

ESA VEGETATION CLASSIFICATION WORKSHOP 2002: FIELD FORM
Adapted from NPS VEGETATION MAPPING PROGRAM/NATURESERVE PLOT SURVEY FORM

IDENTIFIERS/LOCATORS

| | |
|---|---|
| Plot Code _____ | |
| Provisional Community Name _____ | |
| State ___ | Site Name _____ Local Site Name _____ |
| Quad Name _____ | |
| GPS file name _____ | Field UTM X _____ m E Field UTM Y _____ m N |
| Datum _____ | Error +/- _____ m |
| <i>please do not complete the following information when in the field</i> | |
| Corrected UTM X _____ m E | Corrected UTM Y _____ m N UTM Zone _____ |
| Project Name _____ | Project Leader _____ |
| Survey Date _____ | Surveyor Lead _____ Surveyors _____ |
| Taxonomic authority _____ | |
| Directions to Plot | |
| Plot length _____ Plot width _____ Plot area _____ | |
| Plot Photos (y/n) _____ | Roll Number _____ Frame Number _____ Plot Permanent (y/n) _____ |
| Plot representativeness | |

ENVIRONMENTAL DESCRIPTION

| | | | | | |
|----------------------|----------------|-----------------------------|----------------------------------|--------------|-----|
| Elevation _____ | | Slope _____ | | Aspect _____ | |
| Topographic Position | | | | | |
| | | | | | |
| Cowardin System | | <u>Non-Tidal</u> | | <u>Tidal</u> | |
| ___ Upland | ___ Riverine | ___ Permanently Flooded | | ___ | ___ |
| ___ Palustrine | ___ Lacustrine | ___ Semipermanently Flooded | ___ Saturated | | |
| | | ___ Seasonally Flooded | ___ Seasonally Flooded/Saturated | | |
| | | ___ Temporarily Flooded | ___ Intermittently Flooded | | |

| | |
|-------------------------|---|
| Environmental Comments: | Soil Drainage ___ Rapidly drained ___ Well drained ___ Moderately well drained ___ Somewhat poorly drained ___ Poorly drained ___ Very poorly drained |
| Soil Comments | Landscape/Landform Comments |

VEGETATION DESCRIPTION

| Leaf phenology (of dominant stratum) | Leaf Type (of dominant stratum) | Physiognomic class | Cover Scale for Species | Height Scale for Strata |
|---|------------------------------------|------------------------|-------------------------|-------------------------|
| Trees or Shrubs | ___ Broad-leaved | ___ Forest | √ Nearby | 01 <0.5 m |
| ___ Evergreen | ___ Needle-leaved | ___ Woodland | 1 0-.01% | 02 0.5-1m |
| ___ Cold-deciduous | ___ Microphyllous | ___ Shrubland | 2 .01-1% | 03 1-2 m |
| ___ Drought-deciduous | ___ Graminoid | ___ Dwarf-shrubland | 3 1-2% | 04 2-5 m |
| ___ Mixed evergreen - cold-deciduous | ___ Forb | ___ Herbaceous | 4 2-5% | 05 5-10 m |
| ___ Mixed evergreen - drought-deciduous | ___ Pteridophyte | ___ Nonvascular | 5 5-10% | 06 10-15 m |
| | | ___ Sparsely Vegetated | 6 10-25% | 07 15-20 m |
| | | | 7 25-50% | 08 20-35 m |
| | | | 8 50-75% | 09 35 - 50 m |
| | | | 9 75-95% | 10 >50 m |
| Herbs | | | 10 95-100% | |
| ___ Annual | | | | |
| ___ Perennial | | | | |

| Layer (sublayer–optional) | Height Class | Layer % Cover | Dominant and characteristic Species and Cover Class |
|------------------------------|-----------------|------------------|---|
| T Tree | _____ | _____ | _____ |
| T_____ | _____ | _____ | _____ |
| T_____ | _____ | _____ | _____ |
| S Shrub | _____ | _____ | _____ |
| S_____ | _____ | _____ | _____ |
| S_____ | _____ | _____ | _____ |
| H Herbaceous | _____ | _____ | _____ |
| N Nonvascular | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

