

Wetland Delineation Special Considerations



2015 Critical Methods
Tom Nedland, WDNR



Important Delineation Considerations

VEGETATION

Utilize current plant list

- Currently 2014 list
- Updates likely for 2015

ERDC/CRREL

Regions Research
Engineering Laboratory



US Army Corps
of Engineers

ERDC
INNOVATIVE SOLUTIONS
for a safer, better world

State of WISCONSIN 2014 Wetland Plant List

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014.
The National Wetland Plant List: 2014 Update of Wetland Ratings.
Phytoneuron 2014-41: 1-42.

http://wetland_plants.usace.army.mil/



Trillium cernuum L. (Whip-Poor-Will-Flower) Photo: Dan Tenaglia

User Notes:

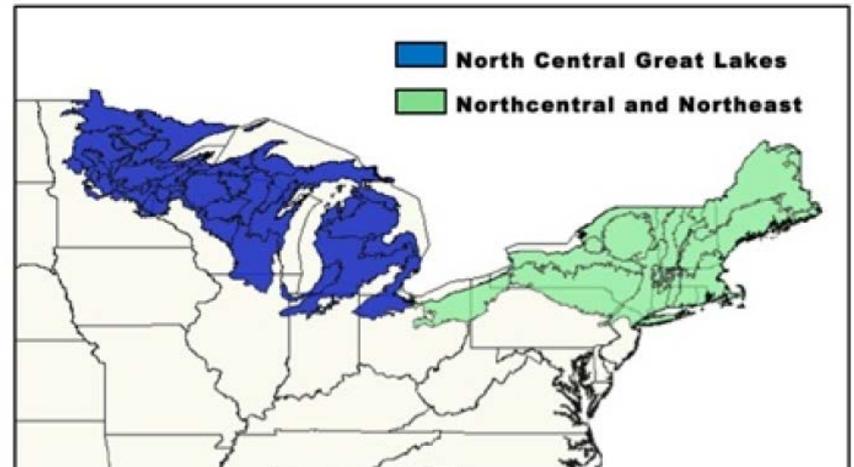


Important Delineation Considerations

VEGETATION

- *Populus tremuloides* and *Rubus idaeus* are FAC in NC/NE Regions of Wisconsin

NORTHCENTRAL GREAT LAKES
2013 SUBREGIONAL WETLAND PLANT LIST



Scientific Name	Authorship	Subregion	NCNE
<i>Populus tremuloides</i>	Michx.	NGL = FAC	FACU
<i>Rubus idaeus</i>	L.	NGL = FAC	FACU



Important Delineation Considerations

VEGETATION

For species not included on the Wetland Plant List
that effect your wetland determination

- Hydric soil and wetland hydrology are present -
Follow guidelines for “Problematic Vegetation”
described in Chapter 5 (Step 5)

OR...

- Hydric soil and wetland hydrology not present –
consider UPL (not NI/NO)



Important Delineation Considerations

VEGETATION

Data Collection

Do not include items such as rock, cobble, or bare ground in the herbaceous layer

Is important information, but should be included in the remarks section.



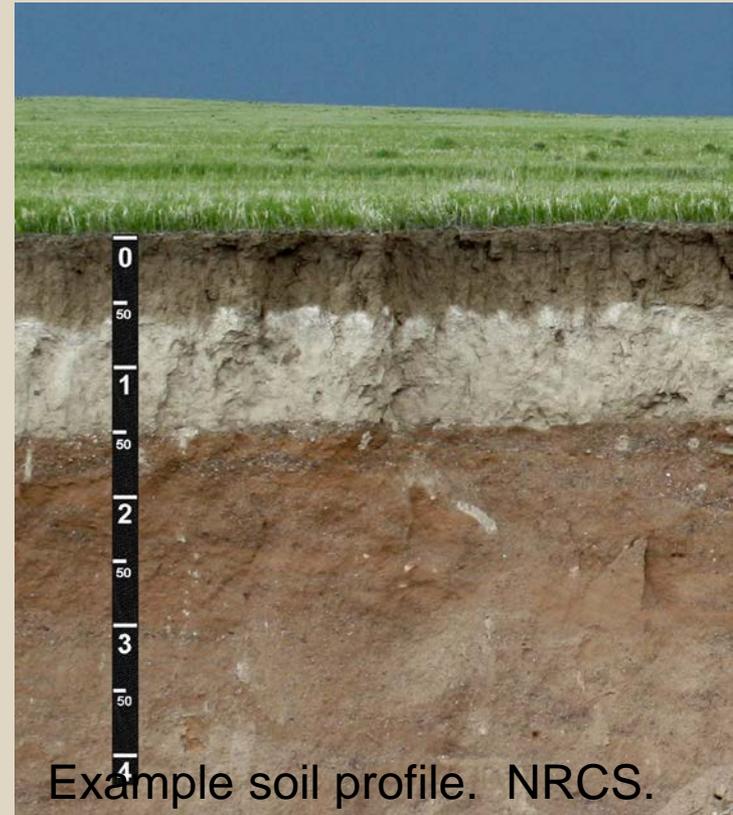


Important Delineation Considerations

SOILS

Dig soils to adequate depth

- 20 inches or at least 6 inches into the subsoil, whichever is deeper.
- Exception 1: Don't need to dig deeper than 20 inches if some indicators are already met
 - Eg: A1, A2, and F6.
- Exception 2: 24 inch depth required to document dry season water table hydrology indicator



Example soil profile. NRCS.

