

PENNSYLVANIA BIOLOGICAL SURVEY HANDBOOK

CHAPTER 3. ENDANGERED AND THREATENED SPECIES PROTECTION IN PENNSYLVANIA: LEGAL HISTORY, CURRENT STATUS, AND EMERGING ISSUES

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ABSTRACT

To address the challenge of understanding how state laws, regulations, and policies protect threatened and endangered species, the Pennsylvania Biological Survey (PABS) provides this and other chapters of the *PABS Handbook* to members, partners, and interested citizens. This chapter explains the national and historical context in which Pennsylvania’s legal protections evolved. Specific protections provided by each of Pennsylvania’s agencies (Pennsylvania Department of Conservation and Natural Resources, Pennsylvania Department of Environmental Protection, Pennsylvania Fish and Boat Commission, and Pennsylvania Game Commission) are explained. PABS concludes the chapter with two recommendations aiming to clarify and improve protection for threatened and endangered species in Pennsylvania: (1) When pertinent legal text is considered for revision, ambiguous terms currently in the laws should be replaced with scientifically valid taxonomic terminology as used in the Catalog of Life and the Integrated Taxonomic Information System, aligning Pennsylvania law with current taxonomic standards; and (2) fungi, lichens, terrestrial invertebrates, and any other “orphan” taxa should be assigned an agency with authority for their protection.

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CHAPTER 3. ENDANGERED AND THREATENED SPECIES PROTECTION IN PENNSYLVANIA: LEGAL HISTORY, CURRENT STATUS, AND EMERGING ISSUES

Disclaimer: The Pennsylvania Biological Survey (PABS) is an independent nongovernmental organization. Drafts of this chapter were reviewed by staff and legal counsel of the Pennsylvania Department of Conservation and Natural Resources (DCNR), Pennsylvania Department of Environmental Protection (DEP), Pennsylvania Fish and Boat Commission (PFBC), and Pennsylvania Game Commission (PGC); however, views expressed herein do not represent official agency policy or opinion.

INTRODUCTION

Conservation of rare taxa often occurs at the interface between science and the law. Many biologists lack legal training or work in different states, making it challenging to understand state laws protecting biodiversity. To place their biodiversity conservation work into its legal context, it is important for biologists to have a basic understanding of the pertinent federal and state laws dealing with the protection of rare taxa. This chapter introduces the legal and regulatory framework within which species are protected by force of law in Pennsylvania. It logically follows from Chapter 2, which focuses on the two-stage species status assignment process. Chapter 2 gives the details on species status determination based on science and scientific judgment, and relates only tangentially to the law (it includes a recommendation for how the status determined for each imperiled species is most appropriately translated into the categories given in the laws and regulations). Chapter 4 explains each agency's procedures for using (or in some cases, not using) the Pennsylvania Biological Survey's (PABS) species status determinations to give individual species legal and regulatory status.

This chapter was written by scientists and reviewed by state agency lawyers and by attorney, professor, and authority on environmental law Robert B. McKinstry, Jr., J.D., who is a member of the PABS Steering Committee. The intended audience includes PABS members and peers who provide crucial scientific information necessary for the application of the laws, and lawmakers, policy-makers, and others who seek a comprehensive, all-in-one-place account of the laws and regulations governing Endangered, Threatened, and Near Threatened species protection in Pennsylvania (see definitions in Chapter 2). We explain the context in which Pennsylvania's biologists are working and discuss key partners in this process. Going beyond the usual scope of a procedural manual, this chapter also provides basic information about the foundations of imperiled species protection in our country, particularly relevant to present-day protections in Pennsylvania, and suggests ways in which the legal framework may be strengthened to improve the Commonwealth's ability to carry out its constitutional mandate.

In general, laws to protect Endangered, Threatened, and Near Threatened species and subspecies (henceforth referred to as T&E species or imperiled species) may answer the following (Camacho et al. 2017):

- Which taxa are included in the scope of the law?
- What criteria define a threshold of imperilment to determine inclusion (listing)?
- What types of evidence can be considered in listing determinations?
- How are other agencies and citizens involved and consulted in the listing process?
- What protections may be offered to species that meet the listing criteria?
- What should be included in recovery plans?
- How are listed species' statuses typically reviewed, and statuses adjusted up or down?
- How is recovery work funded?

