

Appendix G – Pennsylvania Wetlands Update

April 2015



Pennsylvania Waterways and Wetlands Update Pennsylvania Outdoor Recreation Plan 2014 - 2019

Introduction

According to the National Wetland Inventory, Pennsylvania contains more than 400,000 acres of wetlands. ¹ Though the state has experienced significant loss of wetland acreage over the last century, studies show that, in the early 1980s, Pennsylvania began achieving a net annual gain of wetland acreage. Pennsylvania's 1988 Wetland Protection Action Plan (revised and updated in 1997) set forth an agenda for the state to strengthen its wetlands protection programs by increasing public awareness about the importance of wetland resources and by identifying opportunities to improve regulation, policies, and programs. The majority of the original and revised plans' goals were completed or addressed, including the development of a comprehensive regulatory framework, the formal adoption of a wetland delineation process, the development of a compliance and enforcement manual, the designation of a wetland coordinator for the state, the creation of education and outreach programs, the completion of National Wetland Inventory maps, and an increase in staff resources to support the implementation of these programs. Pennsylvania's various regulatory and non-regulatory programs and strategies have led to the achievement of no net loss and, over the past several years, a statewide net gain in wetland acreage.

PA Wetland Types and Functions

The recently updated "Terrestrial and Palustrine Plant Communities of Pennsylvania" (Zimmerman et al. 2012) documents 78 unique wetland plant community types in the Commonwealth. ² The classification can be found online at <http://www.naturalheritage.state.pa.us/Communities.aspx>. These 78 types can be organized into five broad physiognomic classes as follows:

A. Palustrine Forests

Palustrine forests are dominated by trees over 20 feet in height and may vary in composition from nearly all conifers to entirely hardwood or a mix of both. These forests can vary in hydrology from temporarily flooded floodplain forests to

¹ Tiner, Ralph W. 2010. Wetlands of the Northeast: Results of the National Wetlands Inventory. U.S. Fish and Wildlife Service, Northeast Region, Hadley, MA. 71 pp.

² Zimmerman, E., T. Davis, G. Podniesinski, M. Furedi, J. McPherson, S. Seymour, B. Eichelberger, N. Dewar, J. Wagner, and J. Fike (editors). 2012. Terrestrial and Palustrine Plant Communities of Pennsylvania, 2nd Edition. Pennsylvania Natural Heritage Program, Pennsylvania Department of Conservation and Natural Resources, Harrisburg, Pennsylvania.

permanently saturated hemlock or black spruce-tamarack bog forests. Typical palustrine forests include eastern hemlock, black spruce, tamarack, silver maple, red maple, river birch, black gum, pin oak, green ash and others. Palustrine forests are the most common class of wetlands in Pennsylvania. There are 13 different palustrine forest plant community types in the Commonwealth.

B. Palustrine Woodlands

Palustrine woodlands are similar in composition to palustrine forests, but are more open with less than 60 percent canopy cover. This results in a greater diversity of shrubs, grasses, sedges, and other herbaceous plants. In general, these wetlands are saturated or flooded more frequently than palustrine forests, which results in fewer and sometimes stunted trees in the canopy. Palustrine woodlands typically occur in a transition zone between forested wetlands and more open shrub and herbaceous wetlands. There are seven palustrine woodland plant community types in Pennsylvania.

C. Palustrine Shrublands

Palustrine shrublands are relatively common and occur in a wide variety of settings including floodplains, wet meadows, bogs, and vernal pools. They are characterized by less than 25 percent tree canopy cover and greater than 25 percent shrub cover. Typical shrub species include alders, willows, dogwoods, highbush blueberry, leatherleaf, and others. Pennsylvania has 18 types of palustrine shrublands.