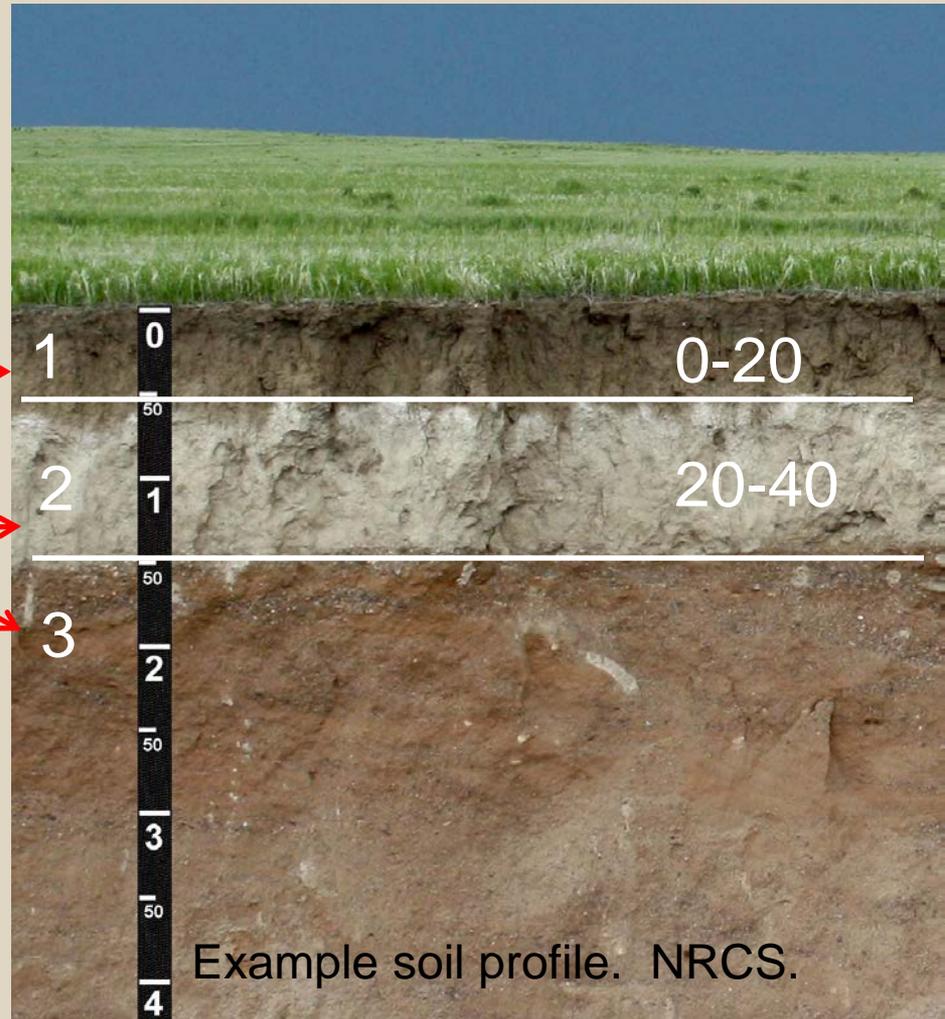


Important Delineation Considerations

SOILS

Topsoil: Darkly colored
Value ≤ 3 Chroma ≤ 2
Horizon 1

Subsoil: Lighter colored
Value ≥ 3 (typically ≥ 4)
Horizons 2 and 3



Example soil profile. NRCS.

In this example, suggest digging at least six inches into Horizon 2.



