WETLAND
Information Guide

St. Louis County
Planning and Development

Wetlands

What is a Wetland

A wetland is a term used to describe a wide variety of wet environments from a slight depression that holds water after spring runoff to a forested swamp with muck soils. Applying Federal standards, a wetland is saturated with water either above the soil surface or just below it, and covered by vegetation adapted to definable hydric (wet) soil conditions.

Vegetation: Common wetland vegetation includes willows, alder, black ash, black spruce, white cedar, tamarack, balsam poplar, cattails, peat moss, ostrich fern, cinnamon fern, Canada bluejoint grass, and sedges (especially those sedges with large leaves).

Soils: Soils formed under prolonged periods (5% of the growing season and equal to seven consecutive days in our area) of saturation with little or no free oxygen (anaerobic) are called hydric soils. Mineral soils (clays, silts, sands) with bright red or yellow colors become dull colored (grays, dull blues or greens) under anaerobic conditions. Often there are streaks or blotches of reds or yellows mixed with the dull colored hydric soil. These mixed colors are called mottles or redoximorphic features.

Organic matter under anaerobic conditions decomposes very slowly to form thick layers of peat or muck. Hydric soils of organic origin are brown to dark black.

Water (Hydrology): The presence of water or any indication of inundation or saturation at a site is an indication of a wetland.

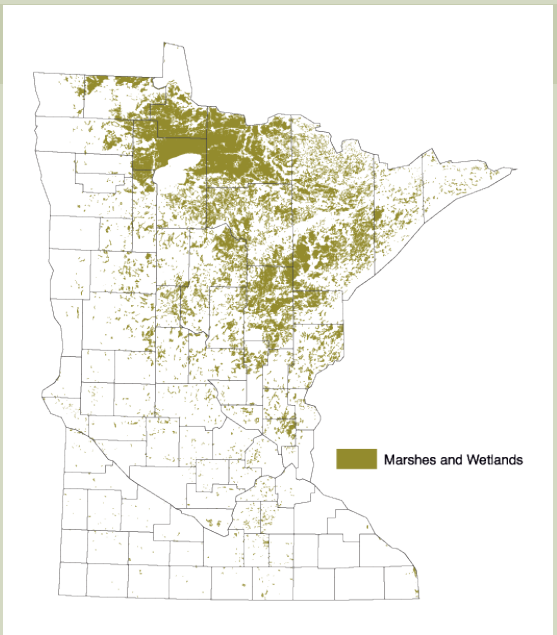
Wetland Types

There are 8 wetland types, some are easily identifiable by areas of standing water or tree growth.

Wetland Functions, Values & Benefits

Wetlands serve a variety of functions and values beneficial to the general public and environment. The degree to which a wetland serves these functions depends on the hydrology, soil, vegetation, size, and location of the wetland in the landscape. Although a wetland may not serve all functions, each wetland works in combination with other wetlands as part of a complex integrated system.

Wetlands provide ground water recharge and discharge, as well as flood and erosion control. They act as filters for cleaner water and lakes, and provide fishery habitat for spawning and food, wildlife habitat, recreation and income for specialized industries.



Wetland Protection

The goal of wetland protection is ensuring no net loss of wetlands. Federal laws--enforced through the U.S. Army Corps of Engineers--as well as Minnesota's Wetland Conservation Act of 1991 are in place to protect wetlands from negative impacts including filling, draining and, in some cases, excavation.

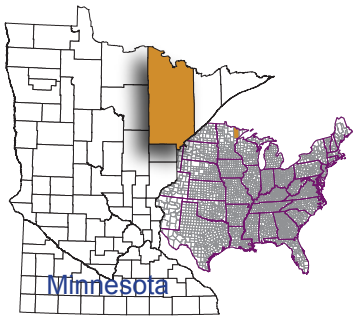
Wetland protection is the realization of the importance of wetlands to the natural environment and economy.