D. Herbaceous Wetlands

The majority of Pennsylvania's herbaceous wetlands are considered to be persistent emergent marshes, where the substrate is saturated or flooded most of the year and vegetation emerges from the soil or water. These wetland types are characterized by a wide variety of sedges, grasses, rushes, broad-leaved herbaceous plants. Trees and shrubs may be present, but are a minor component of these communities. Herbaceous wetlands include some of the rarest plant communities in the Commonwealth, usually in association with unique physical settings such as bogs and calcium-rich fens and seeps. However, herbaceous wetlands also include plant communities representing disturbed or degraded habitats, often dominant by invasive herbaceous species, such as Japanese knotweed, common reed, and reed canary grass. Pennsylvania has 29 types of emergent marsh herbaceous wetlands.

Pennsylvania also has two non-persistent emergent wetland plant community types. These are characterized by shallow floating aquatic or emergent vegetation in permanently flooded areas. After the growing season, the vegetation typically dies back to bulbs or tubers, leaving no trace of vegetation at the water surface (hence, non-persistent).

E. Sparsely Vegetated Wetland Communities

The Pennsylvania plant community classification includes four plant communities that are characterized by sparse vegetation cover. Three of these communities are associated with high energy environments, including the Lake Erie shoreline as well as scoured river shorelines. These wetlands are characterized by a sparse cover of

native and introduced annual species that take advantage of the ephemeral nature of the habitat. In contrast, the fourth type, Sparsely Vegetated Vernal Pool Community, is characterized by a sparse cover of shrubs, grasses, sedges, rushes and broad-leaved forbs under a partial to closed forest canopy of trees adjacent to the seasonally flooded pools.

Important Wetland Functions

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. The large number of species dwelling in some types of wetlands makes them vast libraries of genetic material. Wetlands also function to improve water quality, add to a healthy environment and aid humans in a variety of ways. They help control flooding and assist in purifying water.

Pennsylvania's Wetland Regulations - Chapter 105

The term "wetland" describes, in a collective way, what are more commonly known as marshes, bogs, swamps, and wet meadows, and while 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 including swamps, marshes, bogs and similar areas."

Most activities in Pennsylvania water courses, water bodies or wetlands require some type of authorization or permit from the Pennsylvania Department of Environmental Protection (DEP) to protect public health, safety and the environment. Activities that change, expand or diminish the course, current or cross section of a watercourse, floodway or water body are termed encroachments (obstructions in certain cases) and are regulated by Chapter 105 regulations. Many of these projects qualify for a simple general permit if they are designed and constructed in accordance with the criteria in the general permit. The applicant needs to complete and submit a registration form available from delegated County Conservation Districts or one of the DEP Regional Offices. The local municipality and county must be notified of the applicant's intent to use the general permit.

Most projects in Commonwealth waters and wetlands also require federal authorization that is usually granted in the form of a Pennsylvania State Programmatic General Permit (PASPGP-4). PASPGP-4 is a federal Clean Water Act, Section 404 Permit that authorizes the discharge of dredge and fill material into waters of the United States. PASPGP-4 allows single agency review and processing, eliminating the need for dual and often redundant state and federal reviews,

processing and permit issuance procedures. In most instances, PASPGP-4 can be issued, with approved Chapter 105 water obstruction and encroachment permits, by the DEP or a County Conservation District.

25 Pa. Code Chapter 105.18a requires the applicant to replace all unavoidable wetland impacts in accordance with 25 Pa. Code Chapter 105.20a, which requires wetland replacement to meet three criteria: area ratio, function and value replacement, and siting criteria. In addition, decisions will be made based on Department guidelines entitled “Design Criteria for Wetlands Replacement.”

Wetland Permitting Program in Pennsylvania

A. Single and Complete Projects

To provide effective environmental protection and regulatory compliance assistance, proposed activities that involve the multiple discharges of dredge or fill material, excavation or encroachments of waterways, water bodies and wetlands will be reviewed as a single and complete project. This single and complete project review process will give DEP the opportunity to assist applicants during project development to minimize and avoid impacts to water resources to the maximum extent practicable.

