with a sparse cold-deciduous tree layer</i>
	VA6Nm	<i>Seasonally flooded temperate or subpolar grassland with a sparse cold-deciduous tree layer</i>
	VA6Nn	<i>Semipermanently flooded temperate or subpolar grassland with a sparse cold-deciduous tree layer</i>
	VA6No	<i>Saturated temperate or subpolar grassland with a sparse needle-leaved evergreen tree layer</i>
	VA6Np	Tidal temperate grassland with a sparse cold-deciduous tree layer
	VA6Nq	Bedrock temperate or subpolar grassland with a sparse tree layer
	VA7Na	<i>Tall temperate grassland with a sparse broad-leaved evergreen shrub layer</i>
	VA7Nb	Tall temperate grassland with a sparse microphyllous evergreen shrub layer
	VA7Nc	<i>Tall temperate grassland with a sparse cold-deciduous shrub layer</i>
	VA7Nd	Medium-tall temperate or subpolar grassland with a sparse broad-leaved evergreen shrub layer
	VA7Ne	Medium-tall temperate or subpolar grassland with a sparse needle-leaved or microphyllous evergreen shrub layer
	VA7Nf	<i>Medium-tall temperate or subpolar grassland with a sparse drought-deciduous shrub layer</i>
	VA7Ng	Medium-tall temperate or subpolar grassland with a sparse cold-deciduous shrub layer
	VA7Nh	Medium-tall temperate grassland with a sparse xeromorphic (often thorny) shrub layer
	VA7Ni	<i>Short temperate or subpolar grassland with a sparse broad-leaved evergreen or semi-evergreen shrub layer</i>
	VA7Nj	Short temperate or subpolar grassland with a sparse microphyllous shrub layer
	VA7Nk	<i>Short temperate or subpolar grassland with a sparse drought-deciduous shrub layer (includes thorny shrubs)</i>
	VA7Nl	<i>Short temperate or subpolar grassland with a sparse cold-deciduous shrub layer</i>
	VA7Nm	Short temperate or subpolar grassland with a sparse xeromorphic (evergreen and/or deciduous) shrub layer
	VA7Nn	Intermittently flooded temperate or subpolar grassland with a sparse xeromorphic (evergreen and/or deciduous) shrub layer
	VA7No	Saturated temperate or subpolar grassland with a sparse broad-leaved evergreen shrub layer
	VA7Np	Saturated temperate or subpolar grassland with a sparse cold-deciduous shrub layer
	VA7Nq	<i>Saturated temperate or subpolar grassland with a sparse microphyllous evergreen shrub layer</i>
	VA8Na	Short temperate or subpolar lowland grassland with a sparse needle-leaved or microphyllous dwarf shrub layer
	VA8Nb	Short temperate or subpolar lowland grassland with a sparse cold-deciduous dwarf shrub layer
	VA8Nc	Short temperate or subpolar alpine grassland with a sparse needle-leaved or microphyllous dwarf shrub layer
	VA8Nd	<i>Seasonally flooded temperate or subpolar grassland with a sparse needle-leaved or microphyllous dwarf shrub layer</i>
	VA9Na	<i>Short sod polar grassland (including sod or mixed sod-bunch grassland)</i>
	VA9Nb	<i>Short bunch polar grassland</i>
	VA9Nc	<i>Seasonally flooded polar grassland</i>
	VA9Nd	<i>Saturated polar grassland with nonvascular plants admixed</i>
	VA10N_	Formations not yet defined.
	VA11N_	Formations not yet defined.
	VB1Na	Tall tropical or subtropical perennial forb vegetation
	VB1Nb	Low tropical or subtropical perennial forb vegetation
	VB1Nc	Semipermanently flooded tropical or subtropical perennial forb vegetation
	VB1Nd	<i>Saturated tropical or subtropical perennial forb vegetation</i>
	VB1Ne	Tidal tropical or subtropical perennial forb vegetation
	VB2Na	Tall temperate or subpolar perennial forb vegetation
	VB2Nb	Low temperate or subpolar perennial forb vegetation
	VB2Nc	<i>Intermittently flooded temperate perennial forb vegetation</i>
	VB2Nd	Temporarily flooded temperate perennial forb vegetation
	VB2Ne	Semipermanently flooded temperate perennial forb vegetation
VB2Nf	Saturated temperate perennial forb vegetation	
VB2Ng	Tidal temperate perennial forb vegetation	
VB2Nh	Seasonally flooded temperate perennial forb vegetation	
VC1Na	Permanently flooded tropical or subtropical hydromorphic rooted vegetation	
VC1Nb	Permanently flooded-tidal tropical or subtropical hydromorphic rooted vegetation	
VC2Na	Permanently flooded temperate or subpolar hydromorphic rooted vegetation	

