

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Butler County, Kansas

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In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (USDA, 1999) and "Keys to Soil Taxonomy" (USDA, 1998) and in the "Soil Survey Manual" (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units in the Hydric Soil Interpretations table meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

These map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
017RA: READING SILT LOAM, 0 TO 1 PERCENT SLOPES, RARELY FLOODED	READING	No	terrace	---	---	---	---
	KAHOLA CHASE	No No	flood plain flood plain	---	---	---	---
017TU: TULLY CHERTY SILTY CLAY LOAM, 5 TO 15 PERCENT SLOPES	TULLY	No	hillslope	---	---	---	---
	CLIME MARTIN	No No	hillslope hillslope	---	---	---	---
035LE: LABETTE-SOIGN SILTY CLAY LOAMS, 2 TO 8 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	SOIGN ROCK OUTCROP	No Unranked	hillslope ---	---	---	---	---
035MA: MARTIN SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	MARTIN	No	hillslope	---	---	---	---
	LABETTE TABLER	No No	hillside hillside	---	---	---	---
035MB: MARTIN SILTY CLAY LOAM, 3 TO 7 PERCENT SLOPES	MARTIN	No	hillslope	---	---	---	---
	CLIME LABETTE	No No	hillside hillside	---	---	---	---
035SD: SOIGN SILTY CLAY LOAM, 0 TO 10 PERCENT SLOPES	SOIGN	No	hillslope	---	---	---	---
	CLIME LABETTE	No No	hillside hillside	---	---	---	---
049CK: CLIME STONY SILTY CLAY LOAM, 20 TO 30 PERCENT SLOPES	CLIME	No	hillslope	---	---	---	---
049FM: FLORENCE-MARTIN COMPLEX, 2 TO 12 PERCENT SLOPES	FLORENCE	No	hillslope	---	---	---	---
	MARTIN CLIME DWIGHT	No No No	hillslope hillside hillside	---	---	---	---
073LS: LABETTE-SOIGN SILTY CLAY LOAMS, 0 TO 8 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	SOIGN CLIME ROCK OUTCROP	No No ---	hillslope hillside ---	---	---	---	---
073MB: MARTIN SILTY CLAY LOAM, 4 TO 7 PERCENT SLOPES	MARTIN	No	hillslope	---	---	---	---
	CLIME	No	hillside	---	---	---	---
079DE: DETROIT SILTY CLAY LOAM, RARELY FLOODED	DETROIT	No	flood plain	---	---	---	---
079GC: GEARY SILT LOAM, 0 TO 1 PERCENT SLOPES	GEARY	No	hillslope	---	---	---	---
079GD: GEARY SILT LOAM, 1 TO 3 PERCENT SLOPES	GEARY	No	hillslope	---	---	---	---
079GE: GEARY SILT LOAM, 3 TO 6 PERCENT SLOPES	GEARY	No	hillslope	---	---	---	---
079HO: HOBBS SILT LOAM, OCCASIONALLY FLOODED	HOBBS	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	4, 3, 2A, 2B3	YES	YES	YES
115CH: CHASE SILTY CLAY LOAM, OCCASIONALLY FLOODED	CHASE	No	flood plain	---	---	---	---
	VERDIGRIS	No	flood plain	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
115CS: CLIME-SOGN SILTY CLAY LOAMS, 3 TO 20 PERCENT SLOPES	CLIME	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
115LG: LABETTE-SOGN SILTY CLAY LOAMS, 2 TO 15 PERCENT SLOPES	TULLY	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
115VC: VERDIGRIS SILT LOAM, CHanneled	DWIGHT	No	divide, hillside	---	---	---	---
	VERDIGRIS	No	flood plain	---	---	---	---
	BATES	No	hillside	---	---	---	---
115WB: WELLS LOAM, 1 TO 3 PERCENT SLOPES	ERAM	No	hillside	---	---	---	---
	OSAGE	Yes	flood plain	4, 2B3	YES	YES	NO
	ROCK OUTCROP	No	---	---	---	---	---
173EA: ELANDCO SILT LOAM, RARELY FLOODED	WELLS	No	hillslope	---	---	---	---
	CLIME	No	hillside	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
173EC: ELANDCO SILT LOAM, FREQUENTLY FLOODED	ELANDCO	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOILS	Yes	depression	2A, 3	YES	NO	YES
	Unnamed wet soils	Yes	drainageway	4, 2B3, 2A	YES	YES	NO
173VC: VANOSS SILT LOAM, 3 TO 6 PERCENT SLOPES	ELANDCO	No	flood plain	---	---	---	---
