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Hydric Soils of the United States

In cooperation with the
National Technical Committee
for Hydric Soils

National Technical Committee for Hydric Soils

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Procedures for Commenting on the List of Hydric Soils

If you have comments on the criteria for hydric soils or if soils should be removed from or added to the list of hydric soils, gather supporting data to make your case and either:

(1) Submit the documentation and the proposed changes in the criteria along with your supporting data to Maurice J. Mausbach, Chairperson, National Technical Committee for Hydric Soils (NTCHS), SCS, Room 152, Federal Building, 100 Centennial Mall North, Lincoln, NE 68508-3866, or

(2) Submit supporting documentation and the proposed changes in the definition of the series to the USDA, Soil Conservation Service State office with copies to the Chairperson, National Technical Committee for Hydric Soils. Supporting documentation must include information on the geographic area (soil survey area) and hydrology, vegetation, and soil characteristics that support changing the definition of the soil series. Addresses of SCS State offices are given in appendix 1. A written response will be given to inquiries within a reasonable time.

Revised Editions of the List of Hydric Soils

This is the third edition of "Hydric Soils of the United States." The second edition was issued December 1987. The list of hydric soils will be updated as changes in the criteria are implemented. Copies of this publication can be obtained by contacting Maurice J. Mausbach, NTCHS, SCS, Room 152, Federal Building, 100 Centennial Mall North, Lincoln, NE 68508-3866 (Telephone 402-437-5423).

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Introduction

Hydric soils are developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. This list includes phases of soil series that may or may not have been drained. Some series, designated as hydric, have phases that are not hydric depending on water table, flooding and ponding characteristics.

This list of hydric soils was created by computer using criteria developed by the National Technical Committee for Hydric Soils. The criteria are selected soil properties that are documented in Soil Taxonomy (Soil Survey Staff, 1975, 1990) and Soil Interpretations Records (Soil Survey Staff, 1983).

This list will have a number of agricultural and nonagricultural applications. These include assistance in land-use planning, conservation planning, and assessment of potential wildlife habitat. A combination of the hydric soil, hydrophytic vegetation, and hydrology criteria defines wetlands as described in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (Federal Interagency Committee for Wetland Delineation, 1989). Therefore, an area that meets the hydric soil criteria must also meet the hydrophytic vegetation and wetland hydrology criteria in order for it to be classified as a jurisdictional wetland.

The general list of hydric soils in this publication is maintained in a computer file and is updated each October. The most current list of hydric soils may be obtained for the cost of printing from the Soil Conservation Service (SCS) Project Manager, Statistical Laboratory, Iowa State University, 217 Snedecor Hall, Ames, IA 50011. State lists of hydric soils are available from the SCS State Conservationist in each State. The SCS also maintains for each conservation district in the United States lists of map units that contain or may in some delineations contain hydric soils. These detailed lists are available by contacting the respective SCS State Conservationist and are recommended for use in making wetland determinations.

Definition of Hydric Soil

A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. The following criteria reflect those soils that meet this definition.

Criteria for Hydric Soils

1. All Histosols except Folists, or

2. Soils in Aquic suborder, Aquic subgroups, Albolls suborder, Salorthids great group, Pell great groups of Vertisols, Pachic subgroups, or Cumulic subgroups that are:

a. Somewhat poorly drained and have a frequently occurring water table at less than 0.5 foot (ft) from the surface for a significant period (usually more than 2 weeks) during the growing season, or

b. poorly drained or very poorly drained and have either:

(1) a frequently occurring water table at less than 0.5 ft from the surface for a significant period (usually more than 2 weeks) during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in), or for other soils

(2) a frequently occurring water table at less than 1.0 ft from the surface for a significant period (usually more than 2 weeks) during the growing season if permeability is equal to or greater than 6.0 in/horizon (h) in all layers within 20 in, or

(3) a frequently occurring water table at less than 1.5 ft from the surface for a significant period (usually more than 2 weeks) during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or