A single and complete project review provides enhanced environmental protection, timely permit actions and improved program efficiency. To facilitate single and complete project reviews, the project plan must provide all the proposed impacts to waters and wetlands associated, proposed or accomplished by one owner/developer or a partnership or association of owners/developers.

Anyone who may be unfamiliar with DEP’s permitting process, or is planning a large-scale project, should request a pre-application meeting with the DEP Regional Office. Pre-application meetings are particularly important for large or multi-phased projects that are designed and built over several years. These meetings are used to review and discuss the applicant’s plans, assist the applicant in avoiding and minimizing impacts and determine what permits will be required.

The pre-application meeting will also help to determine other potential issues with the project such as endangered species or cultural resources identified on the property.

B. Waivers

There are 16 different structures or activities for which the requirements for a permit are waived. If DEP receives a complaint, or investigates, and finds a structure or activity which is eligible for a waiver has a significant effect upon safety or the protection of life, health, property or the environment, the owner may be required to apply for and obtain a permit.

C. General Permits

There are 12 different general permits, each corresponding to a particular activity. Prior to registration, an applicant must review the appropriate general permit and determine if the proposed project can be constructed in accordance with the conditions, restrictions and performance criteria identified for that specific permit.

In recent years, according to the DEP Bureau of Bureau of Waterways Engineering and Wetlands, Division of Wetlands, Encroachments and Training, the five most commonly used General Permits are GP-11 Maintenance, Testing, Repair, Rehabilitation, or Replacement of Water Obstructions and Encroachments, GP-5 Utility Line Stream Crossings, GP-7 Minor Road Crossings, GP-8 Temporary Road Crossings, and GP-3 Bank Rehabilitation, Bank Protection and Gravel Bar Removal.

D. Water Obstruction and Encroachment Permit

If a project does not qualify for a waiver or general permit, DEP's Chapter 105 Rules and Regulations allow for two types of application (Small Project and Standard) to be made for a Water Obstruction and Encroachment Permit. Either type of application can be made using the Joint Permit Application Form. The applicant shall indicate which type of application is being made at the beginning of the form and then follow subsequent instructions to complete the application type indicated.

- Joint Permit Application

- 1) Small Projects Application

A Small Projects Application may be made for projects in streams and floodways where insignificant impacts on safety and protection of life, health, property and the environment can be demonstrated without detailed studies or engineering calculations.

- The Joint Permit Application Package should be consulted for specific criteria limiting small project applicability

- 2) Standard Application

A Standard Application must be completed for all projects except those qualifying as small projects and all projects affecting wetlands.

E. Permit Fees

On February 16, 2013, DEP implemented fees for Chapter 105 permit authorizations. To assist applicants in determining their water obstructions and encroachment authorization fee, a fee calculation worksheet was developed. This fee calculation worksheet is available, here:

<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-11444>

F. Monitoring and Compliance

The most frequent violation is working without a permit. Pennsylvania's wetland program does not have a specific inspections program; inspections are usually done after a complaint has been issued. Permitted dams are regularly inspected and when a wetland is impacted, the compensatory replacement site must be monitored by the permit holder for a five-year period of time. The reports are required biannually for the first two years, and annual for the third, fourth, and fifth years.

Ongoing Waterway and Wetland Program Initiatives

A. Pennsylvania Aquatic Resource Protection and Management Action Plan

The Commonwealth accomplished the previous action plans' goals. The next critical need was the development of a new overarching Pennsylvania Aquatic Resource Protection and Management Action Plan (PARMAP) to focus the Commonwealth's wetland and waterways program development efforts over the next 10 years. PARMAP was completed in March 2011 and provides a framework and direction for the DEP and its partners to strengthen and improve the programs that provide regulatory oversight, management, restoration and monitoring of wetland and other aquatic resources. It is intended to be a "living" document which may be periodically revised to advance the goals as necessary. Various agencies and institutions that share common interests in aquatic resources provided input into the PARMAP initiatives and will continue to contribute towards the improvement and implementation in the future. The action plan is available, here: http://water.epa.gov/type/wetlands/upload/pa_aquatic_resource_program_plan.pdf.