please see above table for height and cover scales

Animal Use Evidence

Natural and Anthropogenic Disturbance Comments

Other Comments

Vegetation Plot Sampling Form: ESA USNVC Workshop 2002

| Plot Code: _____ | Species Code | Plot Cv. | Species | Species Code | Plot Cv. |
|---------------------------------------|-----------------|-------------|----------------------------------|-----------------|-------------|
| Surface Layer (in %) | | 100% | Tree Layer (cover class) | | |
| Litter or Duff | | | | | |
| Wood (CWD) (>1 cm dbh) | | | | | |
| Large Rocks (> 10 cm) | | | | | |
| Small Rocks (0.2-10 cm) | | | | | |
| Sand (0.01 cm -0.2 cm) | | | | | |
| Bare Soil | | | | | |
| Other (specify): | | | | | |
| Nonvascular Layer (Cover cl) | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Herb/Field Layer (Cover class) | | | Sapling-Shrub Layer (C c) | | |
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Species Cover Scale: 1 =<.01, 2 =.01-1, 3=1-2, 4=2-5, 5=5-10, 6=10-25, 7=25-50, 8=50-75, 9=75-95 10=95-100.
 Record species outside of plot but inside stand with a √ in the "Plot Cv." column.

APPENDIX. Instructions for Field Form

Plot Code — Code indicating the specific plot within the vegetation polygon. This field will be used to track the data when more than one plot is taken within a vegetation polygon.

Provisional Community Name — Using the classification, assign the name of the vegetation type which most closely resembles this type. Enter the finest level of the classification possible. This is meant to be a field call of the vegetation classification and may change when the data are analyzed.

State — state where the survey was conducted.

Site Name — Name of the site where the data were collected

Local Site Name — Provisional name assigned by field worker that describes where the data were collected; it should represent an identifiable feature on a topographic map.

Quad Name(s) — appropriate name/scale from survey map used; use 7.5-minute quadrangle if possible.

Latitude — latitude in degrees, minutes, seconds (Use GPS, do not estimate.)

Longitude — longitude in degrees, minutes, seconds (Use GPS, do not estimate.)

GPS Error — enter the error inherent in the GPS type/model used.

Survey Date — date the survey was taken; year, month, day.

Surveyors — Names (and addresses, if appropriate) of surveyors, principle surveyor listed first.

Directions to Plot — precise directions to the site using a readily locatable landmark (e.g., a city, a major highway, etc.) as the starting point on a state or local road map. Use clear sentences that will be understandable to someone who is unfamiliar with the area and has only your directions to follow. Give distances as closely as possible to the 0.1 mile and use compass directions. Give additional directions to the plot within the site.

Plot Length, Width, & Area — enter width and length dimensions for rectangular (or square) plots. Provide the total plot area

Plot Photos — Check off if photos of the plot have been taken at the time of sampling.

Plot Permanent — Check off if the plot has been permanently marked.

Plot Representativeness — Does this plot represent the full variability of the polygon? If not,

were additional plots taken? Note additional species not seen in plot in the space provided below.

ENVIRONMENTAL DESCRIPTION

Elevation — elevation of the plot: specify whether in feet or meters (this will depend on the units used on the topographic map/DEMs being used).

Slope — measure slope degrees using a clinometer.

Aspect — enter slope aspect; use a compass (be sure to correct for the magnetic declination).

Topographic Position — Topographic position of the plot. NOTE: A comprehensive list of topographic positions is being developed. The list below provides an example of the topographic positions that might be included.

- **INTERFLUVE** (crest, summit, ridge): Linear top of ridge, hill, or mountain; the elevated area between two fluves (drainageways) that sheds water to the drainageways.
- **HIGH SLOPE** (shoulder slope, upper slope, convex creep slope): Geomorphic component that forms the uppermost inclined surface at the top of a slope. Comprises the transition zone from backslope to summit. Surface is dominantly convex in profile and erosional in origin.
- **HIGH LEVEL** (mesa): Level top of plateau.
- **MIDSLOPE** (transportational midslope, middle slope): Intermediate slope position.
- **BACKSLOPE** (dipslope): Subset of midslopes that are steep, linear, and may include cliff segments (fall faces).
- **STEP IN SLOPE** (ledge, terracette): Nearly level shelf interrupting a steep slope, rock wall, or cliff face.
- **LOWSLOPE** (lower slope, foot slope, colluvial footslope): Inner gently inclined surface at the base of a slope. Surface profile is generally concave and a transition between midslope or backslope, and toeslope.
- **TOESLOPE** (alluvial toeslope): Outermost gently inclined surface at base of a slope. In profile, commonly gentle and linear and characterized by alluvial deposition.
- **LOW LEVEL** (terrace): Valley floor or shoreline representing the former position of an alluvial plain, lake, or shore.
- **CHANNEL WALL** (bank): Sloping side of a channel.