3. Soils that are frequently ponded for long duration or very long duration during the growing season, or

4. Soils that are frequently flooded for long duration or very long duration during the growing season.

Glossary of Terms Used in Defining Hydric Soils

anaerobic: a situation in which molecular oxygen is absent from the environment.

drained: a condition in which ground or surface water has been removed by artificial means.

flooded: a condition in which the soil surface is temporarily covered with flowing water from any source, such as streams overflowing their banks, runoff from adjacent or surrounding slopes, inflow from high tides, or any combination of sources.

frequently flooded, ponded, saturated: a frequency class in which flooding, ponding, or saturation is likely to occur often under usual weather conditions (more than 50-percent chance in any year, or more than 50 times in 100 years).

growing season: the portion of the year when soil temperatures are above biologic zero in the upper part. The following growing season months are assumed for each of the soil temperature regimes of Soil Taxonomy:

Isohyperthermic:	January-December
Hyperthermic:	February-December
Isothermic:	January-December
Thermic:	February-October
Isomesic:	January-December
Mesic:	March-October
Frigid:	May-September
Cryic:	June-August
Pergelic:	July-August

hydrophytic vegetation: plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

long duration: a duration class in which inundation for a single event ranges from 7 days to 1 month.

permeability: the quality of the soil that enables water to move downward through the profile, measured as the number of inches per hour that water moves downward through the saturated soil.

phase, soil: a subdivision of a soil series based on features that affect its use and management (e.g., slope, surface texture, stoniness, and thickness).

ponded: a condition in which water stands in a closed depression. The water is removed only by percolation, evaporation, or transpiration.

poorly drained: water is removed from the soil so slowly that the soil is saturated periodically during the growing season or remains wet for long periods.

saturated: a condition in which all voids (pores) between soil particles are filled with water.

soil series: a group of soils having horizons similar in differentiating characteristics and arrangements in the soil profile, except for texture of the surface layer.

somewhat poorly drained: water is removed slowly enough that the soil is wet for significant periods during the growing season.

very long duration: a duration class in which inundation for a single event is greater than 1 month.

very poorly drained: water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season.

water table: the zone of saturation at the highest average depth during the wettest season. It is at least 6 inches thick and persists in the soil for more than a few weeks.

Literature Cited

Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and USDA Soil Conservation Service, Washington, D.C. Cooperative technical publication. 76 pp. plus appendixes.

Soil Survey Staff. 1983. National Soils Handbook. USDA Soil Conservation Service, Washington D.C.

Soil Survey Staff. 1990. Keys to Soil Taxonomy. Agency for International Development and USDA, SCS, Soil Management Support Staff Tech. Mono. No. 19, 4th ed., Virginia Poly. Tech. Inst. and State Univ., Blacksburg, VA. 422 pp.

Soil Survey Staff. 1975. Soil Taxonomy: A Basic System of Soil Classification and for Making and Interpreting Soil Surveys. USDA Soil Conservation Service, Agric. Hdbk. No. 436, Robert E. Kierger Publishing Co., Inc., Melbourne, FL. 754 pp.

Hydric Soils of the United States

"Hydric Soils of the United States" includes at least one phase in the listing that meets the hydric soil criteria. The list does not include soils that are classified at categories higher than the series level in Soil Taxonomy (Soil Survey Staff 1975, 1990) nor does it include map units that may contain these series. The list is useful in identifying map units that may contain hydric soils.

SCS 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 SCS State offices (appendix 1) and are the preferred lists for use in making wetland determinations. The local lists are developed using this national list of hydric soils and the criteria for hydric soils.

This list has more information than previous lists. It includes footnotes for soil series that are known to have nonhydric phases, a temperature column showing the temperature regimes for all taxa, improvements in the information in the critical phase criteria column, and changes from the previous edition of this publication (appendixes 2 and 3). The critical phase criteria column has been misunderstood by many users. This column in some cases determines the capability class and subclass. For some soils not all of the listed critical phases are hydric. For example, it is highly probable that steeply sloping phases of some series may not meet the criteria for hydric soils.