Level	Code	Name
Formation	VC2Nb	Permanently flooded-tidal temperate or subpolar hydromorphic rooted vegetation
	VD1Na	<i>Tropical or subtropical annual grassland</i>
	VD1Nb	<i>Tall tropical or subtropical annual forb vegetation</i>
	VD1Nc	Low tropical or subtropical ephemeral annual forb vegetation
	VD1Nd	<i>Tidal tropical or subtropical annual forb vegetation</i>
	VD2Na	<i>Tall temperate or subpolar annual grassland (dominated by annual graminoids)</i>
	VD2Nb	<i>Tall temperate or subpolar annual forb vegetation (dominated by annual forbs)</i>
	VD2Nc	<i>Low desert or subdesert ephemeral or episodic annual forb vegetation</i>
	VD2Nd	Short temperate annual grassland
	VD2Ne	<i>Low temperate intermittently exposed annual forb vegetation</i>
	VD2Nf	Temporarily flooded temperate annual forb vegetation
	VD2Ng	Seasonally flooded temperate annual grassland
	VD2Nh	Seasonally flooded temperate annual forb vegetation
	VD2Ni	Saturated temperate annual forb vegetation
	VIA1Na	<i>Lowland bryophyte vegetation</i>
	VIA1Nb	Seasonally flooded bryophyte vegetation
	VIA1Nc	Saturated bryophyte vegetation
	VIA1Nd	<i>Saturated bryophyte vegetation with a sparse tree layer</i>
	VIA1Ne	<i>Saturated bryophyte vegetation with a sparse dwarf shrub layer</i>
	VIB1Na	Lowland (<i>temperate or subpolar</i>) lichen vegetation
	VIB1Nb	Montane/submontane temperate or subpolar lichen vegetation
	VIB1Nc	(<i>Temperate or subpolar</i>) Lichen vegetation with a sparse tree layer
	VIB1Nd	(<i>Temperate or subpolar</i>) Lichen vegetation with a sparse dwarf shrub layer
	VIB2Na	Montane/submontane tropical or subtropical lichen vegetation
	VIC1Na	Seasonally flooded (<i>tropical or subtropical</i>) alga vegetation
	VIC1Nb	Tidal tropical or subtropical alga vegetation
	VIC2Na	Tidal temperate or subpolar alga vegetation
	VIIA1Na	Cliffs with sparse vascular vegetation
	VIIA2Na	Pavement with sparse vascular vegetation
	VIIB1Na	Lowland or submontane talus/scree (<i>with sparse vegetation</i>)
	VIIB1Nb	Montane talus/scree (<i>with sparse vegetation</i>)
	VIIB1Nc	High montain talus/scree (<i>with sparse vegetation</i>)
	VIIB2Na	Boulder fields (<i>with sparse vegetation</i>)
	VIIB2Nb	Cobble/gravel beaches and shores (<i>with sparse vegetation</i>)
	VIIB2Nc	Cobble/gravel flats and ridges (<i>with sparse vegetation</i>)
	VIIC1Na	Dunes with sparse herbaceous vegetation
	VIIC1Nb	Dunes with sparse woody vegetation
	VIIC2Na	Sand flats (<i>with sparse vegetation</i>)
	VIIC2Nb	<i>Intermittently flooded sand beaches and shores (with sparse vegetation)</i>
	VIIC2Nc	Temporarily flooded sand flats (<i>with sparse vegetation</i>)
	VIIC2Nd	Tidal sand flats (<i>with sparse vegetation</i>)
	VIIC3Na	<i>Moist slopes (sparsely vegetated soil)</i>
	VIIC3Nb	<i>Dry slopes (sparsely vegetated soil)</i>
	VIIC4Na	Soil slumps or landslides (<i>with sparse vegetation</i>)
	VIIC4Nb	Intermittently flooded mud flats (<i>with sparse vegetation</i>)
	VIIC4Nc	Seasonally / temporarily flooded mud flats (<i>with sparse vegetation</i>)
	VIIC4Nd	Tidal mud flats (<i>with sparse vegetation</i>)
	VIIC5N_	Formations not yet defined.

Appendix 2A. Example Field Data Forms and Instructions

This appendix includes examples of forms for recording plot metadata, environmental attributes, and vegetation data for ocular macroplots. They are taken from the draft TEUI Technical Guide (Winthers *et al.* 2001). Additional life form codes are needed to accommodate the FGDC physiognomic classification standard (FGDC 1997).

