

## 2.5 Wetlands & Floodplains

Wetlands are areas where the soil is inundated by surface or ground water often enough that the prevalent vegetation community there is one adapted for life in saturated soils. The term “wetlands” covers a diverse set of conditions, including swamps, marshes, bogs and fens. The timing and duration of soil saturation largely determines how the soil develops and the particular community of plants and animals living in and on the soil. The prolonged presence of water creates conditions that favor the growth of specially adapted plants (hydrophytes) and promote the development of characteristic wetland (hydric) soils.<sup>1</sup>

Long regarded as wastelands, wetlands are now recognized as important features in the landscape that provide numerous beneficial services for people and for fish and wildlife. Some of these services, or functions, include protecting and improving water quality, providing fish and wildlife habitats, storing floodwaters, and maintaining surface water flow during dry periods. These beneficial services are the result of the inherent and unique natural characteristics of wetlands.<sup>2</sup>

### Federally Designated Wetlands

The National Wetlands Inventory (NWI) of the U.S. Fish & Wildlife Service produces information on the characteristics, extent, and status of the Nation’s wetlands and deepwater habitats.<sup>3</sup>

According to NWI maps there are 79 federal designated wetlands totaling 128.7 acres, including open water in the West Kill Watershed. These wetlands are 54% Palustrine and 46% Riverine. Palustrine wetlands include inland marshes and swamps as well as bogs, fens, tundra and floodplains. Palustrine systems include any inland wetland which lacks flowing water and contains ocean derived salts in concentrations of less than .05%. The Riverine System includes all wetlands and deepwater habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Upland islands or Palustrine wetlands may occur in the channel, but they are not part of the Riverine System.<sup>4</sup>

Table 2.6.1

NWI Code	NWI Wetland Classification	Acres	%
R2	Riverine Lower Perennial	54.6	42%
PFO	Palustrine Forested	34.4	27%
PSS	Palustrine Scrub-Shrub	15.0	12%
PUB	Palustrine Unconsolidated Bottom	14.4	11%
PEM	Palustrine Emergent	5.3	4%
R3	Riverine Upper Perennial	5.0	4%

Table 2.6.1 shows a breakdown of wetland types found in the West Kill Watershed. The dominant wetland type, comprising 42% of the wetlands is Riverine Lower Perennial.

Lower Perennial wetlands are characterized by a low gradient and slow water velocity. There is no tidal influence, and some water flows throughout the year. The substrate consists mainly of sand and mud. The floodplain is well developed. Oxygen deficits may sometimes occur.<sup>4</sup>

These wetlands are protected under the Clean Water Act, a 1977 amendment to the Federal Water Pollution Control Act of 1972, which set the basic structure for regulating discharges of pollutants to waters of the United States.<sup>5</sup> Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Activities in waters of the United States that are regulated under this program include fills for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry.<sup>6</sup>

### New York State Designated Wetlands

The Freshwater Wetlands Act (FWA), Article 24 of the Environmental Conservation Law, provides DEC and the Adirondack Park Agency (APA) with the authority to regulate freshwater wetlands in the state. The NYS Legislature passed the Freshwater Wetlands Act in 1975 in response to uncontrolled losses of wetlands and problems resulting from those losses, such as increased flooding. The FWA contains the following Declaration of Policy:

"It is declared to be the public policy of the state to preserve, protect and conserve freshwater wetlands and the benefits derived therefrom, to prevent the despoliation and destruction of freshwater wetlands, and to regulate use and development of such wetlands to secure the natural benefits of freshwater wetland, consistent with the general welfare and beneficial economic, social, and agricultural development of the state (ECL Article 24-0103)."

The FWA protects those wetlands larger than 12.4 acres (5 hectares) in size, and certain smaller wetlands of unusual local importance. The law requires DEC and APA to map those wetlands that are protected by the FWA. In addition, the law requires DEC and APA to classify wetlands. Outside the Park, DEC classifies wetlands according to 6NYCRR Part 664, Wetlands Mapping and Classification Regulations from Class 1, which provide the most benefits, to Class IV, which provide the fewest benefits. Around every regulated wetland is a regulated adjacent area of 100 feet, which serves as a buffer area for the wetland.<sup>7</sup>

The West Kill Watershed does not contain any NYSSEC designated wetlands.