Important Delineation Considerations

SOILS

Use appropriate hydric soil indicators – per texture

Organic Soils

- A indicators

Mineral Soils

- Sandy Textures = S Indicators
 - LFS or coarser (LS, FS, S)
- Loamy/Clayey Textures = F Indicators
 - LVFS or finer (SL, L, SIL, SCL, CL, SICL, SC, SIC, C)



Important Delineation Considerations

HYDROLOGY

Aquatic Fauna (B13)

- List fauna observed
 - Common names or generalizations O.K.
 - Eg. Dragonfly nymph, tadpoles, aquatic inverts
- Provide general abundance values
 - Exact numbers not needed - generalizations O.K.
 - Eg. >10, 100's, 1000's





Important Delineation Considerations

HYDROLOGY

Geomorphic Position (D2)

- Probably present if in a concave landscape position and the other two parameters are present
 - Review user notes: not applicable in areas with functioning drainage systems or rapidly permeable soils
- Recommendation:
 1. Permeable Soils – do not indicate as present unless soil and vegetation parameters are present
 2. Drainage Systems – do a hydrologic analysis if in a concave landscape position and hydric soils present



Important Delineation Considerations

HYDROLOGY

Lateral effect evaluations for ditches and drains

- Document to prove D2 Indicator is not applicable
- Online options available

- ND Drain – can be accessed here:

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/ndcsmc/?cid=stelprdb1042198>

- Lateral Effect – can be accessed here:

http://www.bae.ncsu.edu/soil_water/projects/lateral_effect.html



Important Delineation Considerations

HYDROLOGY

Lateral effect evaluations for ditches and drains

- Typical information needed for online tools
 - Drainable Porosity/Specific Yield
 - Hydraulic Conductivity (in/hr.)
 - Initial Water Level Height (usually 10 feet)
 - Final Water Level Height (usually 9.0 feet)
 - Depth of Drain (depth to invert from soil surface)
 - Height of drain over Barrier (10 feet -depth of drain)
 - Effective Radius (ditch = 1.0, specific values for tile)
 - Time for Water Drawdown = 14 days



Important Delineation Considerations

HYDROLOGY

Lateral effect evaluations for ditches and drains

- Typical information needed for online tools
 - Drainable Porosity/Specific Yield
 - Hydraulic Conductivity (in/hr.)
 - Initial Water Level Height (usually 10 feet)
 - Final Water Level Height (usually 9.0 feet)
 - Depth of Drain (depth to invert from soil surface)
 - Height of drain over Barrier (10 feet -depth of drain)
 - Effective Radius (ditch = 1.0, specific values for tile)
 - Time for Water Drawdown = 14 days
 - Will also need idea of spacing to see if effectively drained

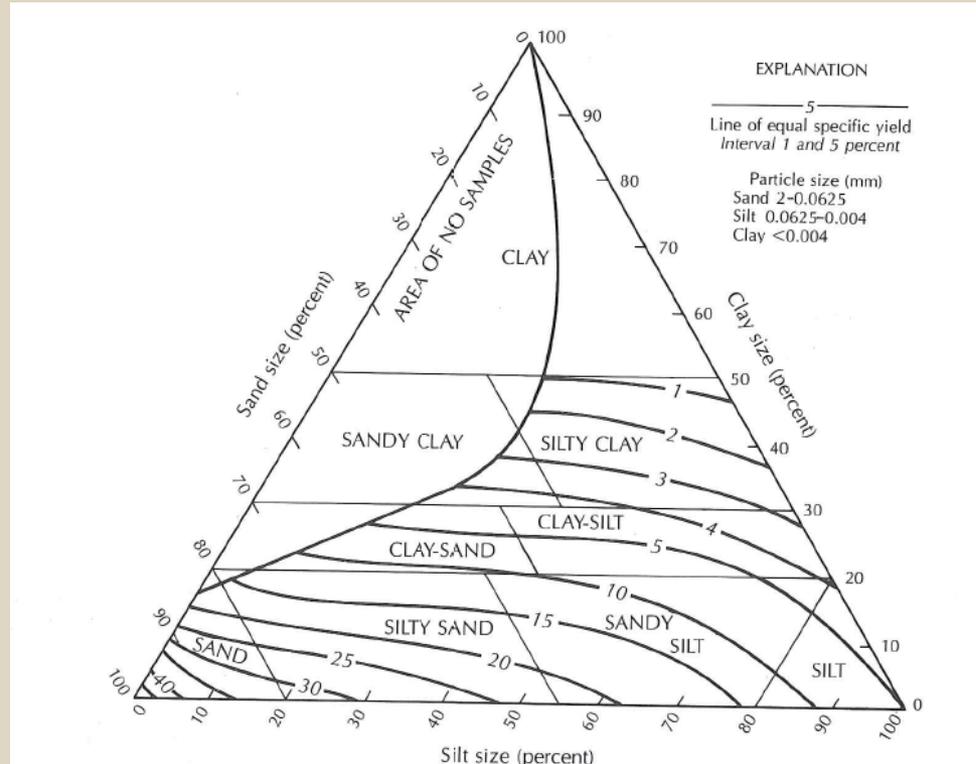
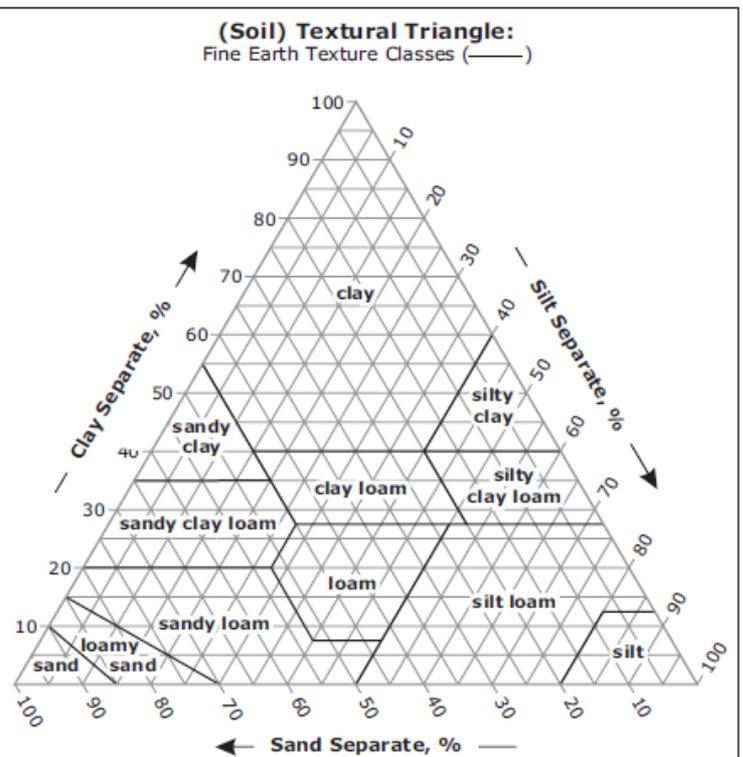