Wetlands in St. Louis County

St. Louis County has over 1,000 lakes, countless rivers and streams, and hundreds of thousands of acres of wetlands that provide recreational opportunities to both residents and tourists.

This guide is designed to give general information about wetland regulations, identifying wetland areas, common species of vegetation, and impacts to wetland areas for residents, contractors, and professionals associated with shoreland property.

Please review the guide to find relevant information and resources. Further information can be obtained by calling, emailing, visiting offices, or accessing the web sites available on the back page of this information guide.



Revised 2-2008
WET-QG

Wetland Types

Type 1 Seasonally Flooded Basin or Flat

A Fresh (Wet) Meadow

About: Soils are usually dry or well drained but may be intermittently inundated or saturated during the growing season. In forested landscapes, these may blend almost imperceptibly into the surrounding upland forest during dry periods.

Vegetation: Plants include tag alder, shrub willows, small sedges, Canada bluejoint grass, and some forbs such as smooth goldenrod. In forested areas sapling trees of ash, red maple, and more typical mature upland species such as quaking aspen may become established.

Soils: Slight concave areas in swales or toe slope and foot slope positions. Soils are reddish or brown with mottles (redoximorphic features) in the upper 12 inches. Examples are Ellsburg soils and Canosia series soils.

B Floodplain Forest

About: Usually found along streams or rivers, floodplain forest soils are somewhat well drained during the growing season but are flooded in the spring or after heavy rains. Flooding frequencies vary from frequent (1 out of 2 years) to occasional (2 to 5 years out of 10 years).

Vegetation: Balsam poplar, black ash, and green ash are common. In some areas silver maple, red maple, and bur oak predominate. Because these sites are not permanently saturated, some typical upland trees may be present. Herbaceous vegetation includes ostrich fern, lake sedge and similar large sedges, northern bluebells, hedge nettle, and skullcap.

Soils: Fluvaquents and Udifluvents with sandier textures but may include strata of silts and clay. Organic matter may be present between the layers of mineral soils or on the surface.

C Seasonally Flooded Basin

About: Dry during much of the growing season and generally less than an acre in size, these look like part of the forest. Water is usually gone by mid-summer but the basins may re-fill after heavy rains. Flooding frequencies are similar to floodplain forests.

Vegetation: Populated by black and green ash, red maple, elm, balsam poplar, and/or quaking aspen trees. Some tag alder and shrub willows may be present. Herbaceous plants include sensitive fern, wild iris, and Canada bluejoint grass. Seasonally flooded basins with temporary open water may also contain cow parsnip, bur-reed, and water crowfoot.

Soils: Fluvaquents and Udifluvents with sandier textures but may include strata of silts and clay.

Type 2 Inland Fresh Meadow

A Fresh (Wet) Meadow

About: Soil is usually without standing water for most of the growing season but is waterlogged within at least a few inches of the surface. Meadows may fill shallow basins, sloughs, or farmland sags, or they may border shallow marshes on the landward side.

Vegetation: Broad-leaved sedges such as lake sedge and beaked sedge, wool-grass, Canada bluejoint grass. Disturbed sites may have redtop grass and canary grass as abundant or dominant species. Forbs are not usually conspicuous in these sedge-dominated wetlands but can include swamp aster, beggar's ticks (Bidens), and bugleweed.

Soils: Formed in depressional areas or adjacent to marshland. Soils will have mottles (redoximorphic features) in the upper 12 inches and may have a dominance of grayish colors. Examples are Bergland, Giese, and Spooner series.

B Sedge Meadow

About: The soil is saturated throughout the growing season and usually has some standing water. Vegetation is dominated by sedges.

Vegetation: The dominant plants are large sedges (tussock, lake, beaked, retrorse). Wool-grass and other similar Scirpus species are common as is Canada bluejoint grass. Forbs include giant goldenrod, panicled aster, flat-top white aster, swamp aster, joe-pye-weed, bugleweed, and wild mint. Shrub willows (such as meadow, Bebb's, and pussy willows) and alders may be present along the edges or on high spots.