	Unnamed wet soils	Yes	drainageway	2A, 4, 3, 2B3	YES	YES	YES
	VANOSS	No	paleoterrace	---	---	---	---
AED: ARENTS, EARTHEN DAM	ARENTS, EARTHEN DAM	Unranked	---	---	---	---	---
Be: BENFIELD-LABETTE CHERTY SILTY CLAY LOAMS, 2 TO 12 PERCENT SLOPES	BENFIELD	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	SOGN	No	hillside	---	---	---	---
BOP: BORROW PITS	CLIME	No	hillside	---	---	---	---
	DWIGHT	No	hillside	---	---	---	---
	BORROW PITS	Unranked	---	---	---	---	---
Br: BREWER SILTY CLAY LOAM, RARELY FLOODED	BREWER	No	flood plain	---	---	---	---
	OSAGE	Yes	flood plain	2B3	YES	NO	NO
	VERDIGRIS	No	flood plain	---	---	---	---
Cs: CLIME-SOGN COMPLEX, 3 TO 15 PERCENT SLOPES	CLIME	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	rock outcrop	---	---	---	---	---	---
Dt: DWIGHT SILT LOAM, 0 TO 2 PERCENT SLOPES	DWIGHT	No	divide, hillside	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
	LABETTE	No	hillside	---	---	---	---
Dw: DWIGHT SOILS, 1 TO 2 PERCENT SLOPES, ERODED	DWIGHT	No	hillslope	---	---	---	---
	LABETTE	No	hillside	---	---	---	---
	FLORENCE	No	hillslope	---	---	---	---
Fc: FLORENCE CHERTY SILT LOAM, 5 TO 10 PERCENT SLOPES	DWIGHT	No	hillside	---	---	---	---
	LABETTE	No	hillside	---	---	---	---
	TULLY	No	hillside	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
FLL: FLORENCE-LABETTE COMPLEX, 2 TO 12 PERCENT SLOPES	FLORENCE	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	CLIME	No	hillside	---	---	---	---
	DWIGHT	No	divide, hillside	---	---	---	---
Go: GOESSEL SILTY CLAY, 0 TO 1 PERCENT SLOPES	GOESSEL	No	divide	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---
	ROSEHILL	No	hillside	---	---	---	---
GRP: GRAVEL PITS	GRAVEL PITS	Unranked	---	---	---	---	---
Gs: GOESSEL SILTY CLAY, 1 TO 3 PERCENT SLOPES	GOESSEL	No	hillslope	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
	ROSEHILL	No	hillside	---	---	---	---
Ic: IRWIN SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES	IRWIN	No	hillslope	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---
	NORGE	No	hillside	---	---	---	---
Id: IRWIN SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	IRWIN	No	hillslope	---	---	---	---
	DWIGHT	No	hillside	---	---	---	---
	LABETTE	No	hillside	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---
Ie: IRWIN SILTY CLAY LOAM, 3 TO 5 PERCENT SLOPES	IRWIN	No	hillslope	---	---	---	---
	DWIGHT	No	hillside	---	---	---	---
	LABETTE	No	hillside	---	---	---	---
	TULLY	No	hillside	---	---	---	---
If: IRWIN SILTY CLAY LOAM, 2 TO 5 PERCENT SLOPES, ERODED	IRWIN	No	hillslope	---	---	---	---
	DWIGHT	No	hillside	---	---	---	---
INT: AQUOLLS	AQUOLLS	Yes	depression, terrace	2B3,3	YES	NO	YES
IVC: IVAN SILT LOAM, CHANNELED	IVAN	No	channel, flood plain	---	---	---	---
	CHASE	No	flood plain	---	---	---	---
	DENNIS	No	hillside	---	---	---	---
	OSAGE	Yes	flood plain	2B3	YES	NO	NO
	MARTIN	No	hillside	---	---	---	---
IVF: IVAN SILT LOAM, OCCASIONALLY FLOODED	IVAN	No	flood plain	---	---	---	---
	CHASE	No	flood plain	---	---	---	---
La: LABETTE SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	DWIGHT	No	hillside	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
Lb: LABETTE SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES, ERODED	LABETTE	No	hillslope	---	---	---	---
	IRWIN	No	hillslope	---	---	---	---
	DWIGHT	No	hillside	---	---	---	---
Lc: LABETTE SILTY CLAY LOAM, 3 TO 5 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
	TULLY	No	hillside	---	---	---	---
Ld: LABETTE-DWIGHT COMPLEX, 1 TO 3 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	DWIGHT	No	hillslope	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---

