UPPER LEVELS OF THE CLASSIFICATION HIERARCHY: Description to Formation Level

The upper levels of the NVCS hierarchical classification system are organized as follows:

CLASS - Study these definitions and choose the appropriate class of your habitat type:

I. **FOREST**: Trees with their crowns overlapping (generally forming 60 - 100% cover)

II **WOODLAND**: Open stands of trees with crowns not usually touching (generally forming 25 - 60% cover). Canopy tree cover may be less than 25% in cases where it exceeds each of shrub, dwarf-shrub, herb, and nonvascular cover, respectively

III. **SHRUBLAND**: Shrubs generally greater than 0.5 m tall with individuals or clumps overlapping to not touching (generally forming >25% cover, trees generally <25% cover). Shrub cover may be <25% where it exceeds each of tree, dwarf-shrub, herb, and nonvascular cover, respectively. Vegetation dominated by woody vines is generally treated in this class

IV. **DWARF-SHRUBLAND**: Low-growing shrubs usually under 0.5 m tall. Individuals or clumps overlapping to not touching (generally forming more than 25% cover, trees and tall shrubs generally less than 25% cover). Dwarf-shrub cover may be less than 25% where it exceeds each of tree, shrub, herb, and nonvascular cover, respectively

V. **HERBACEOUS**: Herbs (graminoids, forbs, and ferns) dominant (generally forming at least 25% cover; trees, shrubs, and dwarf-shrubs generally with <25% cover). Herb cover may be <25% where it exceeds each of tree, shrub, dwarf-shrub, and nonvascular cover, respectively

VI **NONVASCULAR**: Nonvascular cover (bryophytes, non-crustose lichens, and algae) dominant (generally forming >= 25% cover). Nonvascular cover may be <25% where it exceeds each of tree, shrub, dwarf-shrub, and herb cover, respectively

VII.**SPARSE VEGETATION**: Abiotic substrate features dominant. Vegetation is scattered to nearly absent and generally restricted to areas of concentrated resources (total vegetation cover is typically less than 25% and greater than 0%)

SUBCLASS[1] – Choose a subclass from one of these descriptions then go to that page number to choose the correct alliance:

GROUP and **Subgroup** (e.g., in "IA4N," Group is indicated by the arabic numeral '4' and, for Subgroup, "N" signifies natural/semi-natural while a "C" would mean planted/cultivated

FORMATION – each formation is indicated by a lower-case letter and is made up of a variety of plant alliances

***ALLIANCE* - these are listed in Appendices 4-6 depending upon your region**

If the habitat type you are considering is not described by any of the NVCS Alliances given in Appendices 4, 5, or 6 YOU MUST make sure that on Form H-1 you have:

a) provided an appropriate habitat description,
b) provided a list of dominant species (preferably latin names) in the MAIN SPECIES column, and
c) filled in the National Vegetation Classification Standard alliance code as far as the level of FORMATION.

You may also contact Phil Nott in case the alliance is atypical of your region but appears in a neighboring region.

[1] The terms used in this key are defined in the NVCS glossary (Appendix 3)

I. FOREST. Trees with their crowns overlapping (generally forming 60 - 100% cover)

I.A. Evergreen forest - evergreen species generally contribute >75% of the total tree cover

I.A.1. Tropical or subtropical broad-leaved evergreen rainforest (broad-leaved evergreen trees, neither cold- nor drought-resistant)
- I.A.1.N.a. Lowland tropical or subtropical rainforest
- I.A.1.N.b. Submontane tropical or subtropical rainforest
- I.A.1.N.c. Montane tropical or subtropical rainforest
- I.A.1.N.d. Montane tropical or subtropical cloud forest
- I.A.1.N.e. Subalpine tropical or subtropical rainforest
- I.A.1.N.f. Temporarily flooded tropical or subtropical rainforest
- I.A.1.N.g. Semipermanently flooded tropical or subtropical rainforest
- I.A.1.N.h. Saturated tropical or subtropical evergreen rainforest
- I.A.1.N.i. Tidal tropical or subtropical rainforest
- I.A.1.N.j. Seasonally flooded tropical or subtropical rainforest

I.A.2. Temperate or subpolar broad-leaved evergreen rainforest (restricted to southern hemisphere)
- I.A.2.N.a. Temperate evergreen rainforest
- I.A.2.N.b. Subpolar evergreen rainforest
- I.A.2.N.c. Temporarily flooded temperate evergreen rainforest
- I.A.2.N.d. Seasonally flooded temperate evergreen rainforest

I.A.3. Tropical or subtropical broad-leaved seasonal evergreen forest (mainly broad-leaved evergreen trees with some foliage reduction in the dry season)
- I.A.3.N.a. Lowland tropical or subtropical seasonal evergreen forest
- I.A.3.N.b. Submontane tropical or subtropical seasonal evergreen forest
- I.A.3.N.c. Montane tropical or subtropical seasonal evergreen forest
- I.A.3.N.d. Subalpine tropical or subtropical evergreen forest
- I.A.3.N.e. Temporarily flooded tropical or subtropical seasonal evergreen forest
- I.A.3.N.f. Seasonally flooded tropical or subtropical seasonal evergreen forest
- I.A.3.N.g. Semipermanently flooded tropical or subtropical seasonal evergreen forest

I.A.4. Temperate broad-leaved seasonal evergreen forest (mainly broad-leaved evergreen with some foliage reduction in the dry season)
- I.A.4.N.a. Lowland temperate seasonal evergreen forest
- I.A.4.N.b. Submontane temperate seasonal evergreen forest
- I.A.4.N.c. Montane temperate seasonal evergreen forest
- I.A.4.N.d. Subalpine temperate evergreen forest
- I.A.4.N.e. Temporarily flooded temperate seasonal evergreen forest
- I.A.4.N.f. Seasonally flooded temperate seasonal evergreen forest
- I.A.4.N.g. Saturated temperate seasonal evergreen forest

