

7. Wetlands Conservation

Mucking Through the Myths

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“The very existence of our nation, and of all the rest, depends on conserving the resources which are the foundations of its life.”

~ Gifford Pinchot

Swamps, marshes or bogs, whatever you choose to call them, wetlands play a vital role in the overall balance of the environment. Long regarded as wastelands, wetlands are now recognized for the numerous benefits they provide for both people and the environment including supporting a wide diversity of plants and wildlife, providing stormwater and flood control, improving water quality, supporting ecotourism, sustaining groundwater supplies and supporting recreational opportunities.

What Makes a Wetland a Wetland?

Wetlands generally occur in low-lying areas and depressions in the landscape, or in shallow water areas along rivers, lakes or ponds. Some wetlands, however, are found on slopes where groundwater seeps

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to the surface. Wherever they are found, wetlands all have the following characteristics in common:

- **Hydric soils** – soils that show characteristics of being periodically saturated
- **Hydrophytic vegetation** – plants adapted to life in wet environments
- **Wetland hydrology** – the presence of water for extended periods of time at or near the surface

State and federal agencies responsible for wetlands protection use the following definition to describe wetlands and the conditions that create them:

“Areas that are inundated or saturated by surface water 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, including swamps, marshes, bogs, and similar areas.”

Wetlands Are Vital Yet Vulnerable Natural Systems

In the 1600s, over 220 million acres of wetlands are thought to have existed in the lower 48 states. Since then, extensive losses have occurred, with over half of these original wetlands drained, filled or converted to other uses.

The picture is similar in Pennsylvania. In the late 1700s, the Commonwealth had over 1 million acres of wetlands. Today, less than half remains, covering about 2 percent of the state's total land area. Most remaining wetlands in PA are located in the glaciated northwestern and northeastern Pocono Mountains regions of the state, including Pike County.

Regulatory Protection for Wetlands

Wetlands are protected by federal, state and local laws. Commonly prohibited activities include filling, dredging or draining. Construction of bridges, walkways, docks, roads or levees across wetlands and alteration of wetland areas along streams, lakes or ponds all require state and/or federal permits.

Wetlands, particularly smaller wetland areas, are not always an obvious feature of the landscape. Seek professional advice if you plan any activities on your property in or around wetland areas. Assistance and information is available to determine if wetlands are present on your property through the Pike County Conservation District, Regional Offices of the PA Department of Environmental Protection, the US Army Corps of Engineers and private consultants. For a list of private consultants that provide wetland delineations, check your local yellow pages or contact the Pike County Conservation District.

The Human Impact

Despite what we know today about the benefits provided by wetlands, an estimated 60,000 acres are still lost each year in the U.S. The loss of wetlands is directly linked to a number of human activities that have direct or indirect impacts including:

- Draining and filling wetlands for land development
- Residential, commercial and industrial development adjacent to wetlands that releases pollutants and withdraws groundwater that would otherwise sustain wetlands, particularly during dry periods
- Agriculture practices that drain or otherwise degrade wetlands

- Certain mosquito control practices
- Diking or damming wetlands to form ponds and lakes
- Increased levels of stormwater runoff (Chapter 4) that carry pollutants into wetlands
- The introduction of non-native invasive plant species that crowd out beneficial native wetland plants

Whether the impacts to wetlands are direct or indirect, the result is the same: the loss of the many values and functions of wetlands. Conserving wetlands and the benefits they provide becomes especially critical in rapidly developing areas such as Pike County.

Wetland Benefits

Flood Protection - Wetlands provide flood control by absorbing rainfall and stormwater runoff, slowly releasing this water over time, helping to prevent downstream flooding. The role that wetlands play in flood control is critical for Pennsylvania, the most flood-prone state in the nation.

Wetlands act as natural filters, removing harmful substances that otherwise accumulate in surface and groundwater affecting humans and wildlife.