(THE "HYDRIC CRITERIA NUMBER" COLUMN INDICATES WHAT CAUSED THE SOIL TO BE INCLUDED IN THE HYDRIC LIST
SEE THE "CRITERIA FOR HYDRIC SOILS" TO DETERMINE THE MEANING OF THIS COLUMN.)

SERIES AND SUBGROUP	TEMPER-ATURE	DRAIN-AGE CLASS	HIGH WATER TABLE		PERM. WITHIN 20 INCHES	FLOODING			HYDRIC CRI-TERIA NUMBER	CAPABILITY	
			DEPTH	MONTHS		FREQUENCY	DURATION	MONTHS		CRITICAL PHASE CRITERIA	CLASS AND SUB-CLASS
1/ABBOTT, WET (UT1472) VERTIC FLUVAQUENTS	MESIC	P	0 -2.0	APR-JUN	<6.0	NONE			2B3	0-1% 10-15%	7W 6E
1/ABCAL (UT0978) TYPIC FLUVAQUENTS	MESIC	VP	0 -1.0	APR-SEP	<6.0	OCCASIONAL	V LONG	MAY-JUN	2B3	ALL	5W
1/ABCAL, SALINE (UT0170) TYPIC FLUVAQUENTS	MESIC	P	0 -1.0	JAN-DEC	<6.0	OCCASIONAL	V LONG	APR-JUN	2B3	MOD SALINE STR SAL-ALK, STR SALINE	7W 7W
ABORIGINE (CA1818) TYPIC ALBAQUULTS	ISOMESIC	VP	0 -1.0	DEC-APR	<6.0	NONE			2B3	ALL	7W
ACASCO (CO0195) TYPIC HAPLAQUOLLS	FRIGID	P	1.0-2.0	MAY-JUL	<6.0	NONE-RARE			2B3	ALL	6W
ACKERMAN (IN0138) HISTIC HUMAQUEPTS	MESIC	VP	+5 -1.0	NOV-MAY	<6.0	NONE			2B3,3	DRAINED UNDRAINED	4W 5W
1/ACKMORE, POORLY DRAINED (IA0429) AERIC FLUVAQUENTS	MESIC	P	0 -3.0	NOV-JUL	<6.0	COMMON	V BRIEF-BRIEF	SEP-JUN	2B3	0-2% OCCAS 2-5% OCCAS FREQ	2W 2W 5W
ACREDALE (VA0160) TYPIC OCHRAQUALFS	THERMIC	P	0 -1.0	DEC-APR	<6.0	NONE			2B3	DRAINED UNDRAINED	3W 4W
ADATON (MS0027) TYPIC OCHRAQUALFS	THERMIC	P	0 -0.5	JAN-APR	<6.0	NONE-RARE			2B3	ALL	3W
ADDICKS (TX0062) TYPIC ARGIAQUOLLS	THERMIC	P	1.0-2.5	JAN-FEB	<6.0	NONE-RARE			2B3	ALL	3W
ADEN (VA0228) AERIC OCHRAQUALFS	MESIC	P	0 -1.0	DEC-MAR	<6.0	NONE-OCCASIONAL	LONG	DEC-MAR	2B3	0-4%	3W
ADJIDAUMO (NY0360) MOLLIC HAPLAQUEPTS	FRIGID	P,VP	0 -0.5	NOV-JUN	<6.0	NONE			2B3	ALL	4W
ADJIDAUMO, FLOODED (NY0361) MOLLIC HAPLAQUEPTS	FRIGID	P,VP	+1 -0.5	NOV-JUN	<6.0	FREQUENT	LONG	NOV-APR	2B3,3	ALL	5W
ADJIDAUMO, PONDED (NY0371) MOLLIC HAPLAQUEPTS	FRIGID	VP	+1 -0.5	NOV-JUN	<6.0	NONE			2B3,3	ALL	5W
2/ADLER (MS0024) AQUIC UDIFLUVENTS	THERMIC		2.0-3.0	JAN-APR	<6.0	FREQUENT	LONG	JAN-APR	4	FREQ	4W