

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.

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Clay County, Kansas

PAGE 2 of 6

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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
029CT: CRETE SILT LOAM, 3 TO 6 PERCENT SLOPES	CRETE	No	hillslope	---	---	---	---
	HASTINGS	No	hillslope	---	---	---	---
029LO: LONGFORD SILTY CLAY LOAM, 3 TO 7 PERCENT SLOPES, ERODED	LONGFORD	No	hillslope	---	---	---	---
	HASTINGS	No	hillslope	---	---	---	---
	GEARY	No	hillslope	---	---	---	---
	WELLS	No	hillslope	---	---	---	---
061CF: CLIME-SOGN SILTY CLAY LOAMS, 5 TO 20 PERCENT SLOPES	CLIME	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	TULLY	No	hillslope	---	---	---	---
	IRWIN	No	hillslope	---	---	---	---
	TUTTLE	No	hillslope	---	---	---	---
	IVAN	No	flood plain	---	---	---	---
	KAHOLA	No	flood plain	---	---	---	---
	KONZA	No	ridge	---	---	---	---
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
143EE: EDALGO-HEDVILLE COMPLEX, 5 TO 30 PERCENT SLOPES	EDALGO	No	---	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
143HO: HOBBS SILT LOAM, FREQUENTLY FLOODED	HOBBS	No	flood plain	---	---	---	---
143HP: HOBBS-GEARY SILT LOAMS, 0 TO 15 PERCENT SLOPES	HOBBS	No	flood plain	---	---	---	---
	GEARY	No	---	---	---	---	---
201KS: KIPSON-SOGN COMPLEX, 5 TO 30 PERCENT SLOPES	KIPSON	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	TULLY	No	hillslope	---	---	---	---
	ROCK OUTCROP	---	---	---	---	---	---
	UNNAMED HYDRIC SOIL	Yes	drainageway, marsh	2B3	YES	NO	NO
	UNNAMED HYDRIC SOILS	Yes	hillslope, marsh	2B3	YES	NO	NO
201LH: LANCASTER-HEDVILLE LOAMS, 5 TO 30 PERCENT SLOPES	LANCASTER	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	EDALGO	No	hillslope	---	---	---	---
	ROCK OUTCROP	---	---	---	---	---	---
	UNNAMED HYDRIC SOIL (ponding)	Yes	depression, flood plain	3	NO	NO	YES
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
Be: BENFIELD SILTY CLAY LOAM, 3 TO 7 PERCENT SLOPES	BENFIELD	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	KIPSON	No	hillslope	---	---	---	---
	ROCK OUTCROP	---	---	---	---	---	---
Cb: CALCO SILTY CLAY LOAM, FREQUENTLY FLOODED	CALCO	Yes	flood plain	2B3	YES	NO	NO
	UNNAMED STRATIFIED SOILS (fine)	No	flood plain	---	---	---	---
	UNNAMED STRATIFIED SOILS (sandy)	No	flood plain	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Clay County, Kansas

PAGE 3 of 6

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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
Cg: CASS FINE SANDY LOAM, OCCASIONALLY FLOODED	CASS	No	flood plain	---	---	---	---
	EUDORA	No	flood plain	---	---	---	---
	MUIR	No	flood plain	---	---	---	---
	SARPY	No	flood plain	---	---	---	---
	HAYNIE	No	flood plain	---	---	---	---
Cr: CRETE SILT LOAM, 0 TO 1 PERCENT SLOPES	CRETE	No	ridge	---	---	---	---
	HOLDER	No	hillslope	---	---	---	---
Cs: CRETE SILT LOAM, 1 TO 3 PERCENT SLOPES	CRETE	No	hillslope	---	---	---	---
	BENFIELD	No	hillslope	---	---	---	---
	GEARY	No	hillslope	---	---	---	---
	HOBBS	No	flood plain	---	---	---	---
	HOLDER	No	hillslope	---	---	---	---
CSS: CRETE SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	LANCASTER	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
Ct: CRETE SILTY CLAY LOAM, 3 TO 7 PERCENT SLOPES	HOBBS	No	flood plain	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
Cx: CRETE SILTY CLAY LOAM, 3 TO 8 PERCENT SLOPES, ERODED	GEARY	No	hillslope	---	---	---	---
	HOLDER	No	hillslope	---	---	---	---
	BENFIELD	No	hillslope	---	---	---	---
	HOBBS	No	flood plain	---	---	---	---
	LANCASTER	No	hillslope	---	---	---	---
Ed: EDALGO SILTY CLAY LOAM, 4 TO 8 PERCENT SLOPES	CRETE	No	hillside	---	---	---	---
	GEARY	No	hillslope	---	---	---	---
	HOLDER	No	hillslope	---	---	---	---
	BENFIELD	No	hillslope	---	---	---	---
	HOBBS	No	flood plain	---	---	---	---
Er: EUDORA VERY FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	LANCASTER	No	hillslope	---	---	---	---
	EDALGO	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
Eu: EUDORA LOAM, OCCASIONALLY FLOODED	LANCASTER	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
	EUDORA	No	escarpment, terrace	---	---	---	---
Gc: GEARY SILT LOAM, 2 TO 7 PERCENT SLOPES	HAYNIE	No	flood plain	---	---	---	---
	SARPY	No	flood plain	---	---	---	---
	EUDORA	No	flood plain	---	---	---	---
	CASS	No	flood plain	---	---	---	---
	SARPY	No	flood plain	---	---	---	---
Gf: GEARY SILT LOAM, 9 TO 15 PERCENT SLOPES	UNNAMED HYDRIC SOIL (ponding)	Yes	depression, flood plain	3	NO	NO	YES
	GEARY	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	HOLDER	No	hillslope	---	---	---	---
	WELLS	No	hillslope	---	---	---	---
Gf: GEARY SILT LOAM, 9 TO 15 PERCENT SLOPES	HOBBS	No	flood plain	---	---	---	---
	GEARY	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	HOLDER	No	hillslope	---	---	---	---
	KIPSON	No	hillslope	---	---	---	---
	ROCK OUTCROP	---	---	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Clay County, Kansas