I.A.5. Tropical or subtropical broad-leaved evergreen sclerophyllous forest.
- I.A.5.N.a. Lowland tropical or subtropical broad-leaved evergreen sclerophyllous forest
- I.A.5.N.b. Temporarily flooded tropical or subtropical broad-leaved evergreen sclerophyllous forest
- I.A.5.N.c. Seasonally flooded tropical or subtropical broad-leaved evergreen sclerophyllous forest
- I.A.5.N.d. Semipermanently flooded tropical or subtropical broad-leaved evergreen sclerophyllous forest
- I.A.5.N.e. Saturated tropical or subtropical broad-leaved evergreen sclerophyllous forest
- I.A.5.N.f. Tidal tropical or subtropical broad-leaved evergreen sclerophyllous forest (e.g., mangroves)

I.A.6. Winter-rain broad-leaved evergreen sclerophyllous forest (stiff leathery-leaved trees)
- I.A.6.N.a. Giant lowland or submontane winter-rain evergreen sclerophyllous forest (over 50 m tall, e.g. Eucalyptus in Australia)
- I.A.6.N.b. Lowland or submontane winter-rain evergreen sclerophyllous forest (under 50 m tall, e.g. live oak in California)

I.A.7. Tropical or subtropical needle-leaved evergreen forest

I.A.7.N.a. Lowland or submontane tropical or subtropical needle-leaved evergreen forest
I.A.7.N.b. Montane or subalpine tropical or subtropical needle-leaved evergreen forest
I.A.7.N.c. Temporarily flooded tropical or subtropical needle-leaved evergreen forest

I.A.8. Temperate or subpolar needle-leaved evergreen forest. (mostly needle-leaved or scale-leaved trees)
I.A.8.N.a. Giant temperate or subpolar needle-leaved evergreen forest (e.g., redwood and Douglas Fir)
I.A.8.N.b. Rounded-crowned temperate or subpolar needle-leaved evergreen forest (e.g., pines, western juniper)
I.A.8.N.c. Conical-crowned temperate or subpolar needle-leaved evergreen forest (e.g., spruce, eastern juniper, cedar)
I.A.8.N.d. Cylindrical-crowned temperate or subpolar needle-leaved evergreen forest (e.g., boreal spruce forests of Alaska)
I.A.8.N.e. Temporarily flooded temperate or subpolar needle-leaved evergreen forest
I.A.8.N.f. Seasonally flooded temperate or subpolar needle-leaved evergreen forest
I.A.8.N.g. Saturated temperate or subpolar needle-leaved evergreen forest
I.A.8.N.h. Tidal temperate or subpolar needle-leaved evergreen forest

I.A.9. Extremely xeromorphic evergreen forest
I.A.9.N.a Sclerophyllous extremely xeromorphic evergreen forest
I.A.9.N.b. Succulent extremely xeromorphic evergreen forest (assumed to be evergreen)

I.B. Deciduous forest - deciduous tree species generally contribute >75% of the total tree cover

I.B.1. Drought-deciduous forest.
I.B.1.N.a. Lowland or submontane drought-deciduous forest
I.B.1.N.b. Montane or cloud drought-deciduous forest

I.B.2. Cold-deciduous forest
I.B.2.N.a. Lowland or submontane cold-deciduous forest (e.g.,broadleaf forests of the Midwest)
I.B.2.N.b. Montane or boreal cold-deciduous forest (e.g., broadleaf forests of the mountains)
I.B.2.N.c. Subalpine or subpolar cold-deciduous forest
I.B.2.N.d. Temporarily flooded cold-deciduous forest (e.g., alluvial bottomland hardwoods)
I.B.2.N.e. Seasonally flooded cold-deciduous forest (e.g., deciduous larch forests in Alaska, peat forests)
I.B.2.N.f. Semipermanently flooded cold-deciduous forest (e.g., cypress swamp)
I.B.2.N.g. Saturated cold-deciduous forest
I.B.2.N.h. Tidal cold-deciduous forest

I.B.3 Extremely xeromorphic deciduous forest
1.B.3.N.a. Extremely xeromorphic deciduous thorn forest

1.C. Mixed evergreen-deciduous forest - evergreen and deciduous species generally contribute 25-75% of total tree cover. (Includes semi-deciduous, semi-evergreen, mixed evergreen-deciduous xeromorphic, and mixed needle-leaved evergreen-cold-deciduous woody vegetation.)

I.C.1. Tropical or subtropical semi-deciduous forest
I.C.1.N.a. Lowland tropical or subtropical semi-deciduous forest
I.C.1.N.b. Cloud or montane tropical or subtropical semi-deciduous forest
I.C.1.N.c. Seasonally flooded tropical or subtropical semi-deciduous forest
I.C.1.N.d. Saturated tropical or subtropical semi-deciduous forest

I.C.2. Mixed broad-leaved evergreen - cold-deciduous forest
I.C.2.N.a. Mixed broad-leaved evergreen - cold-deciduous forest
I.C.2.N.b. Temporarily flooded mixed evergreen - cold-deciduous forest
I.C.2.N.c. Seasonally flooded mixed broad-leaved evergreen - cold-deciduous forest
I.C.2.N.d. Saturated mixed broad-leaved evergreen - cold-deciduous forest

I.C.3. Mixed needle-leaved evergreen - cold-deciduous forest
I.C.3.N.a. Mixed needle-leaved evergreen - cold-deciduous forest

I.C.3.N.b. Temporarily flooded mixed needle-leaved evergreen - cold-deciduous forest
I.C.3.N.c. Seasonally flooded mixed needle-leaved evergreen - cold-deciduous forest
I.C.3.N.d. Saturated mixed needle-leaved evergreen - cold-deciduous forest