General Site Data Elements

Collect the following data elements at all sample sites. Collect these data elements independently of other information, and only once for a particular sample site, regardless of any other data that is collected at the same point, now or in the future. Unless noted as optional, each of the elements is required

Field Name	Description
Site ID	Record the site or plot identifier that is unique within a specific project or inventory area.
Project Name	Record the name of the project or inventory.
Date	Record the month, day, and year in the format MMDDYYYY.
Examiner(s)	Record the last name, first name, and middle initial of all crewmembers. Record the name of the principal investigator first.
Plot Type	Select Integrated Plot (INPL) or sample site (GEIN)
Plot Size	Record actual dimensions. For example, a 1/5 acre circular plot is recorded as "52.7 feet" under radius while a 1/10 acre is recorded as "37.2 feet" under radius.
Location	Record the location of the sample site using latitude-longitude or UTM with zone.
Aerial Photo ID	Record the photo identification number. (Optional)
Flight Line	Record the three-digit photo flight line. (Optional)
Roll #	Record the three-digit roll number and contract fiscal year. For example, "189" identifies roll 1 taken in fiscal year 1989. (Optional)
Ground Photo Label	Record a descriptive alpha/numeric label to track photos. Example is roll number followed by exposure # "2-14" to help label and track photos after processing. (Optional)
Photo Description	Record a description of the photo subject. (Optional)
Film Type	Record the type of film used. (Optional)
Elevation	Record the sample site elevation, in feet, to the nearest 10 feet. (Required)
Slope	Record the sample site average slope, in percent. (Required)
Aspect	Record the sample site aspect, in degrees. For slopes that have no aspect, record a zero. (Required)
Horizontal Slope Shape	Record the horizontal shape of the plot (See Table 3 and Figure 1). (Optional)
Vertical Slope Shape	Record the vertical shape of the plot (See Table 3 and Figure 1). (Optional)
Slope Complexity	Record the slope complexity of the plot. (Optional)
Slope Position	Record the two-dimensional position of the plot on the landform. (Required)
Slope Position Modifier	Record the modifier, which best describes the primary slope position. (Required)
Ground Surface Cover Percent	Record an ocular estimate, in percent, of plot area covered by the ground surface cover type. (Optional)
Ground Surface Cover Type	Record the ground surface cover type. Table 4 contains a list of types and descriptions. Detailed breakdowns are optional. (Optional)
Disturbance Type	Record major disturbance events. Table 5 contains a list of disturbance codes. Detailed breakdowns are optional. (Optional)
Disturbance	Record the vegetation affected and/or the ground cover affected, in percent.

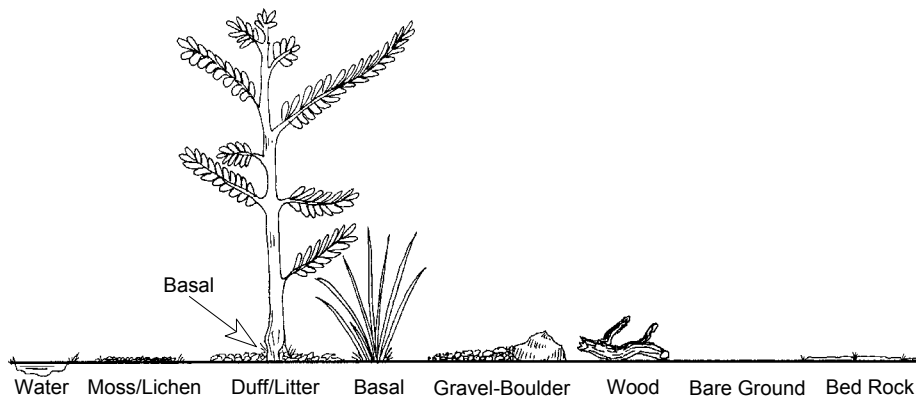
Extent Affected	(Optional)
Disturbance Date	Record the disturbance date, in years, to the nearest year. (Optional)
Disturbance Notes	Record notes relating to major disturbance event. Include the type of vegetation or species affected. (Optional)

Vertical and Horizontal Shape Code

Code	Description
CX	Convex (also raised)
L	Linear/Planar (also straight, even or smooth)
CV	Concave (also depression)
U	Undulating (also rolling) – pattern of one or more low relief ridges or knolls and draws
P	Patterned Relief of hummocks and swales with several feet
FL	Flat
U	Unable to Assess

Ground Surface Cover

Ground Surface Cover estimates are ocular. Absolute percent cover of the fixed area plot is the standard and required. Defined as the percent of plot surface area, which is occupied by the ground cover type. Estimate to the nearest 1% in the 1-10% range, to the nearest 5% for amounts from 10% - 30%, and to the nearest 10% for covers exceeding 30%.