Both Federal and NYS Designated Wetlands maps are available at County Soil & Water Conservation District Offices. It must be cautioned that these maps should only be used as guidance of wetland locations and boundaries. It is the responsibility of the property owner to determine if wetland areas will be disturbed. Smaller wetlands which meet federal criteria may not have been mapped but are still protected by federal regulations.

The NYSDEC offers wetland delineation services to landowners when they need more precise information, such as when they are planning to conduct work near a NYSDEC designated wetland area.

### Floodplains

A floodplain is streamside land that gets periodically inundated by floodwaters. Floodplains are important because they temporarily store floodwaters, improve water quality, and provide important habitat for wildlife. Natural floodplains help reduce the heights of floods. During periods of high water, floodplains serve as natural sponges, storing and slowly releasing floodwaters. The floodplain provides additional "storage," reducing the velocity of the river and increasing the capacity of the river channel to move floodwaters downstream. Natural floodplains also help improve water quality. As water courses through the floodplain, plants serve as natural filters, trapping sediments and capturing pollutants.<sup>8</sup>

One of the largest problems facing floodplain management is the disconnection of a stream from its floodplain. Management practices such as channelization, straightening, development, and loss of riparian vegetation may lead to stream channel *incision* or down-cutting. As the stream incises it will lower the streambed elevation, no longer allowing flood waters to spill out into the floodplain. As a result flood velocity will increase causing streambank degradation until a new floodplain is created at the lower streambed elevation. Building homes within the floodplain is incompatible with proper floodplain function. Many people want to live by streams but as they develop the floodplain, they often increase stream degradation by undertaking stream management activities to protect their property from flooding.

The Federal Emergency Management Agency (FEMA) performs hydrologic and hydraulic studies to produce Flood Insurance Rate Maps (FIRM), which identify flood-prone areas.<sup>9</sup> These studies analyze the data from local streamflow gages to predict how frequently different floods will occur, and to determine the magnitude of the benchmark "100-Year Flood". This is the flow that has a statistical probability of recurring once every 100 years, but because it is a statistical prediction, based on historical record, "100-year floods" could be seen more or less frequently than every hundred years, especially if changes in climate or land use occur. An engineering model is then used to map the predicted boundaries of the 100-year flood on the floodplain. Towns then use these maps to help determine areas where the risk of flooding is high enough to warrant special precautions or review of land development. Towns are required to pass a floodplain protection ordinance that sets certain limits on building in the 100-year floodplain in order to participate in the National Flood Insurance Program.

Some towns develop other ordinances that help focus review of development on lands that could affect stream and floodplain function. One example of an innovative model in effect in part of the West Kill watershed is the ordinance that was adopted by the Town of Woodstock. The text of this ordinance can be found at <http://www.gcsxcd.com/>

## Digital Flood Mapping Project

The NYSDEC Bureau of Flood Protection is developing new digitized floodplain maps, using topographic information derived from an airborne laser imaging technology called LIDAR (Light Detection and Ranging). LIDAR data, together with updated computer HEC models and digital aerial photography, enable engineers to produce extremely detailed and accurate maps. Modeling with this new data will allow for flood contour lines indicating various depths of water under 100 year and other flood conditions.

1 <http://www.epa.gov/owow/wetlands/vital/what.html>

2 [http://www.epa.gov/owow/wetlands/fun\\_val.pdf](http://www.epa.gov/owow/wetlands/fun_val.pdf) US EPA publication 843-f-01-002c March 2002  
Functions and Values of Wetlands

3 <http://www.nwi.fws.gov/aboutus.htm>

4 <http://www.nwi.fws.gov/atx/atx.html> Wetlands and Deepwater Habitats Classification National Wetlands  
Inventory Mapping Code Description

5 <http://www.epa.gov/owow/wetlands/laws/>

6 <http://www.epa.gov/owow/wetlands/facts/fact10.html>

7 <http://www.dec.state.ny.us/website/dfwmr/habitat/fwwprog4.htm>

8 <http://www.americanrivers.org/floodplainstoolkit/value.htm>

9 <http://www.msc.fema.gov/prodover.shtml>