I.C.4 Extremely xeromorphic mixed evergreen-deciduous forest
I.C.4.N.a. Extremely xeromorphic mixed evergreen - deciduous thorn forest

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II. WOODLAND. Open stands of trees with crowns not usually touching (generally forming 25 - 60% cover). Canopy tree cover may be less than 25% in cases where it exceeds shrub, dwarf-shrub, herb, and nonvascular cover, respectively

II.A. Evergreen woodland - evergreen species generally contribute >75% of the total tree cover

II.A.1. Tropical or subtropical broad-leaved evergreen woodland
II.A.1.N.a . Tropical or subtropical broad-leaved evergreen woodland
II.A.1.N.b . Temporarily flooded tropical or subtropical broad-leaved .....evergreen woodland
II.A.1.N.c . Seasonally flooded tropical or subtropical broad-leavedevergreen woodland
II.A.1.N.d. Semipermanently flooded tropical or subtropical broad-leaved .....evergreen woodland
II.A.1.N.e . Tidal tropical or subtropical broad-leaved evergreen woodland

II.A.2. Temperate broad-leaved evergreen woodland
II.A.2.N.a . Temperate broad-leaved evergreen woodland
II.A.2.N.b . Seasonally flooded temperate broad-leaved evergreen woodland
II.A.2.N.c . Saturated temperate broad-leaved evergreen woodland

II.A.3. Tropical or subtropical needle-leaved evergreen woodland
II.A.3.N.a . Tropical or subtropical needle-leaved evergreen woodland
II.A.3.N.b . Temporarily flooded tropical or subtropical needle-leaved evergreen woodland
II.A.3.N.c . Seasonally flooded tropical or subtropical needle-leaved evergreen woodland
II.A.3.N.d . Saturated tropical or subtropical needle-leaved evergreen woodland

II.A.4. Temperate or subpolar needle-leaved evergreen woodland
II.A.4.N.a . Rounded-crowned temperate or subpolar needle-leaved evergreen woodland (e.g., pine, Western juniper)
II.A.4.N.b . Conical-crowned temperate or subpolar needle-leaved evergreen woodland (e.g., spruce in the west)
II.A.4.N.c . Cylindrical-crowned temperate or subpolar needle-leaved evergreen woodland (e.g., some spruce in Alaska)
II.A.4.N.d . Temporarily flooded temperate or subpolar needle-leaved evergreen woodland
II.A.4.N.e . Seasonally flooded temperate or subpolar needle-leaved evergreen woodland
II.A.4.N.f . Saturated temperate or subpolar needle-leaved evergreen woodland (e.g., black spruce bogs)

II.A.5. Extremely xeromorphic evergreen woodland
II.A.5.N.a . Sclerophyllous extremely xeromorphic evergreen woodland
II.A.5.N.b . Succulent extremely xeromorphic evergreen woodland

II.B. Deciduous woodland - deciduous tree species generally contribute to >75% of the total tree cover

II.B.1. Tropical or subtropical drought-deciduous woodland
II.B.1.N.a . Lowland or submontane broad-leaved drought-deciduous woodland
II.B.1.N.b . Montane (and cloud) drought-deciduous woodland
II.B.1.N.c . Temporarily flooded tropical or subtropical drought-deciduous woodland
II.B.1.N.d . Seasonally flooded tropical or subtropical drought-deciduous woodland

II.B.2. Cold-deciduous woodland
II.B.2.N.a . Cold-deciduous woodland
II.B.2.N.b . Temporarily flooded cold-deciduous woodland
II.B.2.N.c . Seasonally flooded cold-deciduous woodland
II.B.2.N.d . Semipermanently flooded cold-deciduous woodland

II.B.2.N.e . Saturated cold-deciduous woodland
II.B.2.Nf. Tidal cold-deciduous woodland

II.B.3. Extremely xeromorphic deciduous woodland
II.B.3.N.a Thorn extremely xeromorphic deciduous woodland (may not be represented in the U.S.)

II.C. Mixed evergreen-deciduous woodland - evergreen and deciduous species each contribute 25-75% of total tree cover. (Includes semi-deciduous, semi-evergreen, mixed evergreen-deciduous xeromorphic, and mixed needle-leaved evergreen cold-deciduous woody vegetation.)

II.C.1. Tropical or subtropical semi-deciduous woodland
II.C.1.N.a . Tropical or subtropical semi-deciduous woodland

II.C.2. Mixed broad-leaved evergreen - cold-deciduous woodland
II.C.2.N.a . Mixed broad-leaved evergreen - cold-deciduous woodland

II.C.3. Mixed needle-leaved evergreen - cold-deciduous woodland
II.C.3.N.a . Mixed needle-leaved evergreen - cold-deciduous woodland
II.C.3.N.b . Seasonally flooded mixed needle-leaved evergreen cold-deciduous woodland
II.C.3.N.c . Saturated mixed needle-leaved evergreen cold-deciduous woodland

II.C.4. Extremely xeromorphic mixed evergreen-deciduous woodland
II.C.4.N.a . Mixed evergreen-deciduous thorn woodland

III. SHRUBLAND. Shrubs generally greater than 0.5 m tall with individuals or clumps overlapping to not touching (generally forming more than 25% cover, trees generally less than 25% cover). Shrub cover may be less than 25% where it exceeds tree, dwarf-shrub, herb, and nonvascular cover, respectively.Vegetation dominated by woody vines is generally treated in this class

III.A. Evergreen shrubland - evergreen species generally contribute >75% of the total shrub cover

