

Wetlands Workshop: Delineation, Function &
Protection

Wetland Plants and Updated National Wetland Plant List

University of Vermont
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US Army Corps of Engineers – New England District

Northcentral and Northeast Regional Supplement

- Implemented Interim Version 4 March 2010
- Currently under revision for Version 2.0
- Interim Version Available at:
<http://www.usace.army.mil/CECW/Documents/cecwo/reg/trel09-19.pdf>
- This is a *supplement* to the Corps Manual (which is currently under revision)

Hydrophytic Vegetation Definition

The community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence

- Community is dominated by species that require or can tolerate prolonged inundation or soil saturation

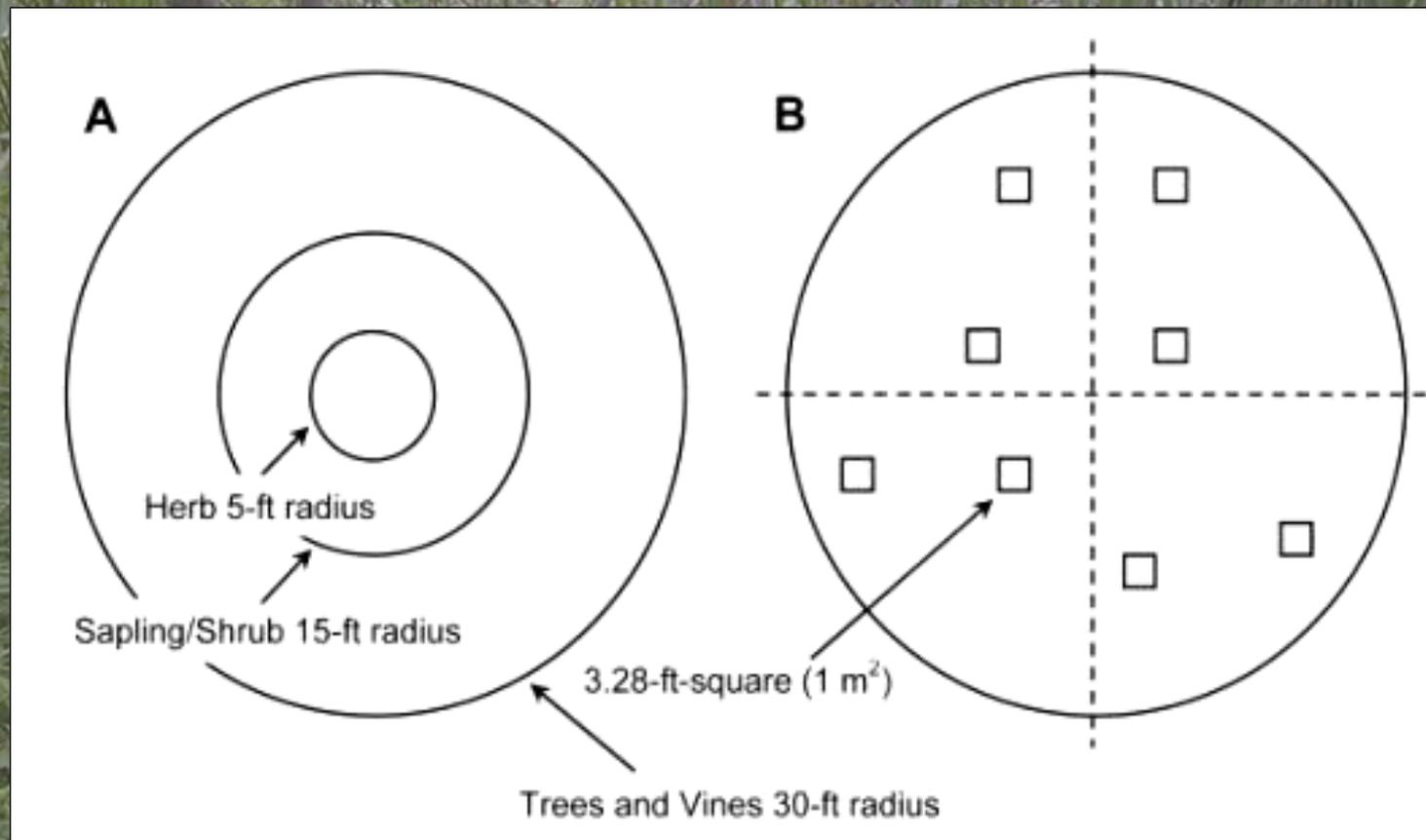
Definition of a Hydrophyte

- "A plant that grows in water or on a substrate saturated at a frequency and duration during the growing period sufficient to affect plant occurrence; a plant of wetland and aquatic habitats."
- National Technical Committee for Wetland Vegetation