Ground Surface Cover

Ground Surface Cover Categories and Codes

Suggest ground cover elements in bold as a reduced set of ground cover codes used in existing vegetation classification to develop interpretations about ground cover and disturbance relationships.

Type_Code	Description
ASH	<i>Ash (organic, from fire): Remaining residue after all combustible material has been burned off.</i>
BARE	Bare soil (soil particles < 2 mm): Bare soil, not covered by rock, cryptogams, or organic material. Does not include any part of a road
BAVE	Basal vegetation: Basal vegetation, not differentiated by lifeform. For use when basal vegetation is not separated into more detailed codes (BAFO etc.). Note: Basal Vegetation is the soil surface occupied by live basal or root crown portion of vascular plants. This includes live trees. This is not the foliar cover of plants. Typical basal plant cover ranges between 3-7 percent; 15 percent is very high and rarely encountered.
BEDR	<i>Bedrock: A general term for the rock, usually solid, that underlies soil or other unconsolidated, superficial material.</i>
BOUL	Boulders (round and flat): Rock > 600 mm in diameter or length. Generic term for use when boulders are not differentiated by round and flat.
CHAN	<i>Channers (2-150 mm long): Long, thin rock fragments as determined by National Cooperative Soil Survey.</i>
COBB	<i>Cobbles (75-250 mm): Rock fragments between 75 and 250 mm in diameter.</i>
COGR	<i>Coarse gravel (20-75 mm): Rock fragments between 20 and 75 mm in diameter.</i>
CRYP	Cryptogamic Crust: Thin, biotically dominated ground or surface crusts on soil in dry rangeland conditions; e.g. cryptogamic crust (algae, lichen, mosses or cyanobacteria).
FIGR	<i>Fine gravel (2-5 mm): Rock fragments between 2 and 5 mm in diameter.</i>
FLAG	<i>Flag stones (150-380 mm long): Flat Rock fragments between 150 and 380 mm in diameter.</i>
GRAV	Gravel (2-75 mm): Rock fragments between 2 and 75 mm in diameter.
LICH	Lichen: an organism generally recognized as a single plant that consists of a fungus and an alga or cyanobacterium living in a symbiotic association. For lichen growing on bare soil in dry rangeland conditions, see cryptogamic crusts.
LITT	Litter and Duff: Leaf and needle litter, and duff not yet incorporated into the decomposed top humus layer. Non-continuous litter is not included (for example, scattered needles, over soil classified as BARE).
MEGR	<i>Medium gravel (5-20 mm): Rock fragments between 5 and 20 mm in diameter.</i>
MOSS	Moss: Nonvascular, terrestrial green plant, incl. mosses, hornworts, and liverworts. Always herbaceous. Does not apply to moss growing on bare soil in dry rangeland conditions. For rangeland conditions, see cryptogamic crusts
PAVE	Pavement: A natural, concentration of closely packed and polished stones at the soil surface in a desert (may or may not be an erosional lag).
PEIC	<i>Permanent Ice: Ice covering the surface; does not melt during the growing season. The surface is ice-covered for the entire year (i.e. glaciers)</i>
PEIS	<i>Permanent Ice and Snow: Surface area covered by ice and snow at the time of plot measurement, considered permanent. For use when permanent ice and snow are not differentiated.</i>
PESN	<i>Permanent Snow: Snow covering the surface; does not melt during the growing season. The surface is snow-covered for the entire year.</i>
STON	Stones (250 – 600mm) 10-24 inches (Round and flat)
TRIC	<i>Transient Ice: Iced covering the surface; the ice will melt during the growing season.</i>
TRIS	<i>Transient Ice and Snow: Surface area covered by ice and snow at the time of plot measurement, considered transient. For use when permanent ice and snow are not differentiated.</i>
TRSN	<i>Transient Snow: Snow covering the surface; the s surface during the growing season, such as streams, now will melt during the growing season.</i>
WATE	Water: Where the water table is above the ground bogs, swamps, marshes, and ponds.
WOOD	Wood: Woody material, slash, and debris; any woody material, small and large woody debris, regardless of depth Litter and non-continuous litter are not included (for example, scattered needles over soil is classified as BARE).
NOIN	Not Inventoried: Non-inventoried condition classes: census water or hazardous terrain.