A minority of Pennsylvania’s rare species fall under the jurisdiction of the federal Endangered Species Act, 16 U.S.C. §§15331-1544. As of this writing, 35 federally listed species occur in Pennsylvania (www.naturalheritage.state.pa.us/SpeciesFeatures.aspx). Other rare species are state-listed and protected by Pennsylvania’s regulatory framework. In Pennsylvania, there is no single state law applying to all taxa that provides the criteria, protections, and requirements for recovery plans. Instead, different agencies have authority over particular taxonomic groups through different governmental directives (Table 1). Each of these directives is explained in detail in the section titled Pennsylvania Protected Species Laws and Regulations, including taxonomic groups with no agency “home” or legal or regulatory status in Pennsylvania.

Table 1. Agency authorities, directives, or policies for protecting taxonomic groups.

Agency	Taxonomic groups	Directive
Department of Conservation of Natural Resources (DCNR)	Plants	Wild Resource Conservation Act (law), 32 Pennsylvania Statutes §§5301—5314, (law); 10 Pennsylvania Code, Chapter 45 Conservation of Pennsylvania Native Wild Plants (corresponding regulation)
Game Commission (PGC)	Birds, mammals	Pennsylvania Statutes Title 34; and 58 Pennsylvania Code Chapter 133. Wildlife Classification (regulation)
Fish and Boat Commission (PFBC)	Reptiles, amphibians, fish, aquatic invertebrates	Pennsylvania Statutes Title 30 and 58 Pennsylvania Code Chapter 75. Endangered Species (regulation)
Department of Environmental Protection (DEP)	Birds, mammals, reptiles, amphibians, invertebrates, plants, natural communities, geologic features	Policy for Pennsylvania Natural Diversity Inventory (PNDI) coordination during permit review and evaluation

Article I, Section 27 of the Pennsylvania Constitution also makes the Commonwealth (and its constituent units) trustees for public natural resources, which include wild resources. The residents of the Commonwealth, including future generations, are the beneficiaries of that trust, with enforcement rights.

Unique among the states, the Pennsylvania Biological Survey (PABS) is an independent organization recognized by the Commonwealth’s natural resource agencies as a technical advisory committee for species and natural community conservation status determination. Started in 1979, the organization is devoted to understanding and recommending measures to protect and enhance native biodiversity in the state. It consists of over 160 research biologists, taxonomists, botanists, wildlife management professionals, and other knowledgeable, credentialed individuals, each belonging to one or more of eleven Technical Committees (TCs) within PABS. Members of the TCs meet once or twice per year to review the current status of plant, animal, fungus, other species, and natural communities of conservation concern statewide. Following rigorous science-based protocols (outlined in Chapter 2) and considering new information gathered by biologists in the field, the technical committees identify needed updates and recommend changes in status to the state agencies. Members of TCs also engage in education outreach and work with citizen science groups.

PABS is governed by a Steering Committee composed of the chairpersons of the TCs, along with members of relevant state agencies and other organizations and individuals involved in biodiversity conservation. The PABS Steering Committee meets twice per year to coordinate the activities of the TCs and learn about pressing issues regarding the conservation of Pennsylvania’s biodiversity.

LEGAL CONTEXT FOR PROTECTED SPECIES IN PENNSYLVANIA

The primary objective of this chapter is to describe how Pennsylvania offers legal protection for Endangered, Threatened, and Near Threatened species (T&E species). (The term “Near Threatened” is explained in Chapter 2 of this *PABS Handbook*.) In this section, we summarize the broader foundations and context for specific state-level protections for T&E species and explain some aspects of federal law.

For clarification on the various facets of these protections, a brief review of legal terminology may be helpful. “**Law**” refers collectively to the system of rules regulating a group of people such as a country, state, or community. “**Bills**” are proposed laws. Once voted into law, they may be referred to as “**acts**” (referencing the name of the act) or “**statutes**” (referencing the numeric section of the law), and they can be created on both the state (General Assembly) and federal (Congress) level. “**Regulations**” are rules or directives promulgated by agencies (e.g., DCNR, PFBC, PGC, DEP) to manage those resources/assets for which they are statutorily responsible. “**Policies**” address recurrent questions about the application of a law or processes followed to ensure a law is applied consistently. Unlike statutes and regulations, policies are not binding law but represent agency interpretations of the law and are given legal effect if they are consistent with laws and regulations.