III.A.1. Tropical or subtropical broad-leaved evergreen shrubland (with or without scattered tree canopy)
III.A.1.N.a. Tropical or subtropical broad-leaved evergreen shrubland (includes bamboos and tuft-trees)
III.A.1.N.b. Hemi-sclerophyllous tropical or subtropical broad-leaved evergreen shrubland
III.A.1.N.c. Sclerophyllous tropical or subtropical broad-leaved evergreen shrubland
III.A.1.N.d. Tropical or subtropical broad-leaved evergreen shrubland with a sparse broad-leaved evergreen tree layer (includes tuft trees)
III.A.1.N.e. Temporarily flooded tropical or subtropical broad-leaved evergreen shrubland
III.A.1.N.f. Seasonally flooded tropical or subtropical broad-leaved evergreen shrubland
III.A.1.N.g. Semipermanently flooded tropical or subtropical broad-leaved evergreen shrubland
III.A.1.N.h. Saturated tropical or subtropical broad-leaved evergreen shrubland
III.A.1.N.i. Tidal tropical or subtropical broad-leaved evergreen shrubland

III.A.2. Temperate broad-leaved evergreen shrubland (with or without scattered tree canopy)
III.A.2.N.a. Temperate broad-leaved evergreen shrubland (including bamboos and tuft-trees)
III.A.2.N.b. Hemi-sclerophyllous temperate broad-leaved evergreen shrubland
III.A.2.N.c. Sclerophyllous temperate broad-leaved evergreen shrubland
III.A.2.N.d. Suffruticose temperate broad-leaved evergreen shrubland
III.A.2.N.e. Temperate broad-leaved evergreen shrubland with a sparse broad-leaved evergreen tree layer (includes tuft trees)
III.A.2.N.f. Temperate broad-leaved evergreen shrubland with a sparse cold-deciduous tree layer
III.A.2.N.g. Temporarily flooded temperate broad-leaved evergreen shrubland
III.A.2.N.h. Seasonally flooded temperate broad-leaved evergreen shrubland
III.A.2.N.i. Saturated temperate broad-leaved evergreen shrubland
III.A.2.N.j. Saturated temperate broad-leaved evergreen shrubland with a sparse needle-leaved or mixed evergreen tree layer (e.g., pocosins)
III.A.2.N.k. Saturated temperate broad-leaved evergreen shrubland with a sparse cold-deciduous tree layer
III.A.2.N.l. Tidal broad-leaved evergreen temperate shrubland

III.A.3. Needle-leaved evergreen shrubland
- III.A.3.N.a. Needle-leaved evergreen shrubland (e.g., krummholz)
- III.A.3.N.b. Saturated needle-leaved evergreen shrubland (e.g., shrub bog)

III.A.4. Microphyllous evergreen shrubland
- III.A.4.N.a. Microphyllous evergreen shrubland (e.g., sagebrush)
- III.A.4.N.b. Intermittently flooded microphyllous shrubland
- III.A.4.N.c. Temporarily flooded microphyllous shrubland
- III.A.4.N.d. Seasonally flooded microphyllous shrubland

III.A.5. Extremely xeromorphic evergreen shrubland
- III.A.5.N.a. Broad-leaved and microphyllous evergreen extremely xeromorphic subdesert shrubland (e.g., creosote bush)
- III.A.5.N.b. Facultatively deciduous extremely xeromorphic subdesert shrubland (e.g., saltbush)
- III.A.5.N.c. Succulent extremely xeromorphic evergreen shrubland
- III.A.5.N.d. Tidal extremely xeromorphic shrubland
- III.A.5.N.e. Extremely xeromorphic evergreen shrubland with a sparse tree layer

III.B. Deciduous shrubland - deciduous species generally contribute >75% of the total shrub cover

III.B.1. Drought-deciduous shrubland
- III.B.1.N.a. Lowland drought-deciduous shrubland

III.B.2. Cold-deciduous shrubland
- III.B.2.N.a. Temperate cold-deciduous shrubland (e.g., serviceberry, some oaks)
- III.B.2.N.b. Subalpine or subpolar cold-deciduous shrubland (e.g., willow, alder)
- III.B.2.N.c. Intermittently flooded cold-deciduous shrubland
- III.B.2.N.d. Temporarily flooded cold-deciduous shrubland
- III.B.2.N.e. Seasonally flooded cold-deciduous shrubland (e.g.,blueberry-azalea thickets)
- III.B.2.N.f. Semipermanently flooded cold-deciduous shrubland (e.g., buttonbush thickets)
- III.B.2.N.g. Saturated cold-deciduous shrubland (e.g., on peat)
- III.B.2.N.h. Tidal cold-deciduous shrubland (e.g., high tide bush)

III.B.3. Extremely xeromorphic deciduous shrubland
- III.B.3.N.a. Extremely xeromorphic deciduous subdesert shrubland without succulents
- III.B.3.N.b. Intermittently flooded extremely xeromorphic deciduous subdesert shrubland

III.C. Mixed evergreen-deciduous shrubland - evergreen and deciduous species each generally contribute 25-75% of total shrub cover (includes facultatively deciduous, extremely xeromorphic mixed evergreen-deciduous woody plants)

III.C.1. Mixed evergreen - drought-deciduous shrubland
- III.C.1.N.a. Lowland mixed evergreen - drought-deciduous shrubland

III.C.2. Mixed evergreen - cold-deciduous shrubland (with or without scattered tree canopy)
- III.C.2.N.a. Mixed evergreen - cold-deciduous shrubland
- III.C.2.N.b. Mixed evergreen - cold-deciduous shrubland with a sparse needle-leaved evergreen tree layer (e.g., pitch pine-scrub oak)
- III.C.2.N.c. Intermittently flooded mixed evergreen - cold-deciduous shrubland
- III.C.2.N.d. Seasonally flooded mixed evergreen - cold-deciduous shrubland
- III.C.2.N.e. Saturated mixed evergreen - cold-deciduous shrubland (e.g., on peat)
- III.C.2.N.f. Saturated mixed evergreen - cold-deciduous shrubland with a sparse needle-leaved evergreen tree layer (e.g., pocosins)