Important Delineation Considerations

HYDROLOGY

Lateral effect evaluations for ditches and drains

- Drainable Porosity/Specific Yield





Important Delineation Considerations

HYDROLOGY

Lateral effect evaluations for ditches and drains

- Hydraulic Conductivity
 - From Web Soil Survey
 1. Soil Data Explorer
 2. Ksat ($\mu\text{m}/\text{second}$)
 3. Convert to in/hr

Web Soil Survey - Home

The screenshot shows the Web Soil Survey homepage. At the top, there's a banner with the USDA logo and 'Web Soil Survey' text. Below that is a navigation bar with 'Home', 'About Soils', 'Help', and 'Contact Us'. The main content area features a search box with 'Enter Keywords' and 'Go' buttons, and a 'START WSS' button. A 'Welcome to Web Soil Survey (WSS)' section provides an overview of the service. A sidebar on the left lists 'Browse by Subject' categories. On the right, there are sections for 'I Want To...' and 'I Want Help With...'.

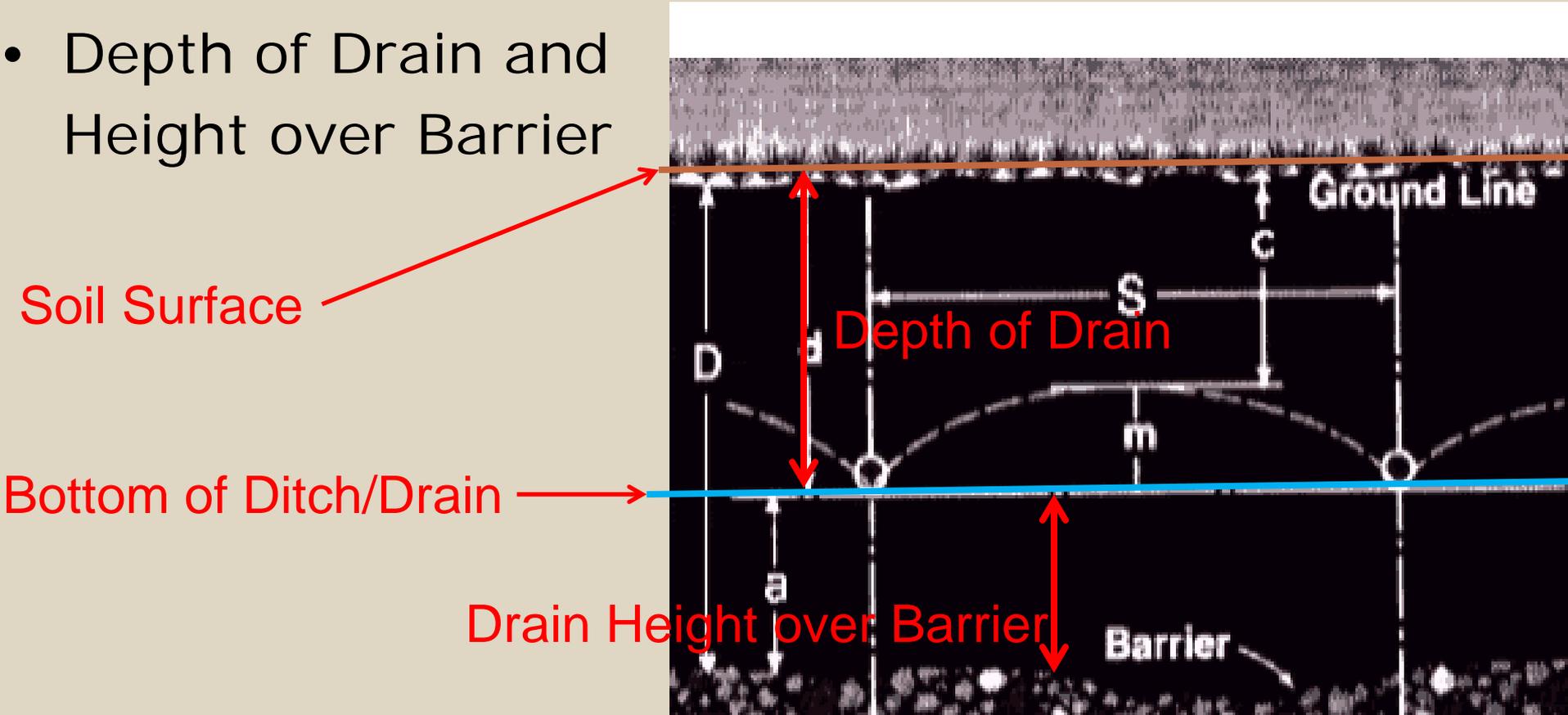


Important Delineation Considerations

HYDROLOGY

Lateral effect evaluations for ditches and drains

- Depth of Drain and Height over Barrier





Important Delineation Considerations

HYDROLOGY

Lateral effect evaluations for ditches and drains

- Effective Radius (related to number of openings)
 - Ditch = 1.0
 - 4" tile = 0.0167
 - 5" tile = 0.034
 - 6" tile = 0.048
 - 8" tile = 0.080
 - 10" tile = 0.111
 - 12" tile = 0.142



Important Delineation Considerations

General

March 4, 2015 Additional Guidance for Submittal of Delineation Reports

- Summarizes information found in Regional Supplements
- Geared specifically for Wisconsin
- Some information not found Supplements
 - Landform and Local Relief Discussion
 - Normal Circumstances
 - Some soil indicators
 - Other aquatic resources discussion



Important Delineation Considerations

March 4, 2015
Additional Guidance
for Submittal of
Delineation Reports



March 4, 2015

Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources

Introduction – Purpose and Background of Guidance