Major Change Event Code Categories

Disturbance Agent		Treatment Type	
Code	Description	Code	Description
10000	Insects (General)	71000	Timber Harvest
10011	Ant (Formicidae)	71002	Firewood Harvest
11000	Bark Beetles	71027	Natural Changes (No Cut)
12000	Defoliators	73000	Regeneration Activities (General)
13000	Chewing Insects	73004	Seeding (Trees-Natural)
14000	Sucking Insects	73005	Seeding (Trees-Artificial)
15000	Boring Insects	73008	Grass Seeding
16000	Seed/Cone/Flower/Fruit Insects	73015	Site Preparation
17000	Gallmaker Insects	73016	Brush Control
18000	Insect Predators	74000	Timber Stand Improvement (General - Non-Commercial)
19000	General Diseases	75000	Prescribe Burning (General)
20000	Biotic Damage	75004	Planned Ignition -Prescribed Burn -Natural Fuel
21000	Root/Butt Diseases	75005	Unplanned Ignition -Prescribed Burn -Natural Fuel
22000	Stem Decay/Cankers	78007	Miscellaneous Upland Recreation Activities
23000	Parasitic/Epiphytic Plants	78008	Miscellaneous Riparian Recreation Activities
23001	Mistletoe		
24000	Decline Complexes/Dieback/Wilts		
25000	Foliage Diseases		
26000	Stem Rusts		
27000	Broom Rusts		
30000	Fire		
41002	Beaver		
41003	Big Game (Deer)		
41016	Browsing		
41021	Rodents		
41022	Elk		
42001	Cattle		
42004	Sheep		
50003	Drought		
50004	Flooding/High Water		
50011	Snow/Ice		
50013	Wind/Tornado		
50015	Avalanche		
50016	Mud/Landslide		
51001	Channel Erosion		
51002	Soil Creep		
51010	Slump		
70005	Land Clearing		
70006	Land Use Conversion		
70008	Mechanical		
80000	Multi-Damage (Insects/Diseases)		
90000	Unknown		

General Site Data Form
Vegetation Classification - USDA Forest Service

SITE ID #		PROJECT NAME	
TYPE OF DATA COLLECTED		DATE (MMDDYYYY)	
EXAMINER: LAST		First	Initial
PLOT TYPE:	COLLECTING AGENCY:	ECOREGION:	
SAMPLE UNIT SIZE:	RADIUS	WIDTH	UOM STATE:
GPS LOCATION			
LAT.	UTM	NORTH	
LONG.	ZONE	EAST	

AERIAL PHOTO INFORMATION						
DATE	SOURCE	SCALE	PROJ/CODE	FLIGHT L.	ROLL #	EXP. #

PLOT PHOTO INFORMATION			
LABEL	PHOTO DESCRIPTION	FILM TYPE	DIGITAL PICTURE FILE NAME

MORPHOMETRY						
ELEVATION	SLOPE	ASPECT	SHAPE HOR.	SHAPE VERT.	COMPLEXITY	POSITION _____ MOD

GROUND SURFACE COVER						
TYPE	%	TYPE	%	TYPE	TYPE	%

MAJOR DISTURBANCE EVENTS				
DISTURBANCE TYPE	EXTENT AFFECTED		DISTURBANCE DATE	NOTES:
	VEGETATION	GROUND COVER		

Remarks:

Example Vegetation Ocular Macroplot Form

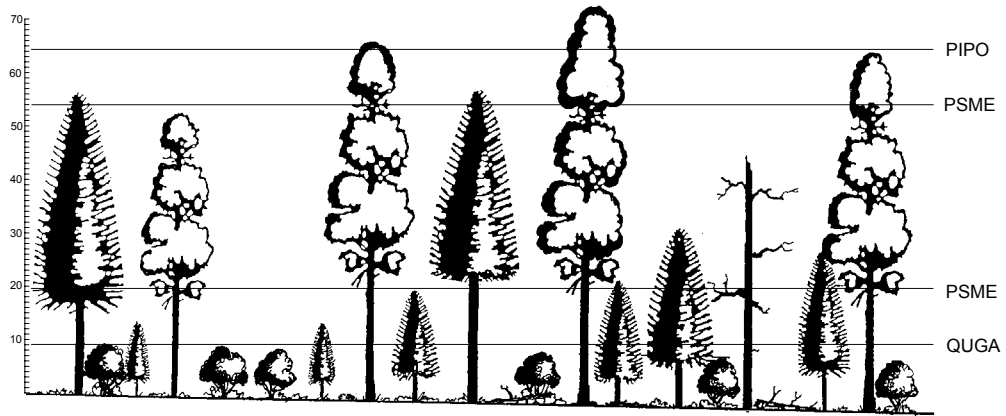
Field Form Attributes: Collect the following information based on the species and layer combinations to complete vegetation composition and structure information.

