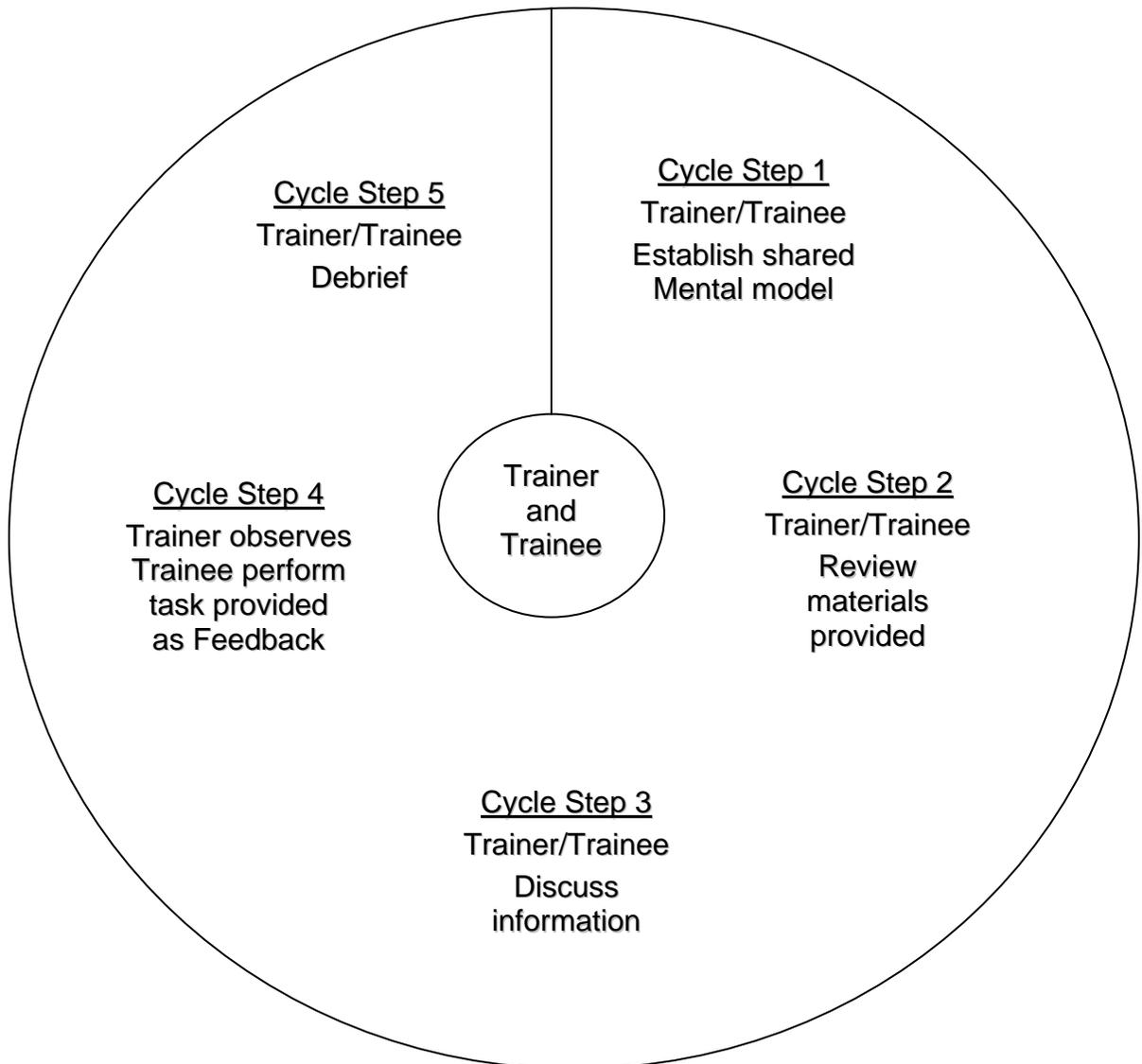


Title: How to achieve an understanding of hydric soils
Type: <input type="checkbox"/> Skill <input checked="" type="checkbox"/> Knowledge
<p>Performance Objective: Trainee will be able to:</p> <ul style="list-style-type: none"> • Define terms used in, and describe procedures specified by, the official statements of the hydric soil definition, criteria, and indicators. • Explain the difference between hydric soil definition, criteria, field indicators, determinations, and delineations.
<p>Target Proficiency:</p> <p><input type="checkbox"/> Awareness <input checked="" type="checkbox"/> Understanding <input type="checkbox"/> Perform w/ Supervision</p> <p><input type="checkbox"/> Apply Independently <input type="checkbox"/> Proficiency, can teach others</p>
<p>Trainer Preparation:</p> <ul style="list-style-type: none"> • Be familiar with the 1985 Farm Bill Wetland Conservation Compliance provisions (swampbuster), with amendments in 1990, 1996, and 2002. • Be familiar with wetland delineation procedures. • Be familiar with the hydric soil definition. • Be familiar with the hydric soil criteria. • Be familiar with hydric soil lists. • Be familiar with the <i>Field Indicators of Hydric Soils in the United States</i>. • Be familiar with the Corps of Engineers <i>Wetland Delineation Manual</i> (Technical report Y-87-1). • Be familiar with the Corps of Engineer's move to regionalize their wetland delineation manual and the Regional Supplement status for the student's areas. • Be familiar with the quiz provided to be sure these key learning points are addressed during the training.
<p>Special Requirements:</p> <p>Have the following references available:</p> <ul style="list-style-type: none"> • <i>National Food Security Act Manual</i> (NFSAM) • <i>Field Indicators of Hydric Soils in the United States</i> (most recent version) • Corps of Engineers <i>Wetland Delineation Manual</i> and applicable Regional Supplement(s) • Soil color book • <i>Field Book for Describing and Sampling Soils</i> • <i>Soil Survey Manual</i> (Agriculture Handbook No. 18, October 1993)
<p>Prerequisite Modules:</p> <ul style="list-style-type: none"> • None
<p>Procedure:</p> <ul style="list-style-type: none"> • Follow the Five-Step OJT Cycle of Knowledge-Oriented Training.