III.C.3. Extremely xeromorphic mixed evergreen-deciduous shrubland

III.C.3.N.a. Extremely xeromorphic deciduous subdesert shrubland with succulents (e.g. palo verde)
III.C.3.N.b. Mixed evergreen - deciduous subdesert shrubland

IV. DWARF-SHRUBLAND. Low-growing shrubs usually under 0.5 m tall. Individuals or clumps overlapping to not touching (generally forming morethan 25% cover, trees and tall shrubs generally less than 25% cover). Dwarf-shrubcover may be less than 25% where it exceeds tree, shrub, herb, and nonvascular cover, respectively

IV.A. Evergreen dwarf-shrubland - evergreen species generally contribute >75% of the total dwarf-shrub cover

IV.A.1. Needle-leaved or microphyllous evergreen dwarf-shrubland (with or without scattered tree canopy)
- IV.A.1.N.a. Caespitose needle-leaved or microphyllous evergreen dwarf-shrubland (e.g., alpine azalea)
- IV.A.1.N.b. Creeping or matted needle-leaved or microphyllous evergreen dwarf-shrubland
- IV.A.1.N.c. Cushion needle-leaved or microphyllous evergreen dwarf-shrubland
- IV.A.1.N.d. Needle-leaved or microphyllous evergreen dwarf-shrubland with a sparse needle-leaved evergreen tree layer
- IV.A.1.N.e. Temporarily flooded needle-leaved and microphyllous evergreen dwarf-shrubland
- IV.A.1.N.f. Seasonally flooded needle-leaved and microphyllous evergreen dwarf-shrubland
- IV.A.1.N.g. Saturated needle-leaved or microphyllous evergreen dwarf-shrubland (may include sparse dwarf-shrubland, e.g., dwarf-shrub bogs)
- IV.A.1.N.h. Saturated needle-leaved or microphyllous evergreen dwarf-shrubland with a sparse needle-leaved evergreen tree layer

IV.A.2. Extremely xeromorphic evergreen dwarf-shrubland
- IV.A.2.N.a. Extremely xeromorphic evergreen subdesert dwarf-shrubland
- IV.A.2.N.b. Facultatively deciduous subdesert dwarf-shrubland
- IV.A.2.N.c. Tidal needle-leaved or microphyllous evergreen dwarf-shrubland

IV.B. Deciduous dwarf-shrubland - deciduous species generally contribute >75% of the total dwarf-shrub cover

IV.B.1. Drought-deciduous dwarf-shrubland
- IV.B.1.N.a. Caespitose drought-deciduous dwarf-shrubland
- IV.B.1.N.b. Creeping or matted drought-deciduous dwarf-shrubland
- IV.B.1.N.c. Cushion drought-deciduous dwarf-shrubland

IV.B.2. Cold-deciduous dwarf-shrubland
- IV.B.2.N.a. Caespitose cold-deciduous dwarf-shrubland
- IV.B.2.N.b. Creeping or matted cold-deciduous dwarf-shrubland
- IV.B.2.N.c. Cushion cold-deciduous dwarf-shrubland
- IV.B.2.N.d. Saturated cold-deciduous dwarf-shrubland

IV.B.3. Extremely xeromorphic deciduous dwarf-shrubland
- IV.B.3.N.a. Extremely xeromorphic deciduous subdesert dwarf-shrubland without succulents

IV.C. Mixed evergreen-deciduous dwarf-shrubland - evergreen and deciduous species each generally contribute 25% dwarf-shrub cover.(Includes facultatively deciduous shrubs and other mixed xeromorphic evergreen-deciduous shrubs)

IV.C.1. Mixed evergreen - drought-deciduous dwarf-shrubland
- IV.C.1.N.a. Mixed evergreen - drought-deciduous dwarf-shrubland

IV.C.2. Mixed evergreen- cold-deciduous dwarf-shrubland
IV.C.2.N.a. Mixed evergreen - cold-deciduous dwarf-shrubland

IV.C.3. Extremely xeromorphic mixed evergreen - deciduous dwarf-shrubland
IV.C.3.N.a. Deciduous subdesert dwarf-shrubland with succulents
IV.C.3.N.b. Mixed evergreen - deciduous subdesert dwarf-shrubland

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V. HERBACEOUS. Herbs (graminoids, forbs, and ferns) dominant (generally forming at least 25% cover; trees, shrubs, and dwarf-shrubs generally with less than 25% cover). Herb cover may be less than 25% where it exceeds tree, shrub, dwarf-shrub, and nonvascular cover, respectively

V.A. Perennial graminoid vegetation (grasslands). Perennial graminoids generally contribute to greater than 50% of total herbaceous canopy cover when the cover of each of the the other life forms present (i.e. tree, shrub, dwarf-shrub, nonvascular) is less than 25% and herbaceous cover exceeds the cover of the other life forms

V.A.1. Tropical or subtropical grassland
V.A.1.N.a . Tall tropical or subtropical grassland
V.A.1.N.b . Medium-tall sod tropical or subtropical grassland
V.A.1.N.c . Medium-tall bunch tropical or subtropical grassland
V.A.1.N.d . Short sod tropical or subtropical grassland
V.A.1.N.e . Short bunch tropical alpine grassland (e.g., Super-paramo)
V.A.1.N.f . Temporarily flooded tropical or subtropical grassland
V.A.1.N.g . Seasonally flooded tropical or subtropical grassland
V.A.1.N.h . Semipermanently flooded tropical or subtropical grassland
V.A.1.N.i. Tidal tropical or subtropical grassland