Soils: Formed in depressional areas or adjacent to marshland. Soils will have mottles (redoximorphic features) in the upper 12 inches and may have a dominance of grayish colors. Examples are Bergland, Giese, and Spooner series. Organic surface layers may be present in some cases. Examples of these are Blackhoof, Baden series.

Type 3 Shallow Marsh

About: Saturated soils covered with about 6 inches of water throughout the growing season.

Vegetation: Herbaceous emergent aquatics and some floating aquatics including broad-leaf cattail, giant and green bur-reed, pink smartweed, arrowhead, and duckweed. Small bladderwort (Utricularia minor) and some species of pondweed (Potamogeton) may be found in the deepest parts of the marsh.

Soils: Mineral soils with gleyed colors of bluish, greenish, or grayish. Organic soils if present may have a hydrogen sulfate odor. Examples are Seelyville, Cathro, Markey, and Blackhoof series.

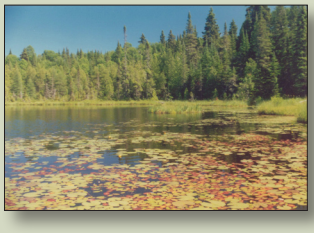
Type 4 Deep Marsh

About: Saturated soils covered with 6 inches to 3 feet of water throughout the growing season.

Vegetation: : Herbaceous emergent, floating, and submerged aquatics including broad-leaf cattail, giant bur-reed, soft-stem and hardstem bulrushes, river bulrush, wild rice, arrowhead, coontail, water milfoil, common bladderwort (Utricularia macrorhiza), and various species of pondweed (Potamogaton).

Soils: Mineral soils with gleyed colors of bluish, greenish, or grayish. Organic soils if present may have a hydrogen sulfate odor. Examples are Seelyville, Cathro, Markey, and Blackhoof series.

Type 5 Open Water



About: Shallow open water between 6 and 10 feet deep fringed by emergent, floating, and submergent vegetation.

Vegetation: Herbaceous emergent, floating, and submerged aquatics including broad-leaf cattail, giant bur-reed, soft-stem and hardstem bulrushes, river bulrush, water lilies, wild rice, arrowhead, coontail, water milfoil, common bladderwort (Utricularia macrorhiza), and various species of pondweed (Potamogeton).

Soils: Mineral soils with gleyed colors of bluish, greenish, or grayish. Organic soils if present may have a hydrogen sulfate odor. Examples are Seelyville, Cathro, Markey, and Blackhoof series.

Type 6 Shrub Swamps

A Shrub-Carr

About: Willow and other deciduous woody shrubs forming thickets on saturated to seasonally flooded soils.

Vegetation: Meadow willow is most common but Bebb's willow, tea-leaf willow, and pussy willow are also frequent. Other species include red osier dogwood, meadowsweet, highbush cranberry, tag alder, and currants. Herbaceous species include Canada bluejoint grass, joe-pye-weed, smooth goldenrod, sensitive fern, wild mint, bedstraw, and sedges. Canary grass and redtop grass are present in disturbed sites.

Soils: Very poorly drained mineral soils with grayish colors or red soils with mottles (redoximorphic features). Organic soils may also be present with a thickness of 2 to 51 inches. Examples are Giese, Baden, Cathro, and Markey series.

B Alder Thicket

About: Deciduous woody shrub community dominated by tag alder.

Vegetation: Tag alder with winterberry holly, highbush cranberry, shrubby willows, manna grass, sensitive fern, wild mint, and bugleweed. Some sites may have scattered tamarack, white cedar, and black ash trees and saplings. Canary grass and redtop grass are present in disturbed sites.

Soils: Very poorly drained mineral soils with grayish colors or red soils with mottles (redoximorphic features). Organic soils may also be present with a thickness of 2 to 51 inches. Examples are Giese, Baden, Cathro, and Markey series.