<p>Notes:</p> <ul style="list-style-type: none"> • This knowledge is best received if delivered initially in an indoor setting followed by outdoor field exercises.
<p>Authors:</p> <ul style="list-style-type: none"> • Jerry J. Daigle, State Soil Scientist, Alexandria, LA

Approved by:

- Marc Crouch, Training Coordinator, NSSC
- Chris Smith, National Leader, TSS, NHQ
- Lenore Vasalis, Soil Scientist, NHQ

The Five-Step OJT Cycle for Knowledge-Oriented Training



Title: What are Hydric Soils?	
WHAT	WHY, WHEN, WHERE, HOW, SAFETY, QUALITY
OJT Cycle for Knowledge Step 1: Trainer/Trainee establish shared mental model.	Trainer and Trainee review objectives of the training, agree as to what the trainee will be expected to learn and how the Trainee should be able to use this knowledge.
OJT Cycle for Knowledge Step 2: Trainer/Trainee review materials provided.	<p>Trainee Read/Review and Trainer/Trainee discuss:</p> <ul style="list-style-type: none"> • The Conservation Compliance provisions of the 1985, 1996, and 2002 Farm Bills. • Wetland Conservation Provisions from the <i>National Food Security Act Manual</i>. • Corps of Engineers <i>Wetland Delineation Manual</i> and applicable Regional Supplement(s). • Definition of hydric soil. • Hydric soil criteria. • Hydric soils lists. • <i>Field Indicators of Hydric Soils in the United States</i>. • Redoximorphic features. • Use of the Soil Color Charts • How to describe soils for hydric determinations.
OJT Cycle for Knowledge Step 3: Trainer/Trainee discuss information.	<u>Trainer</u> demonstrates, in a field setting, the proper techniques for sampling and describing soils for hydric determinations using local indicators.
OJT Cycle for Knowledge Step 4 Trainer observes Trainee perform task provided as Feedback	<u>Trainee</u> demonstrates, in a field setting, the proper techniques for sampling and describing soils for hydric determinations using local indicators.
OJT Cycle for Knowledge Step 5 Trainer/Trainee Debrief.	<ul style="list-style-type: none"> • Trainer addresses any questions and concerns expressed by the Trainee. • Trainer reinforces reason for the training. • Trainer reviews key points the Trainee should have gleaned from the training.
Refresh	Within 2 weeks, Trainer and Trainee conduct followup field exercises to reinforce the training and identify areas where additional training may be required.