Legal developments are presented chronologically to demonstrate the evolution of species protection law both at the national scale and within the Commonwealth of Pennsylvania.

PUBLIC TRUST DOCTRINE (1800s)

The American public trust doctrine has deep roots in Western civilization and its precursors from the Justinian Code of Roman Law to the Magna Carta (A.D. 1215) in England (Ruhl and McGinn 2020). When the United States and Canada became sovereign nations, their leaders looked to their European roots more than to Native Americans for guidance on governance. The general sense of shared use of natural resources was explained in different ways in each civilization with the Romans recognizing no private ownership and the English recognizing ownership of wildlife and nature by the monarch. An 1842 U.S. Supreme Court ruling over oyster beds in navigable waters of the Raritan River in New Jersey (*Martin v. Waddell*), established that the new nation would follow the English model and gave individual states status as public trustees (Bean and Rowland 1997; Organ and Mahoney 2007). Canada also opted to follow this model. While there is a strong legal trail demonstrating the application of the public trust doctrine to waters, implications of the original Roman text, “these things are by natural law common to all: air, flowing water, the sea, and consequently the shores of the sea” are still under active discussion (Ruhl and McGinn 2020).

Understanding the origins of this perspective—that wildlife is a public resource—is important because it is the foundation for laws governing wildlife conservation. Wildlife protection is constantly evolving to address new impacts on wildlife from human activities. For example, widespread habitat degradation leading to species extinctions was not a

Wildlife: living things and especially mammals, birds, and fishes that are neither human nor domesticated
—Merriam-Webster

The definition of “wildlife” is consequential to the understanding of wildlife law. Pennsylvania Title 34, Section 102 defines “wildlife” as “Wild birds, wild mammals and facsimiles thereof, regardless of classification, whether protected or unprotected...” In other contexts, “wildlife” applies to terrestrial (or partly terrestrial) vertebrates, or all vertebrates including fish. In other usages, invertebrates are also included—extending the definition to encompass all species in the animal kingdom. Rarely, “wildlife” may also include species in the plant kingdom or other kingdoms such as fungi and protozoa (see Figure 1, page 24).

recognized threat to wildlife in Roman times. Yet, the foundational understanding that these resources are shared in the public interest, now and for future generations, as part of citizens' inheritance, are maintained in modern interpretations, including the basis for Article I, Section 27 of the Pennsylvania Constitution (page 3-5).

NORTH AMERICAN MODEL OF WILDLIFE CONSERVATION

Many wildlife conservationists (see definitions of "wildlife" in box on preceding page) describe the body of related laws and policies developed through the 1970s, in short, as the North American Model. The North American Model of Wildlife Conservation has seven distinctive components (Organ et al. 2010, 2012):

1. Wildlife as a public trust resource
2. Elimination of markets for wildlife
3. Allocation of wildlife by law
4. Wildlife can only be killed for a legitimate purpose
5. Wildlife is considered an international resource
6. Science is the proper tool for discharge of wildlife policy
7. Democracy of hunting

The components of the North American Model and the laws described below demonstrate an evolution of thinking about the relationship between humans and wildlife. Rights to harvest wildlife and the authority to regulate those rights were the primary motivation of wildlife conservation through the 1960s (McKinstry et al. 2006).

FEDERAL: LACEY ACT (1900)

The Lacey Act (16 U.S.C. §§3371-3378) was the first federal wildlife statute, intended to support state regulatory authority over wildlife by prohibiting interstate transportation of "any wild animals or birds" killed in violation of state law. The act relied on the federal government's power to regulate interstate commerce to enforce state game laws and has been amended several times to include a broader range of species, such as amphibians, reptiles, and all fish and wildlife covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Bean and Rowland 1997). In 2008 Congress amended the Lacey Act to ban trading illegally sourced plants or plant products.