PAGE 4 of 6

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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
Gh: GEARY SILTY CLAY LOAM, 4 TO 9 PERCENT SLOPES, ERODED	GEARY	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	HOLDER	No	hillslope	---	---	---	---
	HOBBS	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
Gm: GIBBON LOAM, OCCASIONALLY FLOODED	GIBBON	No	flood plain	---	---	---	---
	EUDORA	No	flood plain	---	---	---	---
	CASS	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
He: HAYNIE-SARPY COMPLEX, OCCASIONALLY FLOODED	HAYNIE	No	flood plain	---	---	---	---
	SARPY	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL (ponding)	Yes	depression, flood plain	3	NO	NO	YES
Hn: HOBBS SILT LOAM, CHANNELED	HOBBS	No	flood plain	---	---	---	---
	MUIR	No	terrace	---	---	---	---
	UNNAMED HYDRIC SOIL (ponding)	Yes	depression, flood plain	3	NO	NO	YES
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
Ho: HOBBS SILT LOAM, OCCASIONALLY FLOODED	HOBBS	No	flood plain	---	---	---	---
	SUTPHEN	No	flood plain	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	GEARY	No	hillslope	---	---	---	---
	UNNAMED HYDRIC SOIL (ponding)	Yes	depression, flood plain	3	NO	NO	YES
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
Hr: HOLDER SILT LOAM, 3 TO 7 PERCENT SLOPES	HOLDER	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
Ks: KIPSON-SOGN SILTY CLAY LOAMS, 5 TO 20 PERCENT SLOPES	GEARY	No	hillslope	---	---	---	---
	KIPSON	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	BENFIELD	No	hillslope	---	---	---	---
	TULLY	No	hillslope	---	---	---	---
	GEARY	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	ROCK OUTCROP UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
Lc: LANCASTER LOAM, 3 TO 7 PERCENT SLOPES	LANCASTER	No	hillside	---	---	---	---
	WELLS	No	hillside	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	EDALGO	No	hillslope	---	---	---	---
	HEDVILLE	No	hillside	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Clay County, Kansas

PAGE 5 of 6

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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
Lh: LANCASTER-HEDVILLE COMPLEX, 5 TO 30 PERCENT SLOPES	LANCASTER	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
	EDALGO	No	hillslope	---	---	---	---
	WELLS	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	ROCK OUTCROP	---	---	---	---	---	---
	UNNAMED HYDRIC SOIL (ponding)	Yes	depression, flood plain	3	NO	NO	YES
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
LN: LONGFORD SILT LOAM, 3 TO 7 PERCENT SLOPES	LONGFORD	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	WELLS	No	hillslope	---	---	---	---
	HOBBS	No	flood plain	---	---	---	---
	LANCASTER	No	hillslope	---	---	---	---
M-W: MISCELLANEOUS WATER	MISCELLANEOUS WATER	Unranked	---	---	---	---	---
Mu: MUIR SILT LOAM, RARELY FLOODED	MUIR	No	flood plain	---	---	---	---
	DETROIT	No	stream terrace	---	---	---	---
	SUTPHEN	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL (ponding)	Yes	depression, flood plain	3	NO	NO	YES
Sa: SARPY LOAMY FINE SAND, 0 TO 5 PERCENT SLOPES, RARELY FLOODED	SARPY	No	dune, terrace	---	---	---	---
	CASS	No	flood plain	---	---	---	---
Su: SUTPHEN SILTY CLAY LOAM, OCCASIONALLY FLOODED	EUDORA	No	flood plain	---	---	---	---
	SUTPHEN	No	flood plain	---	---	---	---
	DETROIT	No	stream terrace	---	---	---	---
	MUIR	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL (ponding)	Yes	depression, flood plain	3	NO	NO	YES
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
Tu: TULLY SILTY CLAY LOAM, 2 TO 7 PERCENT SLOPES	TULLY	No	hillslope	---	---	---	---
	CRETE	No	hillslope	---	---	---	---
	GEARY	No	hillslope	---	---	---	---
	KIPSON	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	ROCK OUTCROP	---	---	---	---	---	---
W: WATER	WATER	Yes	---	4, 3	NO	YES	YES
We: WELLS LOAM, 3 TO 7 PERCENT SLOPES	WELLS	No	hillslope	---	---	---	---
	LANCASTER	No	hillslope	---	---	---	---
	GEARY	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Clay County, Kansas

PAGE 6 of 6

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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

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.