V.A.2. Tropical or subtropical grassland with a sparse tree layer
V.A.2.N.a. Tall tropical or subtropical grassland with a sparse mainly broad-leaved evergreen tree layer (includes tuft plants and broad-leaved semi-evergreen trees)
V.A.2.N.b. Tall tropical or subtropical grassland with a sparse broad-leaved drought-deciduous tree layer
V.A.2.N.c. Medium-tall tropical or subtropical grassland with a sparse broad-leaved evergreen tree layer (includes tuft plants and semi-evergreen trees)
V.A.2.N.d . Medium-tall tropical or subtropical grassland with a sparse broad-leaved drought-deciduous tree layer
V.A.2.N.e. Medium-tall tropical or subtropical grassland with a sparse needle-leaved evergreen or mixed tree layer
V.A.2.N.f . Medium-tall tropical or subtropical grassland with a sparse xeromorphic or succulent tree layer
V.A.2.N.g. Temporarily flooded tropical grassland with a sparse broad-leaved evergreen tree layer (includes tuft plants, e.g., Llanos de Mojos, Bolivia)
V.A.2.N.h. Temporarily flooded tropical grassland with a sparse broad-leaved deciduous tree layer (e.g. in Northeast Bolivia)
V.A.2.N.i. Seasonally flooded tropical or subtropical grassland with a sparse needle-leaved evergreen tree layer
V.A.2.N.j. Seasonally flooded tropical or subtropical grassland with a sparse needle-leaved deciduous tree layer

V.A.3. Tropical or subtropical grassland with a sparse shrub layer
V.A.3.N.a . Tall tropical or subtropical grassland with a sparse broad-leaved evergreen or semi-evergreen shrub layer (includes tuft shrubs)
V.A.3.N.b. Tall tropical or subtropical grassland with a sparse broad-leaved drought-deciduous shrub layer
V.A.3.N.c. Medium-tall tropical or subtropical grassland with a sparse broad-leaved evergreen or semi-evergreen shrub layer (includes tuft plants)
V.A.3.N.d. Medium-tall tropical or subtropical grassland with a sparse drought-deciduous shrub layer
V.A.3.N.e. Medium-tall tropical or subtropical grassland with a sparse xeromorphic (often thorny) shrub layer
V.A.3.N.f. Short tropical or subtropical grassland with a sparse broad-leaved evergreen or semi-evergreen shrub layer (includes tuft plants, e.g., Paramo)

V.A.3.N.g. Short tropical or subtropical grassland with a sparse drought-deciduous shrub layer (includes thorny shrubs)
V.A.3.N.h. Short alpine bunch tropical or subtropical grassland with a sparse evergreen shrub layer
V.A.3.N.i. Temporarily flooded tropical or subtropical grassland with a sparse evergreen broad-leaved shrub layer

V.A.4. Tropical or subtropical grassland with a sparse dwarf-shrub layer
V.A.4.N.a. Short bunch tropical or subtropical grassland with a sparse needle-leaved or microphyllous evergreen dwarf-shrub layer (e.g., Puna)

V.A.5. Temperate or subpolar grassland
V.A.5.N.a. Tall sod temperate grassland (includes sod or mixed sod-bunch graminoids)
V.A.5.N.b. Tall bunch temperate grassland
V.A.5.N.c. Medium-tall sod temperate or subpolar grassland (includes sod or mixed sod-bunch graminoids)
V.A.5.N.d. Medium-tall bunch temperate or subpolar grassland
V.A.5.N.e. Short sod temperate or subpolar grassland (includes sod or mixedsod-bunch graminoids, e.g. shortgrass prairie)
V.A.5.N.f. Short bunch temperate or subpolar grassland
V.A.5.N.g. Short alpine or subalpine sod grassland
V.A.5.N.h. Short alpine or subalpine dry bunch grassland
V.A.5.N.i. Intermittently flooded temperate or subpolar grassland (e.g., playa lakes)
V.A.5.N.j. Temporarily flooded temperate or subpolar grassland
V.A.5.N.k. Seasonally flooded temperate or subpolar grassland
V.A.5.N.l. Semipermanently flooded temperate or subpolar grassland
V.A.5.N.m. Saturated temperate or subpolar grassland
V.A.5.N.n. Tidal temperate or subpolar grassland

V.A.6. Temperate or subpolar grassland with a sparse tree layer
V.A.6.N.a. Tall temperate grassland with a sparse broad-leaved evergreen tree layer
V.A.6.N.b. Tall temperate grassland with a sparse needle-leaved evergreen tree layer
V.A.6.N.c. Tall temperate grassland with a sparse cold-deciduous tree layer
V.A.6.N.d. Tall temperate grassland with a sparse mixed needle-leaved evergreen or cold-deciduous tree layer
V.A.6.N.e. Medium-tall temperate grassland with a sparse broad-leaved evergreen or semi-evergreen tree layer (includes tuft plants)
V.A.6.N.f. Medium-tall temperate or subpolar grassland with a sparse needle-leaved evergreen or mixed tree layer
V.A.6.N.g. Medium-tall temperate or subpolar grassland with a sparse cold-deciduous tree layer
V.A.6.N.h. Short temperate or subpolar grassland with a sparse broad-leaved evergreen or semi-evergreen tree layer
V.A.6.N.i. Short temperate or subpolar grassland with a sparse cold-deciduous tree layer
V.A.6.N.j. Intermittently flooded temperate or subpolar grassland with sparse needle-leaved evergreen tree layer
V.A.6.N.k. Temporarily flooded temperate or subpolar grassland with a sparse broad-leaved evergreen tree layer
V.A.6.N.l. Temporarily flooded temperate or subpolar grassland with a sparse cold-deciduous tree layer
V.A.6.N.m. Seasonally flooded temperate or subpolar grassland with a sparse cold-deciduous tree layer
V.A.6.N.n. Semipermanently flooded temperate or subpolar grassland with a sparse cold-deciduous tree layer
V.A.6.N.o. Saturated temperate or subpolar grassland with a sparse needle-leaved evergreen tree layer
V.A.6.N.p. Tidal temperate grassland with a sparse cold-deciduous tree layer