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				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Le: LABETTE-SOGN COMPLEX, 2 TO 8 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
Ls: LADYSMITH SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	LADYSMITH	No	paleoterrace	---	---	---	---
	DWIGHT	No	hillside	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
M-W: MISCELLANEOUS WATER	MISCELLANEOUS WATER	Unranked	---	---	---	---	---
No: NORGE SILT LOAM, 0 TO 1 PERCENT SLOPES	NORGE	No	hillslope	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---
	VANOSS	No	hillside	---	---	---	---
Nr: NORGE SILT LOAM, 1 TO 3 PERCENT SLOPES	NORGE	No	hillslope	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
	TULLY	No	hillside	---	---	---	---
	VANOSS	No	hillside	---	---	---	---
Ns: NORGE SILT LOAM, 3 TO 5 PERCENT SLOPES	NORGE	No	hillslope	---	---	---	---
	OLPE	No	paleoterrace	---	---	---	---
	TULLY	No	hillside	---	---	---	---
Nt: NORGE SILTY CLAY LOAM, 3 TO 5 PERCENT SLOPES, ERODED	NORGE	No	hillslope	---	---	---	---
Od: OIL-WASTE LAND	OIL-WASTE LAND	Unranked	---	---	---	---	---
On: OLPE-NORGE COMPLEX, 2 TO 7 PERCENT SLOPES	OLPE	No	paleoterrace	---	---	---	---
	NORGE	No	terrace	---	---	---	---
Os: OSAGE SILTY CLAY, OCCASIONALLY FLOODED	OSAGE	Yes	flood plain	2B3	YES	NO	NO
	BREWER	No	flood plain	---	---	---	---
QUA: QUARRIES	QUARRIES	Unranked	---	---	---	---	---
Ro: ROSEHILL SILTY CLAY, 1 TO 3 PERCENT SLOPES	ROSEHILL	No	hillslope	---	---	---	---
	GOESSEL	No	hillside	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
So: SOGN SOILS, 0 TO 8 PERCENT SLOPES	SOGN	No	hillslope	---	---	---	---
	CLIME	No	hillside	---	---	---	---
	LABETTE	No	hillside	---	---	---	---
Ts: TULLY SILTY CLAY LOAM, 1 TO 4 PERCENT SLOPES	TULLY	No	hillslope	---	---	---	---
	NORGE	No	hillside	---	---	---	---
	VANOSS	No	hillside	---	---	---	---
Tt: TULLY SILTY CLAY LOAM, 3 TO 6 PERCENT SLOPES, ERODED	TULLY	No	hillslope	---	---	---	---
	NORGE	No	hillside	---	---	---	---
Tu: TULLY SILTY CLAY LOAM, 4 TO 7 PERCENT SLOPES	TULLY	No	hillslope	---	---	---	---
	IRWIN	No	hillside	---	---	---	---
	NORGE	No	hillside	---	---	---	---
Va: VANOSS SILT LOAM, 0 TO 1 PERCENT SLOPES	VANOSS	No	hillslope	---	---	---	---
	NORGE	No	hillside	---	---	---	---
Vb: VANOSS SILT LOAM, 1 TO 3 PERCENT SLOPES	VANOSS	No	hillslope	---	---	---	---
	NORGE	No	hillside	---	---	---	---
	TULLY	No	hillside	---	---	---	---
Vd: VERDIGRIS SILT LOAM, OCCASIONALLY FLOODED	VERDIGRIS	No	flood plain	---	---	---	---
	BREWER	No	flood plain	---	---	---	---

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				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Ve: VERDIGRIS SOILS, FREQUENTLY FLOODED	VERDIGRIS	No	flood plain	---	---	---	---
	TULLY	No	hillside	---	---	---	---
W: WATER	WATER	Yes	---	4,3	NO	YES	YES

FOOTNOTE: There may be small areas of included soils or miscellaneous areas that are significant to use and management of the soil; yet are too small to delineate on the soil map at the map's original scale. These may be designated as spot symbols and are defined in the published Soil Survey Report or the USDA-NRCS Technical Guide, Part II. Areas mapped as water or any map unit that contains one of the following conventional symbols is considered a hydric soil map unit: marshes or swamps; wet spots; depressions; streams, lakes and ponds.

1. All Histosols except Folists, or
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:
 - a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or
 - b. poorly drained or very poorly drained and have either:
 - (1) water table equal to 0.0 ft 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) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or
 - (3) water table at less than or equal to 1.0 ft from the surface 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.