Field Name	Description
Site ID	Record the site or plot identifier that is unique within a specific project or inventory area. This is the same ID used on the General Site Data Form. (Required)
Date	Record the month, day, and year in the format MMDDYYYY. For example, October 9, 1996 is recorded as "10091996". (Required)
Examiner(s)	Record the last name, first name, and middle initial of crewmembers. Record the name of the principle investigator first. (Required)
Plot type	Select Integrated Plot (INPL) or sample site (GEIN). (Required)
Plot Size	Record plot size used (established in project metadata) (Required)
U.O.M	Record Units of Measure used for Height and Diameter. (Required)
Lifeform	Record the lifeform Code. Canopy cover is required for tree, shrub, forb, and grass. Canopy cover for other lifeforms is optional. Refer to Table 7. (Required)
Canopy Cover	Record the canopy cover by lifeform, in percent. (Required) for Tree, Shrub, Forb, and Grass. Canopy cover for other lifeforms is optional .
Sketch Map	Draw a plan view sketch of the sample site as it relates to the map unit component, polygon, roads, water, and other prominent features. (Use back of Card). (Optional)
Plant Code	Record the species using the NRCS Plants database codes. Do not make questionable species identifications in this space without recording the scientific name in the remarks column and collecting a plant specimen for later positive identification. Draw a line through the species column when not applicable (i.e. when grouping multiple species by lifeform or layer) (Required)
Layer	Record the layer code that describes the tree or shrub layer being estimated. For trees use super canopy, main canopy, subcanopy, and regeneration. (Required) For shrubs use very tall, tall, medium, or low. (Optional)
Minimum Height	Record the minimum height of a tree layer. (Optional)
Average Height	Record the average height of each layer, within 10 percent. (Required) for trees, Optional for other lifeforms)
Maximum Height	Record the maximum height of a tree layer. (Optional)
Average Diameter (optional for shrubs)	Record the average diameter, in inches, to the nearest inch. Estimate diameter at breast height (DBH) for trees, except junipers and pinyon pine. Estimate the diameter at the root collar (DRC) for all junipers, pinyon pine, and shrubs. (Required) for trees, Optional for shrubs)
Diameter Location	Record the location where the diameter was estimated. (Required) if diameter is collected). 4.5 = breast height, 0.0 = root collar
Canopy Cover	Record the amount of the plot surface area, in percent, covered by the tracing the periphery of the foliage of the plants (grouped by lifeform, species, layer, or species within a layer). It must be estimated in the field. Include species not rooted in, but whose crowns overhang the plot area. Use 0.1 as "trace" for items present but clearly less than 1% cover. Estimate to the nearest 1% in the 1-10% range; estimate to the nearest 5% for amounts between 10% - 30% and to the nearest 10% for covers exceeding 30%. (Required)
Phenology	Record the typical stage for the species at time of sampling. See Table 8. (Optional)
ID	Record the reliability of of species identification. See Table 9. (Required)
Collection #	Record a unique number for each plant specimen collected. Tag each specimen for follow-up identification. (Required)
Age	Record the average or predominate age for the species or layer group. Core samples may be used. Take a sample core(s) at the same height as the average diameter, either DRC or DBH for the particular species. Age is most often recorded for tree species

Field Name	Description
	and is occasionally recorded for shrub species. Count the actual number of rings, but do not apply an add-on factor. You can also use core samples, to help calibrate maturity class estimates. (Optional)
Remarks	Record notes about a species or layer as needed. Record the scientific name of the species when the correct NRCS Plant Code is unknown. (Optional)