FEDERAL: MIGRATORY BIRD TREATY ACT (1918)

Take: To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

The Migratory Bird Treaty Act (16 U.S.C. §703-712) was prompted by the signing of a treaty with Britain to conserve species that migrate between Canada and the U.S. (Bean and Rowland 1997). The act made it "illegal to *take* [see box], possess, import, export, transport, sell, purchase, barter, or offer for sale, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid federal permit." (www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php)

This act was an early form of protection for species that had been severely overharvested and is the legal implementation of migratory bird treaties with Britain (on behalf of Canada; 1926), Mexico (1936), Japan (1972), and the Soviet Union (1976; Bean and Rowland 1997).

FEDERAL: BALD AND GOLDEN EAGLE PROTECTION ACT (1940, 1962)

Concerned that the bald eagle was threatened with extinction and motivated to preserve it as the nation's symbol, in 1940 Congress passed the Bald Eagle Protection Act (16 U.S.C. §668 et seq.). The act made it a crime for any

person to take or possess any bald eagle or any part, egg, or nest thereof (Bean and Rowland 1997). The act was amended in 1962 to extend the same protections for golden eagles.

PENNSYLVANIA: ENVIRONMENTAL RIGHTS AMENDMENT (1971)

Recognition of extinction risk and habitat degradation led to a number of novel efforts to conserve wildlife beginning in the late 1960s, including the Endangered Species Act (ESA) and the Clean Water Act (33 U.S.C §§1251 et seq.; McKinstry et al. 2006), along with Pennsylvania’s Environmental Rights Amendment and legislation to protect imperiled species in several states.

In 1967 Franklin Kury ran for the state legislature when he was just 29, on the issue of clean streams. He had grown up in Sunbury, Northumberland County, and Shenandoah, Schuylkill County, around several streams severely impacted by the coal industry. After reading about New York’s 1894 constitutional amendment to protect forest lands, including “the forever wild clause,” he decided to pursue a state constitutional amendment to recognize the environmental rights for Pennsylvania’s citizens (StateImpact Pennsylvania 2018). He introduced the bill in 1969 and in 1971, Article 1, Section 27 passed in the House and the Senate and the citizens approved the amendment in a referendum vote, 1,021,342 to 259,979 (Dernbach and Sonnenberg 2014).

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people. (Section 27, Article 1, Pennsylvania Constitution)

The Environmental Rights Amendment protects many aspects of environmental quality, not just the wildlife in the state. The law most clearly protects natural resources on behalf of citizens against state agency activities that could degrade the quality of natural resources. The application of the law in these instances formerly followed the now-discredited (we will discuss this later) “Payne v. Kassab test”—a set of questions that were developed as a result of the 1973 court case *Payne v. Kassab*:

1. Was there compliance with all applicable statutes and regulations relevant to the protection of the Commonwealth’s public natural resources?
2. Does the record demonstrate a reasonable effort to reduce the environmental incursion to a minimum?
3. Does the environmental harm which will result from the challenged decision or action so clearly outweigh the benefits to be derived therefrom that to proceed further would be an abuse of discretion?

During the first decade of the 21st century, a surge in natural gas drilling and actions by the General Assembly to encourage that resource exploitation caused citizens to explore how the Environmental Rights Amendment could be used to protect their land and surroundings. In 2012, Robinson Township, Allegheny County, and other parties challenged Pennsylvania’s Act 13, which was adopted to address the unconventional gas development required to extract natural gas from the Marcellus Shale. The plaintiffs asserted that Act 13 was inconsistent with the Environmental Rights Amendment. In *Robinson Township v. Commonwealth* (83 A.3d 901, 953-54, 976 (Pa. 2013)) Pennsylvania Supreme court found that some elements of Act 13 were unconstitutional, and the case is precedent-setting with respect to the Environmental Rights Amendment, the public trust doctrine, and other legal issues (Dernbach et al. 2014).

In *Pennsylvania Environmental Defense Foundation v. Commonwealth*, 161 A.3d 911 (Pa. 2017), the court adopted the plurality decision in *Robinson Township* as a majority position. The Court interpreted the first sentence of the Environmental Rights Amendment as an “individual right” and the second and third sentences as the Commonwealth’s “trustee obligations.” The court found that the General Assembly failed to fulfill its trustee

obligations under the Environmental Rights Amendment by allocating royalties from oil and gas leases for general budgetary purposes unrelated to environmental conservation (Duncan 2019). In so doing the court reversed the *Payne v. Kassab* test, holding that a constitutional test would be required. The court held that the Commonwealth and its constituent units were trustees for public natural resources and owed a duty to the residents of the Commonwealth, including future generations, and that citizens were entitled to enforce that duty as one of the rights protected by that provision. The court further held that the Commonwealth's duty as a trustee was to be construed under the law of trusts.

