

## AN INTRODUCTION TO WETLANDS

The term "wetland" describes, in a collective way, what are more commonly known as marshes, bogs, swamps, wet meadows and shallow ponds. There are several technical definitions of wetlands. For regulatory and legal purposes, the Commonwealth of Pennsylvania (25 Pa. Code Chapter 105) uses the following:

"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions...."

### The Water Cycle

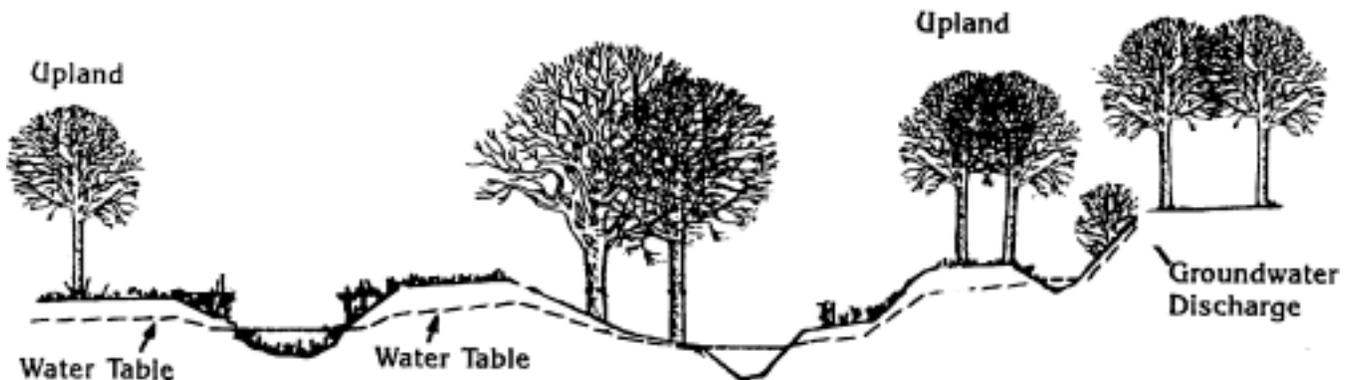
Water continually circulates in our environment. This cyclic movement of water is called the hydrologic (water) cycle. Water evaporates from the oceans, lakes, streams and soils to become part of the vapor of the atmosphere. Where it condenses to form clouds. Rain, snow, and other forms of precipitation, return the water to the earth's surface. Water that reaches the ground may collect in natural basins where it is stored. It also flows over the terrain, finding its way to creeks and streams, or it infiltrates the soil and joins the groundwater reserve. From the heart of the earth, groundwater can discharge to produce seeps and springs that feed our wetlands. Regardless of its origin, water that collects on a site frequently, or remains there long enough, may create special habitats called wetlands.

### Wetland Values and Functions

To some people wetlands are the sources of swamp gas, malaria and fear. To others, they are treasured places of beauty, recreation, education, mystery and intrigue. Many plant and animal species are entirely dependent upon wetlands for survival. Animals spawn, nest, breed, rest and raise their young in wetlands. Plants find suitable conditions to germinate, grow and flower there.

Wet environments, together with large amounts of nutrients often result in an abundance of vegetation. This mass of plant material traps the sun's energy and is a driving force in the wetland. Due to their great productivity, wetlands are rich with diverse species, a phenomenon known as biodiversity.

## Schematic Diagram Showing Wetlands and Uplands on the Landscape



Schematic diagram showing wetlands, and uplands on the landscape. Note differences in wetlands due to hydrology and topographic position.

The large number of species dwelling in some types of wetlands, means that they are vast libraries of genetic material. Wetlands also function to improve water quality, add to a healthy environment, and aid the human family in varied ways. They help control flooding and assist in purifying water.

### **Wetland identification**

Wetlands are identified by unique soils (called *hydric soils*), by plants adapted to life in wet environments (*hydrophytic vegetation*) and by the presence of water (*hydrology*) during the growing season.

The majority of wetlands in Pennsylvania are inland, freshwater areas not subject to tidal influence. However, very significant wetlands occur in portions of Erie, and tidal regions of Delaware, Bucks and Philadelphia counties. Both coastally and inland in Pennsylvania, wetlands serve areas well beyond their boundaries. For example local wetlands that act as sponges, absorbing heavy rainfall, prevent downstream flooding. Fish spawning at one site, may be observed at another site not situated near the breeding area.

### **Wetland Types**

Several types of wetlands have been described by biologists, based on their vegetation. They include:

**Forested Wetlands** - As the name implies, these are wet habitats where large woody trees (over 20 feet in height), such as red or silver maple, river birch, blackgum, and green ash find a home. Almost 45 percent (221,000 acres) of the state's wetlands are forested.

**Scrub-shrub Wetlands** - These are inhabited by spicebush, swamp honeysuckle, highbush blueberry, winterberry, alder and willows, to name a few. This type of wetland is also dominated by small trees less than 20 feet in height. Twenty eight percent, or 139,000 scrub-shrub acres, existed in 1979 in the Commonwealth.

**Emergent Wetlands** - Wetlands which are vegetated by grasses, sedges, rushes, and other herbaceous plants that emerge from the water or soil surface. Emergent wetlands are only one-third as abundant as forested wetlands and only one-half as common as the scrub-shrub types. About 70,000 acres (14 percent of the states wetlands) were emergent in 1979. Between 1956 and 1979, 38 percent (42.5 thousand acres) of emergent wetlands disappeared.

### **Pennsylvania Gains**

In the past, we have lost many acres of important wetlands that functioned for our benefit. Because we value wetlands and, therefore, do not want to continue destroying them, they are protected by both Federal and state laws. Between 1990 and 1997 Pennsylvania gained 3107 acres of wetlands. The highly successful Partners for Wildlife Program, managed by USFWS, and the Wetland Reserve Program, implemented by NRCS, have contributed greatly to the Commonwealth's wetlands resource. These voluntary landowner assistance programs demonstrate the high level of interest for the restoration of our natural resources.

#### **FOR MORE INFORMATION CONTACT:**

**Department of Environmental  
Protection Bureau of Water Quality  
Protection Division of Waterways,  
Wetlands & Erosion Control P.O. Box  
8775 Harrisburg, PA 17105-8775 717-  
787-6827 Fax 717-772-5986**

This fact sheet and related environmental information are available electronically via Internet. For more information, visit us through the Pennsylvania homepage at <http://www.state.pa.us> or visit DEP website at <http://www.dep.state.pa.us> (choose Information by Subject/Water Management/Water Quality Protection/Waterways, Wetlands and Erosion Control).