Life Form Codes and Descriptions

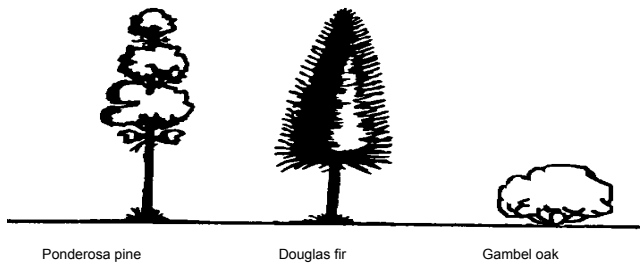
Code	Description	Definition
AL	Algae	A general name for the single-celled plant plankton, seaweeds, and their freshwater allies.
FB	Herbaceous forb/herb	Vascular plant without significant woody tissue above or at the ground. Forbs and herbs may be annual, biennial, or perennial but always lack significant thickening by secondary woody growth and have perennating buds borne at or below the ground surface.
LC	Lichen	Organism generally recognized as a single plant that consists of a fungus and an alga or cyanobacterium living in symbiotic association. Often attached to solid objects such as rocks or living or dead wood rather than soil.
FU	Fungus	A non-flowering plant of the kingdom Fungi, all lacking chlorophyll.
GR	Herbaceous graminoid	Grass or grass-like plant, including grasses (Poaceae), sedges (Cyperaceae), rushes (Juncaceae), arrow-grasses (Juncaginaceae), and quillworts (Isoetes).
LI	Woody Liana	Climbing plant found in tropical forests with long, woody rope-like stems of anomalous anatomical structure.
SH	Woody Shrub	Perennial, multi-stemmed woody plant that is usually less than 4 to 5 meters or 13 to 16 feet in height. Shrubs typically have several stems arising from or near the ground, but may be taller than 5 meters or single-stemmed under certain environmental conditions.
SS	Woody Subshrub/half-shrub	Low-growing shrub usually under 0.5 meters or 1.5 feet tall (never exceeding 1 meter or 3 feet tall) at maturity.
TR	Woody Tree	Perennial, woody plant with a single stem (trunk), normally greater than 4 to 5 meters or 13 to 16 feet in height; under certain environmental conditions, some tree species may develop a multi-stemmed or short growth form (less than 4 meters or 13 feet in height).
VI	Herbaceous Vine	Twining/climbing plant with relatively long stems can be woody or herbaceous.
NP	Nonvascular plant	Nonvascular, terrestrial green plant, including mosses, hornworts, and liverworts. Always herbaceous, often attached to solid objects such as rocks or living or dead wood rather than soil.
UN	Unknown	Growth form is unknown.



Species	
PIPO	Ponderosa pine
PSME	Douglas fir
QUGA	Gambel oak

Layer Heights			
Species	Min	Avg	Max
PIPO	50	64	70
PSME	53	54	55
PSME	13	20	31
QUGA	9	9	9

Layer Heights by Species



Species	
PIPO	Ponderosa pine
PSME	Douglas fir
QUGA	Gambel oak

Species Key

Phenology Codes

Code	Description
F1	Forb/shrub: preflower
F2	Forb/shrub: flowering
F3	Forb/shrub: fruiting
F4	Forb/shrub: senescent; dormant
G1	Graminoid: leaves partially developed; no heads
G2	Graminoid: inflorescence inside the sheath (in the boot)
G3	Graminoid: flower partially or fully exerted from sheath
G4	Graminoid: seeds maturing or mature
G5	Graminoid: senescent; dormant

Reliability of Identification Codes

Code	Description
0	Name assigned without qualification (variety certain or understood)
1	Species identification is certain, but variety is in doubt
2	Species identification is certain, but named varieties not distinguished
3	Species complex or species aggregate
4	Genus identification is certain, but species identification is in doubt
5	Genus identification is certain, but species not distinguished
6	Genus identification is uncertain
7	Unknown or indeterminate, but only one species is probably included