Groundwater Recharge - Water held by wetlands can soak down through soil and rock layers providing replenishment or “recharge” of groundwater supplies, a benefit that becomes particularly important during dry periods. Pike County’s relatively abundant supply of groundwater is most certainly linked to the abundance of wetlands found here.

Water Filtration - Wetlands act as natural filters, removing harmful substances that otherwise accumulate in surface and groundwater affecting humans and wildlife. Heavy metals and nutrients such as nitrogen and phosphorus are taken up by wetland plants removing these pollutants and others often carried in stormwater runoff. Wetland plants also help to slow down the movement of stormwater allowing eroded soil sediment to settle out.

Although wetlands aid in stormwater control and can improve water quality, they should not be seen simply as storage areas for excess, polluted stormwater runoff. Despite their effectiveness in removing many pollutants, the natural filtering capabilities of wetlands can be exceeded by excess amounts of soil sediment and chemical pollutants reducing or eliminating the important functions they provide as well as endangering the diverse assemblage of unique plants and animals they are home to.

Economic Value - Preserving wetlands can save taxpayer dollars by re-

ducing flood-related property damage and reducing or eliminating the need for expensive flood control structures. For example, the U.S. Army Corps of Engineers found that protecting wetlands along the Charles River in Boston, Massachusetts saved over \$17 million in potential flood damage. Wetlands can add to property values by keeping waterways and drinking water supplies clean and by providing open space. Human-made wetlands have been used as cost-effective alternatives to expensive wastewater treatment technologies. Conserving wetlands is also critical to ecotourism, which includes bird watching and hiking and generates millions of dollars annually.



Watershield and other aquatic plants are common along shorelines and in shallow lakes

Wildlife Habitat - Wetlands are among the most dynamic ecosystems in the world, comparable in plant and animal diversity to rain forests and coral reefs. An immense variety of plants, insects, amphibians, reptiles, birds, fish and mammals live in wetland ecosystems. Physical features such as climate, topography, geology and the movement and abundance of water all help to create a particular wetland habitat, which in turn determines the types of plants and animals that will be found there.



Pickerel frog: Wetlands provide habitat for a variety of wildlife

Wetlands can be thought of as “biological supermarkets” producing great volumes of food for many animals for part or all of their life cycles. The enriched organic material created by plant decomposition in wetlands is an important component of food chains, feeding aquatic insects, shellfish and small fish that in turn provide food for larger fish, reptiles, amphibians, birds and mammals, including humans.

Many plant and animal species are entirely dependent upon wetlands for survival. Animals spawn, nest, breed, rest and raise their young in wet-

lands. Wetland-adapted plants find suitable conditions to germinate, grow and flower.

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of 13 state endangered or threatened species. More than 100 species of fish in PA spawn and/or feed in wetlands, including important recreational species.

Nationwide, over \$10 billion in fish and fish products are harvested from wetland and deepwater habitats annually. The high biological productivity of wetlands makes them vital ecosystems, not only to the plants and animals that directly depend on them for food and shelter, but to humans as well.

Recreation and Aesthetic Values - Wetland areas provide opportunities for hiking, bird watching and nature photography among other recreational pursuits. Hunters and anglers of wetland-dependent animals and fish rely on wetlands to support and maintain their recreational activities. For many people, wetlands also provide a peaceful place to reflect while escaping from the stress and strain of everyday life.

Identifying Wetlands on Your Property

Wetlands that have standing water year-round are relatively easy to identify. Others, particularly forested wetlands and smaller patches of wetlands on building lots, can be more difficult to recognize especially during drier parts of the year. Many wetland areas exist in developing areas of Pike County including the many residential subdivisions found here.