This guidance provides specific standards and expectations for conducting wetland delineations and submitting wetland delineation reports for regulatory purposes in Wisconsin. It supplements and emphasizes information in *Basic Guide to Wisconsin's Wetlands and Their Boundaries*, the 1987 *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and applicable regional supplements. In 1996, the Corps of Engineers (the Corps), St. Paul District Regulatory Branch issued *Guidelines for Submitting Wetland Delineations to the St. Paul District Corps of Engineers in Wisconsin*. Significant improvements to the application of the science behind wetland and aquatic resource delineation have been made since 1996: regional supplements have been published incorporating the *Field Indicators for Hydric Soils in the U.S.*, the *National Wetland Plant List* (NWPL) has been updated, Version 2.0 of the *Corps of Engineers Wetland Delineation Manual* is being finalized, and techniques and approaches to delineation have been refined and improved over the past 18 years. This guidance replaces the 1996 guidance and defines wetland regulatory agency expectations for submittal of delineation reports in Wisconsin.



Important Delineation Considerations

GENERAL

Antecedent Hydrologic Conditions

- Recommend NRCS Method
 - <http://el.erdc.usace.army.mil/elpubs/pdf/wrap00-1/contents.pdf>
 - Statewide consistency
- Not representative of site conditions? – Other sources
 - USGS Waterwatch
 - Palmer Drought Severity Index
- Transfer information to data forms accordingly



Important Delineation Considerations

NRCS Antecedent Rainfall Documentation Method

		Long-term rainfall records							
	Month	3 yrs. in 10 less than	Normal	3 yrs. in 10 more than	Rain fall	Condition dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month*	May	1.06	1.62	1.94	2.04	W	3	3	9
2nd prior month*	Apr.	1.50	2.15	2.56	1.47	D	1	2	2
3rd prior month*	Mar.	2.67	4.02	4.81	3.47	N	2	1	2
								Sum	13

* Compared to photo date

Note: If sum is

- 6 - 9 then prior period has been drier than normal
- 10 - 14 then prior period has been normal
- 15 - 18 then prior period has been wetter than normal

Condition value:

- Dry =1
- Normal =2
- Wet =3



Important Delineation Considerations

GENERAL

Antecedent Hydrologic Condition Example, **Madison**

- Example: NRCS method not accurate (June 9, 2008)

March	April	May	Result
Normal	Wet	Normal	Normal
(2)	(6)	(6)	(14)

- 7.8 inches of rain fell between June 1 and June 8.
- NRCS method not accurate under these conditions!!