V.A.7. Temperate or subpolar grassland with a sparse shrub layer
V.A.7.N.a. Tall temperate grassland with a sparse broad-leaved evergreen shrub layer (includes tuft shrubs)
V.A.7.N.b. Tall temperate grassland with a sparse microphyllous evergreen shrub layer
V.A.7.N.c. Tall temperate grassland with a sparse cold-deciduous shrub layer
V.A.7.N.d. Medium-tall temperate or subpolar grassland with a sparse broad-leaved evergreen shrub layer
V.A.7.N.e. Medium-tall temperate or subpolar grassland with a sparse needle-leaved or microphyllous evergreen shrub layer
V.A.7.N.f. Medium-tall temperate or subpolar grassland with a sparse drought-deciduous shrub layer
V.A.7.N.g. Medium-tall temperate or subpolar grassland with a sparse cold-deciduous shrub layer
V.A.7.N.h. Medium-tall temperate grassland with a sparse xeromorphic ..... (often thorny) shrub layer

V.A.7.N.i. Short temperate or subpolar grassland with a sparse broad-leaved evergreen or semi-evergreen shrub layer
V.A.7.N.j. Short temperate or subpolar grassland with a sparse microphyllous evergreen shrub layer
V.A.7.N.k. Short temperate or subpolar grassland with a sparse drought-deciduous shrub layer (includes thorny shrubs)
V.A.7.N.l. Short temperate or subpolar grassland with a sparse cold-deciduous shrub layer
V.A.7.N.m. Short temperate or subpolar grassland with a sparse xeromorphic (evergreen and/or deciduous) shrub layer
V.A.7.N.n. Intermittently flooded temperate or subpolar grassland with a sparse xeromorphic (evergreen and/or deciduous) shrub layer
V.A.7.N.o . Saturated temperate or subpolar grassland with a sparse broad-leaved evergreen shrub layer
V.A.7.N.p . Saturated temperate or subpolar grassland with a sparse cold-deciduous shrub layer
V.A.7.N.q. Saturated temperate or subpolar grassland with a sparse microphyllous evergreen shrub layer

V.A.8. Temperate or subpolar grassland with a sparse dwarf-shrub layer
VA.8.N.a. Short temperate or subpolar lowland grassland with a sparse needle-leaved or microphyllous dwarf shrub layer
V.A.8.n.b. Short temperate or subpolar lowland grassland with a sparse cold-deciduous dwarf shrub layer
V.A.8.N.c. Short temperate or subpolar alpine grassland with a sparse needle-leaved or microphyllous evergreen dwarf-shrub layer (e.g., dwarf-shrub meadows)
V.A.8.N.d. Seasonally flooded temperate or subpolar grassland with a sparse needle-leaved or microphyllous dwarf-shrub layer

V.A.9. Polar grassland
V.A.9.N.a. Short sod polar grassland (including sod or mixed sod-bunch grassland, e.g., sod grass tundra)
V.A.9.N.b. Short bunch polar grassland (e.g. Eriophorum)
V.A.9.N.c. Seasonally flooded polar grassland
V.A.9.N.d. Saturated polar grassland with nonvascular plants admixed

V.A.10. Polar grassland with a sparse shrub layer

V.A.11. Polar grassland with a sparse dwarf-shrub layer

V.B. Perennial forb vegetation. Perennial forbs (including ferns and biennials) generally contributing to greater than 50% of total herbaceous canopy cover

V.B.1. Tropical or subtropical perennial forb vegetation
` V.B.1.N.a. Tall tropical or subtropical perennial forb vegetation
V.B.1.N.b. Low tropical or subtropical perennial forb vegetation
V.B.1.N.c. Semipermanently flooded tropical or subtropical perennial forb vegetation
V.B.1.N.d. Saturated tropical or subtropical perennial forb vegetation
V.B.1.N.e. Tidal tropical or subtropical perennial forb vegetation

V.B.2. Temperate or subpolar perennial forb vegetation
V.B.2.N.a. Tall temperate or subpolar perennial forb vegetation (e.g., tall forb meadows)
V.B.2.N.b. Low temperate or subpolar perennial forb vegetation (e.g.,Aleutian forb meadows)
V.B.2.N.c. Intermittently flooded temperate perennial forb vegetation
V.B.2.N.d. Temporarily flooded temperate perennial forb vegetation
V.B.2.N.e. Semipermanently flooded temperate perennial forb vegetation
V.B.2.N.f. Saturated temperate perennial forb vegetation
V.B.2.N.g. Tidal temperate perennial forb vegetation
V.B.2.N.h. Seasonally flooded temperate perennial forb vegetation

V.C. Hydromorphic rooted vegetation. Non-emergent graminoids or forbs structurally supported by water and rooted in substrate (e.g., pond weeds and water lilies)

V.C.1. Tropical or subtropical hydromorphic rooted vegetation (without seasonal contrasts)

V.C.1.N.a. Permanently flooded tropical or subtropical hydromorphic rooted vegetation
V.C.1.N.b. Permanently flooded-tidal tropical or subtropical hydromorphic rooted vegetation (e.g., tropical seagrass beds)

V.C.2. Temperate or subpolar hydromorphic rooted vegetation
V.C.2.N.a. Permanently flooded temperate or subpolar hydromorphic rooted vegetation
V.C.2.N.b. Permanently flooded-tidal temperate or subpolar hydromorphic rooted vegetation (e.g., temperate seagrass beds)