Type 7 Wooded Swamps

A Hardwood Swamp

About: Forested swamps dominated by lowland hardwoods in basins and troughs. Vegetation is lush and species diversity is high. Groundwater interaction or water flow through is evident. There may be a layer of gravel, cobbles and boulders under the soil.

Vegetation: Dominated by black ash but often with red maple, yellow birch, and elm. Conifers such as white cedar, tamarack, and black spruce may be present. Shrubs include tea-leaf willow, tag alder, and winterberry holly. Herbaceous species are cinnamon fern, oak-leaf fern, woodland horsetail, wild iris, turtlehead, marsh marigold, swamp saxifrage, golden saxifrage, Canada bluejoint grass, Carex crinita, and swamp aster. Peat mosses are scarce or absent and instead large leafy mosses (such as Mnium, Climacium, and Thuidium) are common.

Soils: Very poorly drained soils, organic layer with a thickness of 8 to greater than 51 inches, muck or mucky peat. Examples are Baden, Cathro, and Dora series.

B Coniferous Swamp

About: Forested swamps dominated by lowland conifers in basins and troughs. Vegetation is lush and species diversity is high. Groundwater interaction or water flow through is evident. There may be a layer of gravel, cobbles and boulders under the soil.

Vegetation: Usually a mix of white cedar, tamarack, and black spruce. Black ash, red maple, yellow birch, and balsam fir are occasionally found. Shrubs include tea-leaf willow, tag alder, and winterberry holly. Labrador tea can occur, also. Herbaceous species are cinnamon fern, woodland horsetail, oak-leaf fern, wild iris, turtlehead, marsh marigold, Canada bluejoint grass, bristly sedge, and swamp aster. Peat mosses are often present but do not include true acidic bog species.

Soils: Very poorly drained soils, organic layer with a thickness of 8 to greater than 51 inches, pH ranges from calcareous to medium acid. Examples are Mooselake, Lupton, and Tacoosh series.

Type 8 Bogs

A Open Bog

About: Open bogs are composed of living Sphagnum mosses over saturated fibric acidic peat. Vegetation is limited to a few species of sedges, black spruce, tamarack, and woody shrubs in the plant family known as Ericaceae that includes such familiar plants as rhododendron and blueberry.

Vegetation: Sphagnum moss is often the most abundant plant in terms of biomass. Other plant species include low woody shrubs with Labrador tea, leather-leaf, bog laurel, and bog rosemary being the most conspicuous. Small cranberry is common. Stunted shrub-like plants of tamarack and black spruce are usually present. A few sedges and their relatives are unique to acidic open bogs and include Carex pauciflora and cotton-grass (Eriophorum spissum). Another typical bog sedge is Carex oligosperma (few-seeded sedge).

Soils: Fibric acidic peats saturated to the surface during the growing season. The organic layer is 16 inches to greater than 51 inches. Examples are Greenwood, Loxley, and Merwin.

B Coniferous Bog

About: Coniferous bogs are similar to open bogs but have a canopy of mature tamarack and black spruce. Sphagnum moss may be common or it may be co-dominant with feather moss (Pleurozium). When coniferous bogs form on extensive raised mounds of moss, the upper layers are essentially cutoff from subsurface water and may appear dry.

Vegetation: Sphagnum moss and feather moss are conspicuous. The extent of canopy closure will determine the abundance of vascular plants. Small cranberry, snowberry, and small fine-leaved sedges such as Carex disperma are common in the dim light of coniferous bogs. Labrador tea and bristly clubmoss are often present, too.

Soils: Fibric acidic peats with woody fragments saturated to the surface during the growing season. The organic layer is 16 inches to greater than 51 inches. Examples are Greenwood, Loxley, and Merwin.

St. Louis County Contact Information

Wetland Administration, Technical Assistance & Enforcement

Primary Contact for all Wetlands Issues

Contact these agencies **FIRST** if you suspect wetlands exist, to request a review, or obtain necessary permits for projects that may affect wetlands.