Important Delineation Considerations

GENERAL

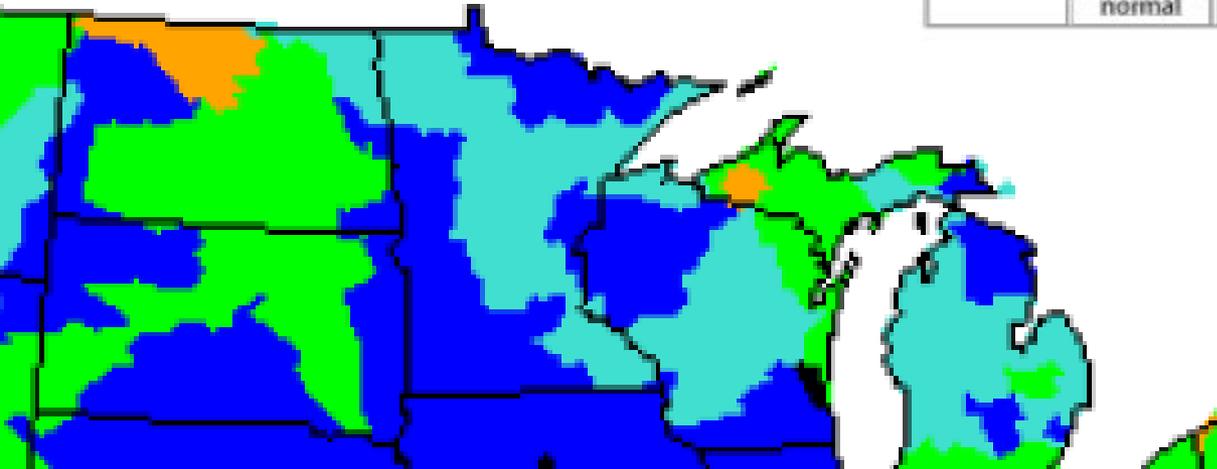
Antecedent Hydrologic Condition Example, **Madison**

- Other tools can help tell the tale (June 9, 2008)