V.D. Annual graminoid or forb vegetation

V.D.1. Tropical or subtropical annual grasslands or forb vegetation
V.D.1.N.a. Tropical or subtropical annual grasslands
V.D.1.N.b. Tall tropical or subtropical annual forb vegetation
V.D.1.N.c. Low tropical or subtropical ephemeral annual forb vegetation
V.D.1.N.d. Tidal tropical or subtropical annual forb vegetation

V.D.2. Temperate or subpolar annual grasslands or forb vegetation
V.D.2.N.a. Tall temperate or subpolar annual grassland (dominated by annual graminoids)
V.D.2.N.b. Tall temperate or subpolar annual forb vegetation (dominated by annual forbs)
V.D.2.N.c. Low desert or subdesert ephemeral or episodic annual forb vegetation
V.D.2.N.d. Short temperate annual grassland
V.D.2.N.e. Low temperate intermittently exposed annual forb vegetation
V.D.2.N.f. Temporarily flooded temperate annual forb vegetation
V.D.2.N.g. Seasonally flooded temperate annual grassland
V.D.2.N.h. Seasonally flooded temperate annual forb vegetation
V.D.2.N.i. Saturated temperate annual forb vegetation

VI . NONVASCULAR. Nonvascular cover (bryophytes, non-crustose lichens, and algae) dominant (generally forming at least 25% cover). Nonvascular cover may be less than 25% where it exceeds tree, shrub, dwarf-shrub, and herb cover, respectively

VI.A. Bryophyte vegetation. Bryophytes generally dominate the nonvascular cover

VI.A.1. Temperate or subpolar bryophyte vegetation
VI.A.1.N.a. Lowland bryophyte vegetation
VI.A.1.N.b. Seasonally flooded bryophyte vegetation
VI.A.1.N.c. Saturated bryophyte vegetation
VI.A.1.N.d. Saturated bryophyte vegetation with a sparse tree layer (e.g., treed bogs)
VI.A.1.N.e. Saturated bryophyte vegetation with a sparse dwarf-shrub layer (e.g., dwarf-shrub/moss tundra)

VI.B. Lichen vegetation. Lichens (foliose or fruticose) generally dominate the nonvascular cover

VI.B.1. Temperate or subpolar lichen vegetation
VI.B.1.N.a. Lowland lichen vegetation
VI.B.1.N.b. Montane/submontane temperate or subpolar lichen vegetation dominate the nonvascular cover
VI.B.1.N.c. Lichen vegetation with a sparse tree layer
VI.B.1.N.d. Lichen vegetation with a sparse dwarf-shrub layer

VI.B.2. Tropical or subtropical lichen vegetation
VI.B.2.N.a. Montane/submontane tropical or subtropical lichen vegetation

VI.C. Alga vegetation. Algae generally dominate the nonvascular cover

VI.C.1. Tropical or subtropical alga vegetation
VI.C.1.N.a. Seasonally flooded alga vegetation

VII. SPARSE VEGETATION. Abiotic substrate features dominant. Vegetation is scattered to nearly absent and generally restricted to areas of concentrated resources (total vegetation cover is typically less than 25% and greater than 0%)

VII.A. Consolidated rock sparse vegetation (cliffs, pavement, incl. lava flows). (Vegetation characterized by herbs, shrubs, trees, and/or nonvascular plants growing in fissures of rocks or walls, or growing adnate on these surfaces.)

VII.A.1. Sparsely vegetated cliffs
- VII.A.1.N.a. Cliffs with sparse vascular vegetation (e.g., bromeliads in neotropics). (May have sparse to dense crustose lichens, sparse bryoids or foliose or fruticose lichens)

VII.A.2. Sparsely vegetated pavement. (level/gently sloping bedrock)
- VII.A.2.N.a. Pavement with sparse vascular vegetation (May have sparse to dense crustose lichens, sparse bryoids, or foliose or fruticose lichens)

VII.B. Boulder, gravel, cobble, or talus sparse vegetation (incuding a'a lava flows). (Vegetation generally characterized by herbs, and occasionally shrubs and trees on gravel or cobble substrates. Lichens are also common.)

VII.B.1. Sparsely vegetated talus/scree slopes
- VII.B.1.N.a. Lowland or submontane talus/scree
- VII.B.1.N.b. Montane talus/scree
- VII.B.1.N.c. High mountain talus/scree

VII.B.2. Sparsely vegetated rock flats. (boulders, cobble, or gravel)
- VII.B.2.N.a. Boulder fields
- VII.B.2.N.b. Cobble/gravel beaches and shores
- VIIB.2.N.c. Cobble/gravel flats and ridges

VII.C. Unconsolidated material sparse vegetation (soil, sand, and ash). (Vegetation generally characterized by isolated herbs or occasionally shrubs.)

VII.C.1. Sparsely vegetated sand dunes
- VII.C.1.N.a. Dunes with sparse herbaceous vegetation
- VII.C.1.N.b. Dunes with sparse woody vegetation

VII.C.2. Sparsely vegetated sand flats
- VII.C.2.N.a. Sand flats (including storm-washed beaches)
- VII.C.2.N.b. Intermittently flooded sand beaches and shores
- VII.C.2.N.c. Temporarily flooded sand flats
- VII.C.2.N.d. Tidal sand flats (e.g., salt pannes)

VII.C.3. Sparsely vegetated soil slopes
- VII.C.3.N.a. Moist slopes
- VII.C.3.N.b. Dry slopes

VII.C.4. Sparsely vegetated soil flats
- VII.C.4.N.a. Soil slumps or landslides
- VII.C.4.N.b. Intermittently flooded mud flats (e.g., playa lakes)
- VII.C.4.N.c. Seasonally / temporarily flooded mud flats
- VII.C.4.N.d. Tidal mud flats

VII.C.5. Sparsely vegetated ash deposits