St. Louis County
Planning and Development

Local administers of the Minnesota Wetland Conservation Act. Provides plan and site reviews for wetland determinations, delineations, banking and replacement. Coordinates enforcement with DNR.

St. Louis County
Planning and Development
Northland Office Bldg
307 1st St. S.
Virginia, MN 55792
Phone: 218-749-0633
800-450-9777
Fax: 218-749-0620

www.co.st-louis.mn.us

Soil & Water Conservation District
North St. Louis
or
South St. Louis

Provides technical, educational, and financial resources to land occupiers in order to implement practices and projects that preserve, protect, and enhance water quality and other natural resources.

North St. Louis County
Soil and Water
Conservation District (SWCD)
Northland Office Bldg
307 1st St. S., Ste 114
Virginia, MN 55792
Phone: 218-742-9505
Fax: 218-742-9515

www.nslswcd.org

South St. Louis County
Soil and Water
Conservation District (SWCD)
215 N. 1st Ave. E.
Duluth, MN 55802
Phone: 218-723-4867
Fax: 218-723-4731

www.southstlouisswcd.org

Fond Du Lac Reservation
Office of Water Protection

Administers wetland regulations on all lands on the Fond du Lac Reservation and provides technical and educational resources to help protect and enhance water quality.

Fond du Lac Reservation
Office of Water Protection
1720 Big Lake Rd.
Cloquet, MN 55720
Phone: 218-878-8022
Fax: 218-879-4854

After working with primary contacts, try these agencies for additional technical assistance.

U.S. Army Corps of Engineers

US Army Corps of Engineers
St. Paul District

Regulates deposition of fill or dredge material in waters of the U.S. or adjacent wetlands through section 404 of the Clean Water Act and section 10 of the Rivers Water Act of 1899.

U.S. Army
Corps of Engineers
1554 Hwy. 2, Ste 2
Two Harbors, MN 55616
218-834-6630

www.mvp.usace.army.mil

State of Minnesota
Board of Water & Soil Resources (BWSR)

Minnesota Board of Water & Soil Resources

State Administration of the Minnesota Wetland Conservation Act

BWSR
394 S. Lake Ave. Ste 403
Duluth, MN 55802
Phone: 218-723-4923
Fax: 218-723-4794

www.bwsr.state.mn.us

State of Minnesota
Department of Natural Resources (DNR)
Waters Division

DNR Waters

Regulates Public Waters Permits for all work within public water wetlands of types 3, 4 and 5 that are 10 or more acres in size or 2.5 acres in incorporated areas.

DNR Waters
Duluth Metro
1568 Hwy. 2
Two Harbors, MN 55616
Phone: 218-834-6621
Fax: 218-834-6639

Rest of St. Louis County
7979 Hwy. 37
Eveleth, MN 55734
Phone: 218-744-7450
Fax: 218-744-7451

www.dnr.state.mn.us

About the Guide

This guide is designed to give general information about wetland regulations, identifying wetland areas, common species, and impacts to wetland areas for residents, contractors, and professionals associated with shoreland property.

St. Louis county has over 1,000 lakes, countless rivers and streams, and hundreds of thousands of acres of wetlands that provide recreational opportunities to both residents and tourists.

Obtaining the Guide

Copies of this guide are available free to all residents. Requests for a large number of guides should be directed to St. Louis County Planning and Development and may be charged a minimal fee to cover printing and production costs. All requests should be directed to:

218-725-5000
Toll Free Minnesota 800-450-9777
www.co.st-louis.mn.us

St. Louis County
Planning and Development
227 West First Street
100 Missabe Building
Duluth, MN 55802

Publishing Information

The Wetland Guide was developed and published by St. Louis County Planning and Development.

Information Updates

St. Louis County strives to maintain the latest information available. If any information in this guide is incorrect or any additional information is needed, please contact St. Louis County Planning and Development, 218-725-5000.