Monday, June 09, 2008

USGS Waterwatch Data

Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	



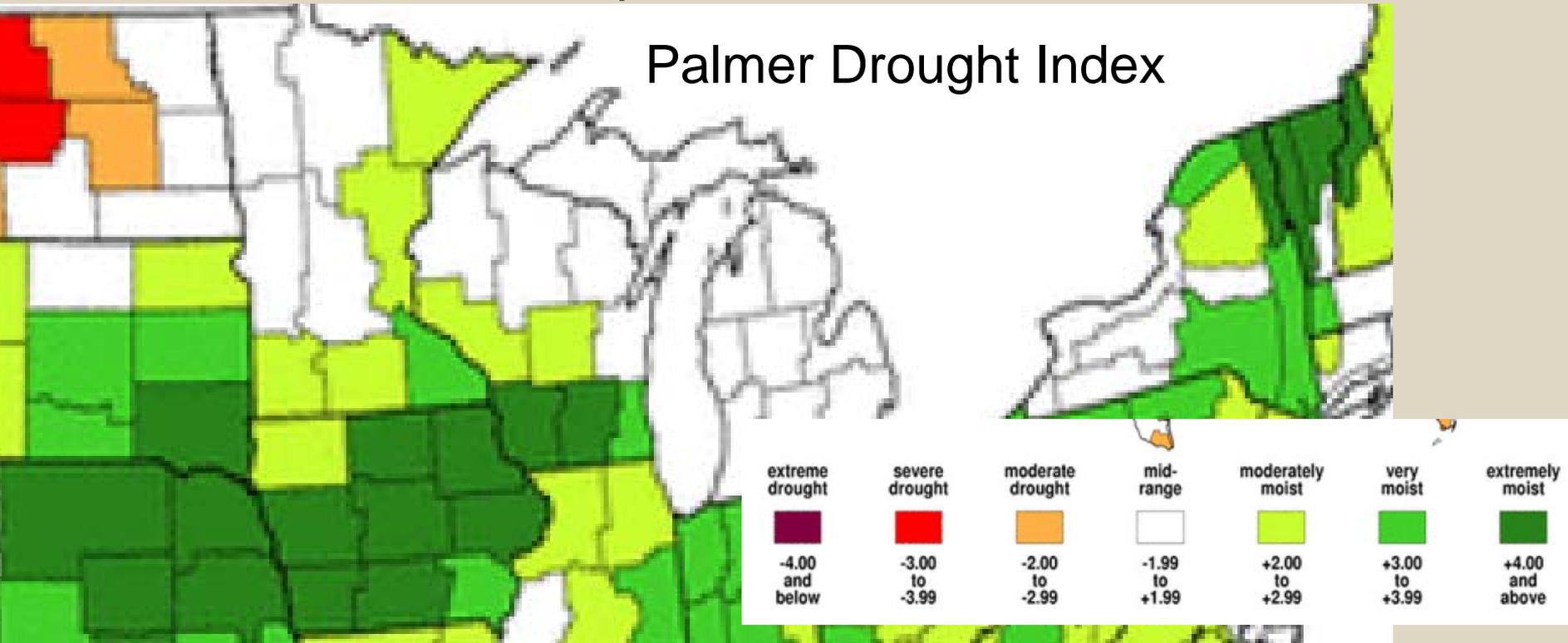


Important Delineation Considerations

GENERAL

Antecedent Hydrologic Condition Example, **Madison**

- Other tools can help tell the tale (June 9, 2008)





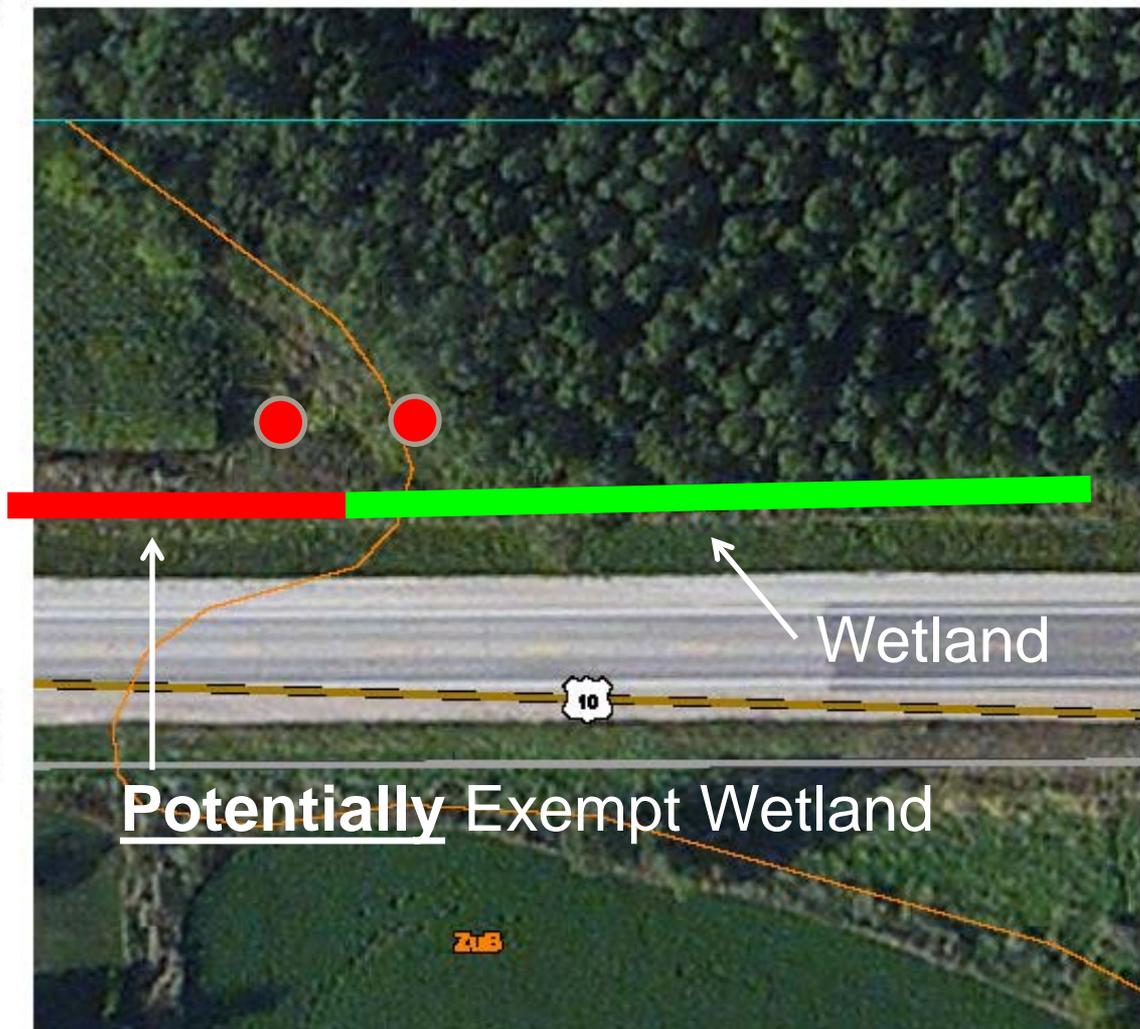
Important Delineation Considerations

GENERAL

- Road-side ditches and other artificial features
 - Do not make jurisdictional determinations on these features
 - Do not label as non-jurisdictional
 - Recommendation for these situations
 - Delineate and indicate as potentially exempt wetland
 - Will require exemption approval from DNR and COE



Showing Potentially Exempt Areas



Make it clear in text of report that final authority on exemptions rests with the regulating agencies.