Hydrophytic Vegetation Indicators

- Rapid Test
 - Dominance Test
 - Prevalence Index
 - Morphological Adaptations
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- Wetland Non-Vascular Plants (currently used in Alaska and the Pacific Northwest only, but under consideration for our region) – e.g., mosses

Sampling Plots



Measures of Plant Species Dominance

- Percent cover
- Stem density
- Frequency of occurrence
- Basal area

Selecting Dominant Plants

Dominant plant species are selected independently from each **stratum** of the plant community

Strata Definitions

- *Tree stratum* – Consists of woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
- *Sapling/shrub stratum* – Consists of woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
- *Herb stratum* – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants less than 3.28 ft tall.
- *Woody vines* – Consists of all woody vines greater than 3.28 ft in height.
- For sampling purposes is defined as having 5 percent or more total plant cover. If a stratum has less than 5 percent cover during the peak of the growing season, then those species and their cover values should be recorded on the data form but should not be used in the calculations for the dominance test, unless it is the only stratum present.

Selection of Dominant Species

The "50/20 rule":

For each stratum in the plant community, dominant species are the most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species that comprises 20 percent or more of the total dominance measure for the stratum.

Hydrophytic Vegetation Indicators

Rapid Test:

- All dominant species across all strata are rated OBL and/or FACW
- If so, minimal vegetation sampling required
- Intended for obvious hydrophytic vegetation cases, e.g., cattail marsh

Hydrophytic Vegetation Indicators

Dominance Test:

- More than 50% of dominant species across all strata are rated OBL, FACW, or FAC
- Dominants are selected by the 50/20 rule
- '+' and '-' modifiers are not used

Hydrophytic Vegetation Indicators

Prevalence Index:

- The prevalence index (PI) is 3.0 or less
- PI is a weighted-average wetland indicator status of all (or nearly all) species in the sample
 - OBL=1, FACW=2, FAC=3, FACU=4, UPL=5
 - Weights absolute percent cover
 - At least 80% of the total plant cover must be correctly identified and have an assigned indicator status (including UPL)
 - '+' and '-' modifiers are not used

Prevalence Index Calculation

	Total % cover of:		Multiply by:
OBL species	0	× 1 =	0
FACW species	90	× 2 =	180
FAC species	45	× 3 =	135
FACU species	15	× 4 =	60
UPL species	12	× 5 =	60
Column totals:	162 (A)		435 (B)

$$\text{Prevalence index} = B/A = 2.69$$

Hydrophytic Vegetation Indicators

Morphological Adaptations

- The community passes either the Dominance Test or Prevalence Index after reconsidering the indicator status of any FACU species that exhibits morphological adaptations for life in wetlands
 - More than 50% of the individuals of a FACU species must exhibit such adaptations
 - If so, its indicator status is reassigned to FAC on that site only. All other species retain published values.

Morphological Adaptation

Examples:

- Shallow roots
- Hypertrophied lenticels
- Adventitious roots
- Buttressed tree trunks
- Multiple trunks
- Aerenchyma
- Floating leaves
- Polymorphic leaves

Shallow Roots



Hypertrophied Lenticels



Adventitious Roots



Buttressed Tree Trunks



Multiple Trunks



How else are plants used?

Growing Season

On-site methods are preferred:

- Begins when 2 or more non-evergreen plant species exhibit any of the following:
 - Emergence of herbaceous species from the ground
 - New growth from vegetative crowns
 - Emergence from seed
 - Bud burst on woody plants
 - Emergence/elongation of leaves
 - Emergence/opening of flowers
- Soil temperature at 12 inches is above 5° C
- Whichever is earlier

FAC-Neutral Test

The number of dominant species that are OBL and FACW exceeds the number that are FACU and UPL

- The FAC-neutral test is used as a secondary indicator of wetland hydrology and does **NOT** affect the hydrophytic vegetation decision

Difficult Wetland Situations – Hydrophytic Vegetation

- Managed plant communities
- FACU-dominated wetlands
- Seasonal shifts in plant communities
- Areas affected by grazing
- Prolonged drought periods
- Areas affected by natural or human-made disturbances