B. Environmental Protection Agency (EPA) Wetland Program Development

In order to implement PARMAP initiatives, DEP receives grant monies from the Environmental Protection Agency (EPA) to help fund Wetland Program Development. Program development is needed to help address new threats, ensure compensatory mitigation provides for lost functions, and improve upon the scientific understanding of the resources in order to develop better tools for restoration, protection and monitoring and assessment activities. The outputs from these projects will impact other programs beyond the wetland program including Erosion and Sediment Control program (riparian buffers); TMDL program (Chesapeake Bay TMDL nutrient reduction efforts); Public Water Supply, Sewage Facilities and the Post Construction Stormwater programs (wetland antidegradation).

C. Pennsylvania Natural Heritage Program's Peatland Research Project

The Pennsylvania Natural Heritage Program (PNHP) is currently working on an EPA funded project to increase the understanding of headwater peatland wetlands in Pennsylvania. Peatlands represent a unique class of wetlands in the Commonwealth. Their cool, high elevation setting provides habitat for many circumboreal plants and communities whose southernmost ranges extend into Pennsylvania. These peatlands are also often the headwaters of streams and provide significant ecosystem services to

maintain the quality of critical habitats for important native species within many watersheds. Climate change and conversion of natural lands to developed lands are the two likely stressors on these important aquatic resources. Gaps exist in the understanding of composition and function of these wetlands and this hinders the ability of the agencies tasked with their management to effectively protect, detect changes, and respond accordingly. PNHP will conduct a series of research activities that will expand our understanding of the distribution, characteristics, and conditions of headwater peatland wetlands in Pennsylvania. This knowledge can be used to manage and protect and develop mitigation strategies for these wetlands. Specific objectives are: 1) to evaluate the distribution and abundance of peatlands in Pennsylvania, 2) to characterize the composition and local and regional environmental conditions of plant communities associated with these peatlands and assign quality rankings using NatureServe's Ecological Integrity Assessment criteria, 3) assess the effects of climate change within individual peatland wetlands, and 4) outreach to state regulators, agencies, land trusts and conservancies, and private landowners will be built into all components of the project.

D. Aquatic Resource Compensatory Mitigation

DEP is actively working in coordination with other state and federal agencies to update aquatic resource (wetland and waterways) compensatory mitigation via development of a new aquatic resource compensatory banking program and revisions to the existing In-Lieu-Fee program. Both programs will provide partnering opportunities for the regulatory and resource agencies to work together to meet resource restoration needs on both private and public lands.

E. Technical Guidance Documents for Compensatory Mitigation

DEP is developing a series of plans and technical guidance documents to provide a basis for federal and state-recognized mitigation for wetland and stream impacts. This effort presents a major opportunity to ensure that science-based planning and data are used to guide mitigation decisions across the Commonwealth. The Nature Conservancy, Western Pennsylvania Conservancy, and Environmental Law Institute have assumed coordinated activities to ensure that Pennsylvania provides a lasting and robust program that will support the achievement of critically needed conservation.