- **CHANNEL BED** (narrow valley bottom, gully arroyo): Bed of single or braided watercourse commonly barren of vegetation and formed of modern alluvium.
- **BASIN FLOOR** (depression): Nearly level to gently sloping, bottom surface of a basin.

Hydrologic Regime — Assess the hydrologic regime of the plot using the descriptions below. Hydrological modifiers used to identify wetland units at the formation level (adapted from Cowardin et al. 1979).

Tidal

- Irregularly Exposed — Land surface is exposed by tides less often than daily; the area from mean low tide to extreme low spring tide. The area on NOS charts from seaward edge of light green (mean low water) to depth contour (often in blue tone) approximately extreme low water (includes some mangrove and/or bald cypress swamps).
- Regularly Flooded — Tidal water alternately floods and exposes the land surface daily, from mean low (lower low on west coast) to mean high (higher high on west coast) tide (includes cordgrass low marshes).
- Irregularly Flooded — Tidal water floods land surface less often than daily. The area must flood by tide at least once yearly as a result of extreme high spring tide, plus wind, plus flow. The area extends from mean high water inland to the maximum extent of tide plus the splash zone (includes salt hay meadows).
- Unknown — The water regime is not known. Unit is described simply as "wetland."

Non-Tidal

- Permanently Flooded — Water covers land surface at all times of year in all years. (includes many rooted emergent and floating aquatics)
- Semipermanently Flooded — Surface water persists throughout the growing season in most years. Land surface is normally saturated when water level drops below soil surface (includes most bald cypress swamps, marshes).
- Seasonally/Temporarily Flooded — Surface water is present during the growing season, but is absent by the end of the growing season in most years. The water table, after flooding, ceases to be very variable, extending from saturated to a water table well below the ground surface (includes floodplains and wet meadows).
- Saturated — Surface water is seldom present, but substrate is saturated to surface for extended periods during the growing season (includes bogs and fens).
- Seasonally Flooded/Saturated — The water table remains at or near the soil surface following flooding. Standing water can persist in depressions for much of the growing season; the soils are generally saturated when the water table drops below the soil surface (includes most wooded swamps).
- Intermittently Flooded — Substrate is usually exposed, but surface water present for variable periods without detectable seasonal periodicity. This modifier was developed for use in arid Western United States to describe water regimes of playa lakes, and will apply to other areas as well. Inundation is not predictable to a given season and is dependent on highly localized rain storms. Playa lakes, intermittent streams, and dry washes are only considered to be wetlands if they support hydrophytes and/or have hydric soils.
- Unknown — The water regime of the area is not known. The unit is simply described as "wetland."

Soil Drainage — The soil drainage classes are defined in terms of (1) actual moisture content (in excess of field moisture capacity) and (2) the extent of the period during which excess water is present in the plant-root zone.

It is recognized that permeability, level of groundwater, and seepage are factors affecting

moisture status. However, because these are not easily observed or measured in the field, they cannot generally be used as criteria of moisture status. It is further recognized that soil profile morphology, for example mottling, normally, but not always, reflects soil moisture status. Although soil morphology may be a valuable field indication of moisture status, it should not be the overriding criterion. Soil drainage classes cannot be based solely on the presence or absence of mottling. Topographic position and vegetation as well as soil morphology are useful field criteria for assessing soil moisture status.