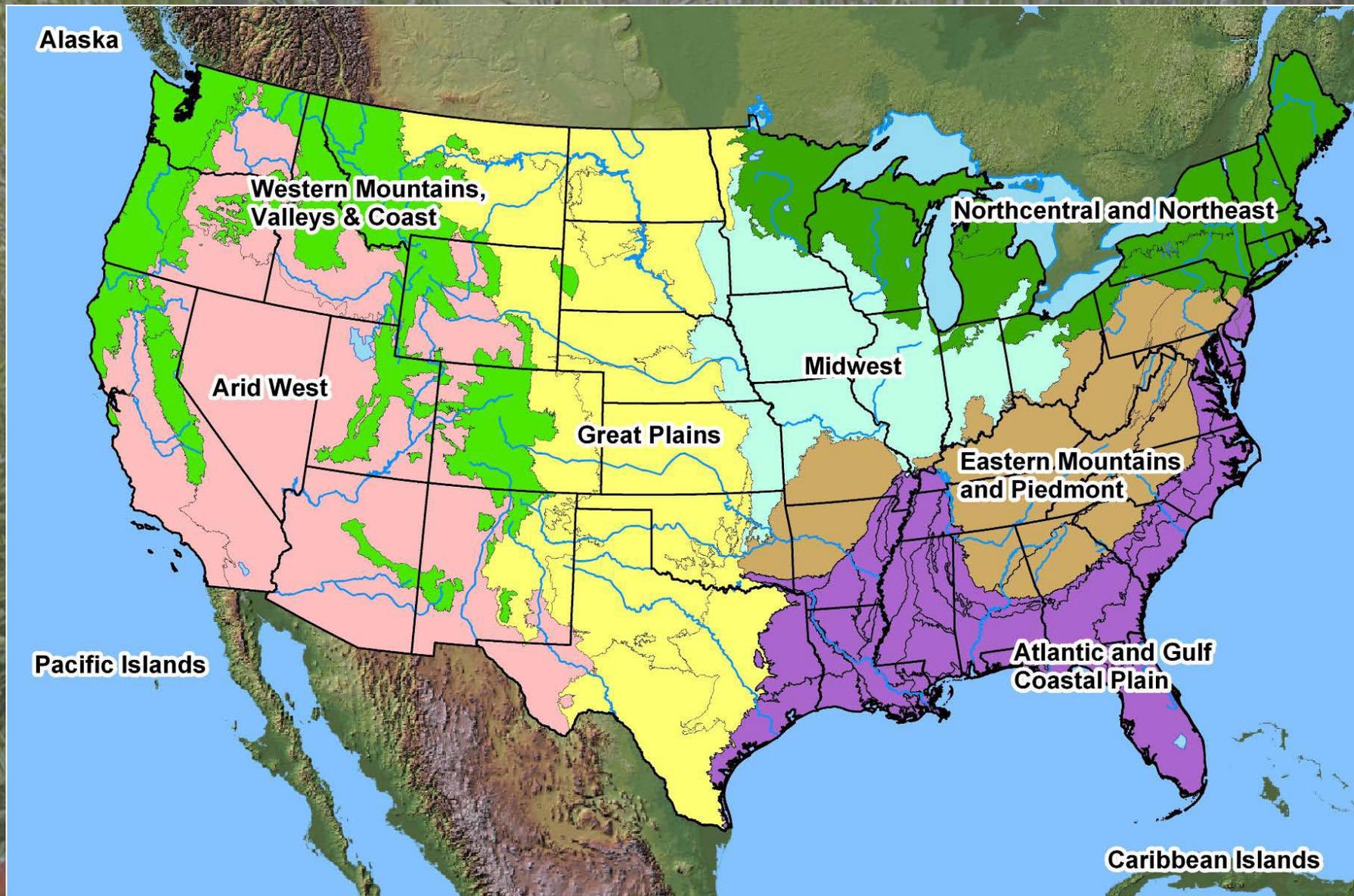
National Wetland Plant List (NWPL) Update

- National Wetland Plant List
https://wetland_plants.usace.army.mil/
- Notice of update effort in 6 January 2011
Federal Register
<http://origin.www.gpo.gov/fdsys/pkg/FR-2011-01-06/pdf/2011-3.pdf>
- Comment period ended 21 March 2011

Changes to NWPL

- Updated synonymy
- Regions will be same as for Supplements
- Slight indicator status definition changes
- '+' and '-' modifiers removed
- No more NO, NI, etc.

Wetland Delineation Regions



Indicator Status

- OBL: almost always is a hydrophyte, rarely in uplands
- FACW: Usually is a hydrophyte but occasionally found in uplands
- FAC: Commonly occurs as either a hydrophyte or non-hydrophyte
- FACU: Occasionally is a hydrophyte but usually occurs in uplands
- UPL: Rarely is a hydrophyte, almost always in uplands

Questions?