NRCS General Organism Codes

Symbol	Vernacular	Symbol	Vernacular
2AB	Alga, Brown	2LW	Liverwort
2AFW	Alga, Freshwater	2MOSS	Moss
2AG	Alga, Green	2PLANT	Plant
2ALGA	Alga	2PROT	Protista
2AM	Alga, Marine	2SB	Shrub, broadleaf
2AR	Alga, Red	2SD	Shrub, deciduous
2BACT	Bacteria	2SDB	Shrub, deciduous, broadleaf
2BRY	Bryophyte (moss, liverwort, hornwort)	2SDBD	Shrub, deciduous, broadleaf, dicot
2CYAN	Cyanobacteria	2SDBM	Shrub, deciduous, broadleaf, monocot
2DIAT	Diatom	2SDN	Shrub, deciduous, needleleaf
2DINO	Dinoflagellate	2SE	Shrub, evergreen
2FA	Forb, annual	2SEB	Shrub, evergreen, broadleaf
2FB	Forb, biennial	2SEBD	Shrub, evergreen, broadleaf, dicot
2FD	Forb, dicot	2SEBM	Shrub, evergreen, broadleaf, monocot
2FDA	Forb, dicot, annual	2SEN	Shrub, evergreen, needleleaf
2FDB	Forb, dicot, biennial	2SHRUB	Shrub (>.5m)
2FDP	Forb, dicot, perennial	2SLIME	Slime Mold
2FERN	Fern or Fern Ally	2SN	Shrub, needleleaf (coniferous)
2FF	Fungus, fleshy (mushroom)	2SSB	Subshrub, broadleaf
2FJ	Fungus, Jelly	2SSD	Subshrub, deciduous
2FM	Forb, monocot	2SSDB	Subshrub, deciduous, broadleaf
2FMA	Forb, monocot, annual	2SSDBD	Subshrub, deciduous, broadleaf, dicot
2FMB	Forb, monocot, biennial	2SSDBM	Subshrub, deciduous, broadleaf, monocot
2FMP	Forb, monocot, perennial	2SSDN	Subshrub, deciduous, needleleaf
2FORB	Forb (herbaceous, not grass nor grass like)	2SSE	Subshrub, evergreen
2FP	Forb, perennial	2SSEB	Subshrub, evergreen, broadleaf
2FR	Fungus, Rust	2SSEBD	Subshrub, evergreen, broadleaf, dicot
2FS	Forb, succulent	2SSEBM	Subshrub, evergreen, broadleaf, monocot
2FSA	Forb, succulent, annual	2SSEN	Subshrub, evergreen, needleleaf
2FSB	Forb, succulent, biennial	2SSN	Subshrub, needleleaf (coniferous)
2FSMUT	Fungus, Smut	2SUBS	Subshrub (<. 5 meters)
2FSP	Forb, succulent, perennial	2TB	Tree, broadleaf
2FUNGI	Fungus	2TD	Tree, deciduous
2GA	Grass, annual	2TDB	Tree, deciduous, broadleaf
2GB	Grass, biennial	2TDBD	Tree, deciduous, broadleaf, dicot
2GL	Grass like (not a true grass)	2TDBM	Tree, deciduous, broadleaf, monocot
2GLA	Grass like, annual	2TDN	Tree, deciduous, needleleaf
2GLB	Grass like, biennial	2TE	Tree, evergreen
2GLP	Grass like, perennial	2TEB	Tree, evergreen, broadleaf
2GP	Grass, perennial	2TEBD	Tree, evergreen, broadleaf, dicot
2GRAM	Graminoid (grass or grass like)	2TEBM	Tree, evergreen, broadleaf, monocot
2GW	Grass, woody (bamboo, etc.)	2TEN	Tree, evergreen, needleleaf

Symbol	Vernacular	Symbol	Vernacular
2HORN	Hornwort	2TN	Tree, needleleaf (coniferous)
2LC	Lichen, crustose	2TREE	Tree
2LCB	Lichen, crustose, bullate (inflated)	2VH	Vine, herbaceous
2LCE	Lichen, crustose, endolithic	2VHA	Vine, herbaceous, annual
2LCGEL	Lichen, crustose, gelatinous	2VHD	Vine, herbaceous, dicot
2LCGON	Lichen, crustose, goniocysts	2VHDA	Vine, herbaceous, dicot, annual
2LCN	Lichen, crustose, endophloeodic	2VHDP	Vine, herbaceous, dicot, perennial
2LCP	Lichen, crustose, powdery	2VHM	Vine, herbaceous, monocot
2LCQ	Lichen, crustose, squamulose	2VHMA	Vine, herbaceous, monocot, annual
2LCS	Lichen, crustose, suffruticose	2VHMP	Vine, herbaceous, monocot, perennial
2LF	Lichen, foliose	2VHP	Vine, herbaceous, perennial
2LFL	Lichen, foliose, lacinate	2VHS	Vine, herbaceous, succulent
2LFU	Lichen, foliose, umbilicate	2VHSA	Vine, herbaceous, succulent, annual
2LICHN	Lichen	2VHSP	Vine, herbaceous, succulent, perennial
2LU	Lichen, fruticose	2VW	Vine, woody
2LUF	Lichen, fruticose, fenestrate lobes	2VWD	Vine, woody, deciduous
2LUR	Lichen, fruticose, radial symmetric thallus with	2VWDD	Vine, woody, deciduous, dicot
2LUV	Lichen, fruticose, vertical thallus	2VWDM	Vine, woody, deciduous, monocot
		2VWE	Vine, woody, evergreen
		2VWED	Vine, woody, evergreen, dicot
		2VWEM	Vine, woody, evergreen, monocot