- **RAPIDLY DRAINED** — The soil moisture content seldom exceeds field capacity in any horizon except immediately after water addition. Soils are free from any evidence of gleying throughout the profile. Rapidly drained soils are commonly coarse textured or soils on steep slopes.
- **WELL DRAINED** — The soil moisture content does not normally exceed field capacity in any horizon (except possibly the C) for a significant part of the year. Soils are usually free from mottling in the upper 3 feet, but may be mottled below this depth. B horizons, if present, are reddish, brownish, or yellowish.
- **MODERATELY WELL DRAINED** — The soil moisture in excess of field capacity remains for a small but significant period of the year. Soils are commonly mottled (chroma < 2) in the lower B and C horizons or below a depth of 2 feet. The Ae horizon, if present, may be faintly mottled in fine-textured soils and in medium-textured soils that have a slowly permeable layer below the solum. In grassland soils the B and C horizons may be only faintly mottled and the A horizon may be relatively thick and dark.
- **SOMEWHAT POORLY DRAINED** — The soil moisture in excess of field capacity remains in subsurface horizons for moderately long periods during the year. Soils are commonly mottled in the B and C horizons; the Ae horizon, if present, may be mottled. The matrix generally has a lower chroma than in the well-drained soil on similar parent material.
- **POORLY DRAINED** — The soil moisture in excess of field capacity remains in all horizons for a large part of the year. The soils are usually very strongly gleyed. Except in high-chroma parent materials the B, if present, and upper C horizons usually have matrix colors of low chroma. Faint mottling may occur throughout.
- **VERY POORLY DRAINED** — Free water remains at or within 12 inches of the surface most of the year. The soils are usually very strongly gleyed. Subsurface horizons usually are of low chroma and yellowish to bluish hues. Mottling may be present but at the depth in the profile. Very poorly drained soils usually have a mucky or peaty surface horizon. Simplified Key to Soil Texture (Brewer and McCann, 1982).

VEGETATION DESCRIPTION

Leaf Type — Select one value which best describes the leaf form of the uppermost stratum which contains at least 10% cover.

- **BROAD-LEAF** — Woody vegetation primarily broad-leaved (generally contributes greater than 50 percent of the total woody cover).
- **NEEDLE-LEAF** — Woody vegetation primarily needle-leaved (generally contributes greater than 50 percent cover).

- MICROPHYLLOUS — Woody cover primarily microphyllous.
- GRAMINOID — Herbaceous vegetation composed of more than 50 percent graminoid/stipe leaf species.
- BROAD-LEAF-HERBACEOUS (FORB) — Herbaceous vegetation composed of more than 50% broad-leaf forb species.
- PTERIDOPHYTE — Herbaceous vegetation composed of more than 50 percent species with frond or frond-like leaves.

Leaf phenology — Select the value that best describes the leaf phenology of the uppermost stratum which contains at least 10 percent cover.

- EVERGREEN — Greater than 75 percent of the total woody cover is never without green foliage.
- DECIDUOUS — Greater than 75 percent of the total woody cover sheds its foliage simultaneously in connection with the unfavorable season.
- COLD DECIDUOUS — Unfavorable season mainly characterized by winter frost.
- DROUGHT DECIDUOUS — Unfavorable season mainly characterized by drought, in most cases winter-drought. Foliage is shed regularly every year. Most trees with relatively thick, fissured bark.
- MIXED EVERGREEN – DECIDUOUS — Evergreen and deciduous species generally contribute 25–75 percent of the total woody cover.
- MIXED EVERGREEN – COLD DECIDUOUS — Evergreen and cold-deciduous species admixed.
- MIXED EVERGREEN – DROUGHT DECIDUOUS — Evergreen and drought-deciduous species admixed.
- PERENNIAL — Herbaceous vegetation composed of more than 50 percent perennial species.
- ANNUAL - Herbaceous vegetation composed of more than 50 percent annual species.

Strata/Lifeform, Height, Cover, Diagnostic Species — Visually divide the community into vegetation layers (strata). Indicate the average height of the stratum in the first column, and average percent cover (using absolute percentage) of the whole stratum in the second column. If species known to be diagnostic of a particular vegetation type are present, list them. Leave blank if the diagnostics are not know.

Cowardin System — If the system is a wetland, enter the name of the USFWS system that best describes its hydrology and landform. Indicate "upland" if the system is not a wetland.