Title: How to achieve an understanding of hydric soils

Reference Sources:

<http://soils.usda.gov/use/hydric/>

Hydric Soils Web site

<http://www.wli.nrcs.usda.gov/hydricsoils/index.html>

Hydric Soils Web site

<http://www.nrcs.usda.gov/programs/compliance/index.html#4th%20Edition>

Highly Erodible Land and Wetland Conservation (HELC/WC) Compliance Provisions

<http://www.nrcs.usda.gov/programs/compliance/WCindex.html>

Wetland Conservation Provisions (Swampbuster)

<http://el.ercd.usace.army.mil/wetlands/wlpubs.html>

Wetlands Publications

<http://www.wetlands.com/regs/tlpge02e.htm>

US Army Corps of Engineers *Wetlands Delineation Manual*
Environmental Technical Services Co., 834 Castle Ridge Rd., Austin, TX 78746-5152

<http://soils.usda.gov/technical/>

[Field Indicators of Hydric Soils](#), version 6.0 (PDF; 2.6 MB)

[Errata to Field Indicators of Hydric Soils](#), version 6.0 (PDF; 68 KB)

<http://soils.usda.gov/technical/manual/>

Soil Survey Manual (Agriculture Handbook 18)

<http://soils.usda.gov/technical/fieldbook/>

Field Book for Describing and Sampling Soils

Title: How to achieve an understanding of hydric soils

Quiz

1. The Highly Erodible Land Conservation and Wetland Conservation Compliance provisions (swampbuster) were introduced in the _____ Farm Bill.
 - a. 2006
 - b. 2002
 - c. 1996
 - d. 1985

2. The purpose of the Highly Erodible Land Conservation and Wetland Conservation Compliance provisions is to:
 - a. Bring together the Clean Water Act and the Food Security Act
 - b. Ensure that the EPA, USDA, Corps of Engineers, and U.S. Fish and Wildlife Service are performing wetland delineations the same way
 - c. Remove certain incentives to produce agricultural commodities on converted wetlands or highly erodible land
 - d. Take some of the regulatory responsibilities from the Environmental Protection Agency

3. In order to determine compliance with the swampbuster provisions, the _____ will determine if a producer's land has wetlands that are subject to the provisions.
 - a. Environmental Protection Agency
 - b. U.S. Fish and Wildlife Service
 - c. U.S. Army Corps of Engineers
 - d. USDA Natural Resources Conservation Service

4. *Field Indicators of Hydric Soils in the United States* is a guide to help identify and delineate hydric soils in the field. Which of the following is the one best statement?
 - a. The Indicators are intended to replace or modify the requirements contained in the definition of a hydric soil.
 - b. The Indicators are not intended to replace or modify the requirements contained in the definition of a hydric soil.
 - c. The Indicators are not closely correlated to the definition of a hydric soil.
 - d. The Indicators are intended to replace the Corps of Engineers 1987 *Wetland Delineation Manual*.