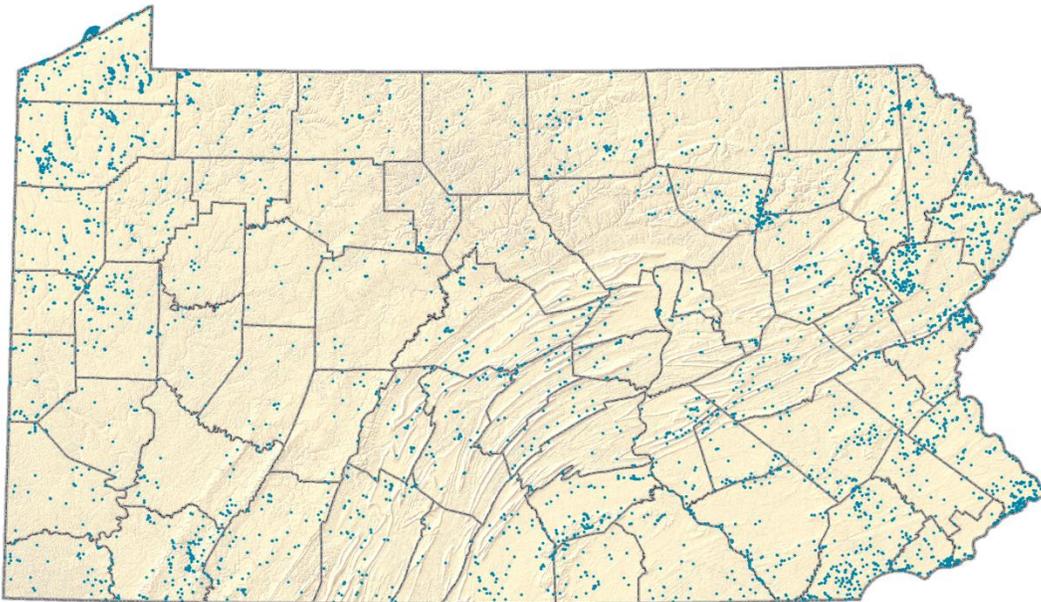
F. Outreach

DEP continues to participate in seminars and workshops on wetlands and other environmental issues, as well as semi-annual training sessions for the public and private sector. Topics may include wetland functions and values, identification and delineation, permitting, and statewide policies.

Additional Wetland Conservation Activity

A. The Pennsylvania Natural Heritage Program

The Pennsylvania Natural Heritage Program (PNHP) is a partnership between the Department of Conservation and Natural Resources, the Western Pennsylvania Conservancy, the Pennsylvania Game Commission, and the Pennsylvania Fish and Boat Commission. PNHP's primary mission is to collect information on rare, threatened, and endangered plant and animal species, many of which inhabit wetlands. Additionally, PNHP has conducted studies to inventory and describe representative wetland communities including river floodplains, fens, bogs, and seeps across the Commonwealth. PNHP uses this information to describe and define the structure, composition, and ecological attributes of wetland communities in Pennsylvania (<http://www.naturalheritage.state.pa.us/Wetlands.aspx>). This information is intended to be used for management, restoration, and regulation of wetlands and to prioritize rare and high quality sites for conservation. Most recently, PNHP has been conducting field work to gather obtain baseline data on the composition and structure of specific wetland community types to assess ecological changes due to development, fragmentation, plant pests and disease, and climate change. PNHP ecologists have established several long term monitoring plots in peatlands and vernal pools throughout the state, primarily focusing on high quality examples. These data will help PNHP staff and other stakeholders better understand how specific plant communities are changing due to human-caused impacts.



This map depicts populations, represented by blue dots, of species or natural communities that occur in wetlands, as tracked by PNHP. Occurrences of wetland species represent about 38% of the occurrences of species that PNHP tracks.

B. State Wildlife Action Plan

The State Wildlife Action Plan is inclusive of all habitat types, including Pennsylvania's waterways and wetlands. Since its approval in 2005 by the U.S. Fish and Wildlife Service, the Pennsylvania Wildlife Action Plan has been a foundational document for guiding research and management of fish and wildlife Species of Greatest Conservation Need in the Commonwealth. This blueprint for conservation action enables states to receive congressionally appropriated State Wildlife Grants Program funds for implementation, of which Pennsylvania has received over \$24 million in the last 12 years to address important conservation actions. The Pennsylvania Game Commission and PA Fish & Boat Commission are jointly revising the 2005 Wildlife Action Plan for delivery to the U.S. Fish and Wildlife Service by October 2015. Priority species, location and condition of their habitats, current and potential threats to species and their habitats, and conservation actions are included as part of this voluntary, partnership-driven conservation framework.