Physiognomic Type — Select the value that best describes the physiognomy. Definitions are modified from the 1973 UNESCO and 1984 Driscoll et al. Formation Classes and are defined by the relative percent cover of the tree, shrub, dwarf shrub, herbaceous, and nonvascular strata.

- FOREST — Trees usually over 5m tall with crowns interlocking (generally forming 60–100% cover). Shrubs, herbs and nonvascular plants may be present at any cover value.
- WOODLAND — Open stands of trees usually over 5m tall with crowns not usually touching (generally forming 25-60% cover). Shrubs, herbs, and nonvascular plants may

- be present at any cover value.
- **SHRUBLAND** — Shrubs and/or small trees usually 0.5–5.0 meters tall with individuals or clumps not touching to interlocking (generally forming >25% canopy cover). Trees may be present, but with cover 10 percent or less. Herbs and nonvascular plants may be present at any cover value.
 - **DWARF SHRUBLAND** — Low growing shrubs and/or dwarf trees are usually under 0.5m tall (though known dwarf forms between 0.5 and 1m can be included), individuals or clumps not touching to interlocking (generally forming >25% cover). Trees and shrubs greater than 0.5m may be present but cover with canopy cover 10 percent or less. Herbs and nonvascular plants may be present at any cover value.
 - **HERBACEOUS** — Graminoids and/or forbs (including ferns) generally forming >10% cover. Trees, shrubs, and dwarf shrubs may be present, but with cover 25 percent or less. Nonvascular may be present at any cover value. If a woody layer of 10-25% trees, shrubs, or dwarf-shrubs is present, it should be noted and described (e.g., herbaceous with scattered evergreen tree layer of 10-25%).
 - **NONVASCULAR** — Non vascular vegetation (bryophytes, non-crustose lichens, and algae) generally exceeds 25%. Vascular vegetation is scattered or nearly absent. The cover of each vascular life form (tree, shrub, dwarf shrub, herb) is at most 10 percent; in some cases the total cover of vascular vegetation may exceed 10 percent.
 - **SPARSE VASCULAR VEGETATION** — Vascular vegetation is scattered or nearly absent, and abiotic substrate dominates. The cover of each vascular lifeform (tree, shrub, dwarf shrub, herb) is at most 10 percent; in some cases the total cover of vascular vegetation may exceed 10 percent. Nonvascular vegetation is <25 %.

Species/Percent Cover — Starting with the uppermost stratum, list all the species present and the percent cover (using the scale provided below) of each species in the stratum. For forests and woodlands, list on a separate line below each tree species and the DBH of all trees above 10 cm diameter. Separate the measurements with a comma and note whether in centimeters or inches. The first line of each stratum should be used to identify which stratum is being described. The codes from the stratum diagram in Number 48 can be used as an abbreviation. See the example below.

Cover Scale for Species Percent Cover

| Code | Range of Class | midpoint |
|------|----------------|----------|
| 00 | 0 | 0 |
| 1 | < 0.01% | 0.003% |
| 2 | .01 – 1% | .3% |
| 3 | 1 – 2% | 1.3% |
| 4 | 2 – 5% | 3% |
| 5 | 5 – 10% | 7% |
| 6 | 10 – 25% | 15% |
| 7 | 25 – 50% | 35% |
| 8 | 50 – 75% | 60% |
| 9 | 75 – 95% | 80% |

NOTE: This cover scale was originally developed for the Carolina Vegetation Survey (see Peet et al 1998) and has been widely adopted in the Southeast. The error rate of ± 1 cover class is assumed for each estimate. If the cover class entered is 10– 25% (cover code 6), the midpoint of the class that will be used in combining plots for future analyses will be 15 percent.

Example of a completed species list with cover by layer.

| | Species Code | Cover Class |
|--------------------------------|--------------|-------------|
| Tree Layer | | |
| <i>Quercus alba</i> | | 7 |
| <i>Acer rubrum</i> | | 5 |
| Tall Shrub Layer | | |
| <i>Cornus florida</i> | | 4 |
| Low Shrub Layer | | |
| <i>Vaccinium angustifolium</i> | | 8 |
| <i>Acer rubrum</i> | | 2 |
| | | |