- Will require an agency review You/your client need to officially request an exemption review.



Important Delineation Considerations

GENERAL

Document Growing Season

- Most important for early or late season work
- Document on data form or in report
 - Green up (early)
 - Green growth on non-evergreen plants (late)
 - $\geq 41F$ at 12 inches below soil surface (late or early)



Growing Season Examples



Important Delineation Considerations

GENERAL

Document Growing Season

- If field work completed outside of growing season...
 - Perform a field visit the following spring
 - Verify accuracy of delineation (vegetation and hydrology)



Non-Growing Season Example

UNLESS...

Soil temp is $\geq 41F$ at 12 inches below soil surface.



Important Delineation Considerations

GENERAL

Adequately characterize a site

- Take data points in
 - Wet spot on soil mapping
 - Wetness signatures on air photos
 - Hydric or inclusion soils
 - Distinct plant communities observed on air photos
 - Mapped wetland area



Important Delineation Considerations

GENERAL

Adequately characterize a site





Important Delineation Considerations

GENERAL

- Submit all essential information
 - Introduction
 - Methods
 - Results and Discussion
 - Topographic Mapping
 - WWI Mapping
 - Soil Survey Mapping
 - Wetland Delineation Map
 - Completed Wetland Delineation Data Forms
 - Site Photos
 - Any Previous Wetland Delineation Information
 - FSA Slide Review, if applicable
 - Literature Cited/References
- Checklist found here:
<http://dnr.wi.gov/topic/wetlands/identification.html>



Important Delineation Considerations

GENERAL

Understand Naturally Problematic Wetland Conditions

...naturally occurring wetland types that lack indicators of hydrophytic vegetation, hydric soil, or wetland hydrology due to:

1. *Normal seasonal or annual variability*

OR...

2. *The nature of the soils or plant species on the site*



Important Delineation Considerations

GENERAL

Naturally Problematic Condition Examples

1. Temporal shift in plant communities
 - Responses to seasonal weather patterns or climatic fluctuations (ephemeral wetlands, lake levels, etc.)
2. FACU Dominated Wetlands
3. Soils that meet the hydric soil definition but don't exhibit any established "field indicators"
4. Wetlands that lack a sufficient amount of the established wetland hydrology indicators



Important Delineation Considerations

GENERAL

Understand Disturbed (Atypical) Conditions

...wetlands in which vegetation, soil, and/or hydrology indicators are absent due to recent human activities or natural events:



Important Delineation Considerations

GENERAL

Disturbed (Atypical) Condition Examples

Vegetation

1. Grazing
2. Mowing
3. Managed Plant Communities (Crops, silviculture, plantings)
4. Recent Natural Disturbances (Floods, fires, etc.)

Soils

1. Tilled Soils (Mix soil horizons, destroys redox features)
2. Filled/Excavated Soils

Hydrology

1. Site Drainage (Tiles, ditches, pumping)



Important Delineation Considerations

GENERAL

- Understand normal circumstances
- Normal Circumstances
 - Soils and hydrology normally present without regard to vegetation
 - Is the long term, legally established condition of a site
 - Includes authorized wetland fills
- Another way to look at it
 - Is the site atypical/disturbed? If so, not the normal circumstance, unless legally authorized.



Important Delineation Considerations

GENERAL

Non-normal circumstance examples

1. Unauthorized wetland fill/excavation
2. Recent unauthorized site drainage (tiling/ditching)
3. Plowed/planted wetlands
4. Pastured Wetlands (sometimes)
5. Mowed Wetlands (sometimes)

Indicators of one or more of the 3 parameters are missing , obscured, or misleading



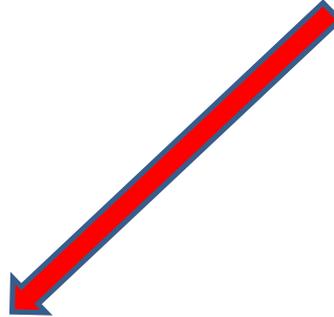
No



Not a “Disturbed (Atypical)”
or “Problem Area”



Yes



Due to human-caused disturbance (e.g., filling, ditching, tiling, diking, cropping, planting, logging, mowing, land clearing, groundwater extraction, excavation, impoundment) or significant to catastrophic natural event (e.g., change in river course)



Disturbed (Atypical Situation)

Due to natural, normal, seasonal or annual variability (e.g., dry season, vernal pools), or permanently due to the nature of the soils or plant species on the site (e.g., red clay parent material, FACU-dominated)



Problem Area (Naturally Problematic)

Note: A sample point can have both disturbed (atypical situation) and naturally problematic parameters.



Questions