To avoid degrading wetlands – resulting in potential violation of environmental laws (Chapter 10) – before a property is developed, the landowner should have locations where wetlands exist identified and their boundaries mapped through a **wetland delineation**. Common techniques and tools utilized by professionals in conducting wetland delineations include the following:

Maps - Although they should not be relied on as the sole source to determine the presence or absence of wetlands on a parcel of land, County Soil Surveys and National Wetlands Inventory Maps are generally a good place to start. These large-scale, aerial photo-based maps show approximate locations of hydric soils, a good indicator of the presence of wetlands. These maps also show some, but not all wetlands present. Wetland delineations should also include a site inspection to field check mapped locations, to identify smaller, unmapped wetlands and to accurately mark the boundaries of wetlands that are present.

Plant Identification - In the field, wetland delineation professionals

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also look for trees, shrubs and ground cover known to grow in wet areas. Among the many types of wetland plants that exist, some more common examples include rushes, sedges, cattails, willows, high bush blueberries, cottonwood, sycamore and box elder.

Hydric Soils - Hydric soils are soils that are saturated with water for extended periods of time. These soils possess certain characteristics that can be observed in the field. Wetland delineators dig pits or use core soil samples to analyze soil coloration, organic material content, drainage characteristics and depth of water saturation. The resulting information is compared to known soil characteristics to determine if hydric soils are present.

Wetland Hydrology - To determine if water is present at or near the soil surface for a significant portion of the year, the wetland delineator examines rainfall data and looks at a site's topography and plant cover. Clues to periodic flooding or ponding of water include water-stained or blackened leaves in low spots and watermarks or water-carried debris at the bases of trees.

Summary

Once regarded as wastelands, wetlands are now recognized for the numerous benefits they provide for both people and the environment including supporting a wide diversity of plants and wildlife, providing stormwater and flood control, improving water

quality, supporting ecotourism and providing groundwater recharge. Conserving wetlands, and the many benefits these ecosystems provide, becomes especially critical in rapidly developing areas such as Pike County.

Wetlands are protected by federal, state and local laws. Commonly prohibited activities include filling, dredging or draining of wetlands. Other land use activities, in and around wetlands, require state and/or federal permits.

Seek professional advice if you plan any activities on your property in or around wetland areas. Assistance and information is available to determine if wetlands are present on your property through the Pike County Conservation District, Regional Offices of the PA Department of Environmental Protection, the US Army Corps of Engineers and private consultants. For a list of private consultants that provide wetland delineations, check your local yellow pages or contact the Pike County Conservation District.

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Action Steps for Protecting Wetlands

Because much of Pike County's wetlands are located on private property, it is important that the public participates in wetland conservation. The following are measures that residents can take to prevent wetland degradation and loss:

- ☞ Identify and take steps to protect wetlands on your property. Technical assistance can be obtained from the Pike County Conservation District, the PA DEP, the US Army Corps of Engineers or private consultants experienced in wetland delineation.
- ☞ Plan ahead to avoid “encroaching” on wetlands and maintain buffers around delineated wetland areas to minimize impacts when developing or improving a site.
- ☞ Support your local community association or municipality in any efforts to incorporate wetland protection into community codes, comprehensive plans, and land development ordinances.
- ☞ Support your local land conservancy, watershed group or community association in efforts to acquire and permanently protect wetlands in your community.
- ☞ Purchase federal duck stamps from your local post office to support wetland acquisition nationally.
- ☞ Before engaging in any activity that could affect wetlands, check with your local Conservation District.

Resources for More Information

Environmental Concern Inc. – Publications on constructing wetlands and selecting and growing wetland plants: www.wetland.org/ecpubs.htm

PA DEP, Wetlands: www.depweb.state.pa.us/dep/site/default.asp. Select “Search” and “Wetlands, Wetlands Report.” Technical and general information on wetland protection, ecology and management.

U.S. EPA, Wetlands Education: www.epa.gov/owow/wetlands/education/

U.S. Fish and Wildlife Service: National Wetlands Inventory and general information on wetlands: wetlands.fws.gov/

U.S.G.S. National Wetlands Research Center: www.nwrc.usgs.gov/