5. Nearly all hydric soils exhibit characteristic morphologies that result from:
- Repeated human modification of the soil's hydrology
 - Repeated growth cycles of hydrophytic vegetation
 - Repeated periods of wetting and drying due to seasonal climate fluctuations
 - Repeated periods of saturation and/or inundation for more than a few days
6. Hydric soil indicators are formed predominantly by the accumulation or loss of:
- Iron
 - Manganese
 - Sulfur
 - All of the above
7. Hydric soils must be anaerobic during the growing season. Based on the hydric soil technical standard, what is meant by "the growing season" regarding hydric soils?
- Microbes are active.
 - Woody plants actively grow.
 - Agricultural plants actively grow.
 - Herbaceous plants actively grow.
8. Which of the following is a criterion for hydric soils?
- All Histosols except Folists
 - Matrix chromas of 2 or less with mottles immediately below the A horizon in nonsandy soils
 - High organic matter content in the surface horizon of sandy soils
 - All of the above
9. Based on the hydric soil criteria, for an area to have hydric soils by reason of flooding, the frequency of long duration flooding has to be at least:
- Every year
 - 1 year in 2
 - 1 year in 5
 - 1 year in 20
10. A soil horizon is described as having a color of 2.5Y 4/2. What is the chroma?
- 2.5
 - Y
 - 4
 - 2

11. Most hydric soil decisions are based on:
- Soil oxygen content
 - Chemical change in nitrogen
 - Chemical change in iron
 - Chemical change in sulfur
12. Low -chroma colors can be caused by:
- Iron reduction
 - Organic matter
 - Eluviation
 - All of the above
13. The definition of a hydric soil is a soil that formed under conditions of _____ long enough during the growing season to develop anaerobic conditions in the upper part.
- Saturation
 - Flooding
 - Ponding
 - All of the above
14. Field Indicators are soil characteristics which are documented to be strictly associated only with:
- Hydrophitic plants
 - Hydric soils
 - Wetland hydrology
 - All of the above
15. _____ are an efficient onsite means to confirm the presence of hydric soil.
- Hydric soils lists
 - Hydric soils criteria
 - Field indicators
 - All of the above

16. Hydric soil lists have a number of agricultural and nonagricultural applications. These include:

- a. Assistance in land-use planning
- b. Conservation planning
- c. Assessment of potential wildlife habitat.
- d. All of the above

17. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils.

- a. True
- b. False

18. The hydric soils criteria were designed primarily to generate a list of potentially hydric soils from the National Soil Information System (NASIS) database.

- a. True
- b. False

19. A combination of the hydric soil, hydrophytic vegetation, and hydrology properties define wetlands as described in the *National Food Security Act Manual* and the Corps of Engineers (COE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and COE Regional Supplements. Therefore, an area that meets the hydric soil definition is a wetland.

- a. True
- b. False

20. Indicators related to Fe-Mn depletions or concentrations always form in soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part.

- a. True
- b. False

21. NRCS has developed local lists of map units that contain hydric soils for each county or parish in the United States. These local lists are available at the NRCS State Offices (and usually available at local field offices) and are the preferred lists for use in making preliminary wetland determinations.

- a. True
- b. False

22. **Anaerobic** is defined as a situation in which molecular oxygen is virtually absent from the environment.

- a. True
- b. False

23. **Biologic zero** is the soil temperature, at a depth of 100 cm (39.37"), below which the growth and function of locally adapted plants are negligible.

- a. True
- b. False

24. **Flooded** is defined as a condition in which water stands in a closed depression. The water is removed only by percolation, evaporation, or transpiration.

- a. True
- b. False

25. The indicators described in the *Field Indicators of Hydric Soils in the United States* are structured to be applicable to specific land resource regions (LLRs).

- a. True
- b. False

Measurement of Learning

Open attachment: Hydric Soils Quiz-answers.pdf.

Trainee Performance Report Form

Open attachment: Trainee Performance Report Form template.pdf.