More recently, in a second PEDF decision—*PEDF v. Commonwealth*, 609 M.D. 2019 (Pa. 2021)—the Court reaffirmed its decisions in *Robinson Township and PEDF I*, and further construed the meaning of the Commonwealth's duty as a trustee. The Court held that not only royalties, but also bonus, rental, and penalty payments from oil and gas leasing, are subject to the public trust. That is, the Commonwealth can only spend these moneys to “conserve and maintain” public natural resources. The Court also held that “current and future Pennsylvanians stand on equal footing and have identical interests in the environmental values broadly protected by the ERA.” It added: “The language unmistakably conveys to the Commonwealth that when it acts as a trustee it must consider an incredibly long timeline and cannot prioritize the needs of the living over those yet to be born.”

PENNSYLVANIA: CLEAN STREAMS LAW (1937/1980)

The Pennsylvania Clean Streams Law was first enacted in 1937 and extensively amended and strengthened by amendments in 1980 (35 P.S. 691.1 et seq). It prohibits pollution of any “waters of the Commonwealth,” including both surface and groundwater, and declares the discharge of industrial or sewage waste that causes or contributes to pollution and certain other activities conducted without permits or in violation of regulations to be a public nuisance. The Pennsylvania Clean Streams Law and the efforts of the Delaware River Basin Commission to regulate pollution were among the models for the Federal Clean Water Act.

FEDERAL: CLEAN WATER ACT (1972)

The Clean Water Act (CWA) established the approach for regulating discharge of pollutants into waterways based on a combination of technology-based standards and surface water quality-based standards. It amended and largely replaced a 1948 law, the Federal Water Pollution Control Act. The Clean Water Act is administered by the Environmental Protection Agency, which establishes technology-based wastewater discharge standards, develops national water quality criteria recommendations for pollutants in surface waters, and establishes standards for state programs to implement the act. The act makes it illegal to discharge pollutants from a point source into navigable waters without a permit. The National Pollutant Discharge Elimination System (NPDES) establishes the permit system to control, regulate, and track water pollution. Separate permits administered by the U.S. Army Corps of Engineers are required for discharges of dredge and fill materials into waters of the United States, including wetlands. The Clean Water Act also makes federally issued approvals for projects affecting water quality contingent on state certification that they are consistent with state water quality standards.

FEDERAL: MARINE MAMMAL PROTECTION ACT (1972)

For reasons related to commercial interests, ecological interests, and animal welfare interests, Congress deviated from prior delegation of marine mammal protection to states, and passed legislation that outlined general policy goals with significant compromises among the interested parties (Bean and Rowland 1997).

FEDERAL: ENDANGERED SPECIES ACT (1973)

Congress took several steps prior to the adoption of the Endangered Species Act (ESA) through the Marine Mammal Protection Act (above) and two other predecessors of the ESA. The Endangered Species Preservation Act (1966) had directed the Secretary of the Interior to “carry out a program of conserving, protecting, restoring and propagating selected species of native fish and wildlife that are threatened with extinction.” The act did not restrict taking of species or interstate commerce of endangered species. The Endangered Species Conservation Act (1969) supplemented the 1966 act by expanding the land acquisition authority, defining the types of wildlife subject to protection, and expanding the scope of the Lacey Act (1900) and the Black Bass Act (1926). It also authorized a list of wildlife “threatened with worldwide extinction” (Bean and Rowland 1997). The ESA addressed several shortcomings of the previous acts: it prohibited the *taking* (see box on page 3-4) of endangered species, it expanded efforts to protect habitat, and it clarified that any species in the plant or animal kingdoms could be protected. (See USFWS’s Endangered Species Glossary (www.fws.gov/midwest/endangered/glossary/index.html) for additional definitions.)

The federal ESA was passed in 1973, with the purpose of protecting and recovering imperiled species and the ecosystems on which they depend. It was adopted in anticipation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; discussed below), which had not yet entered into force, as the mechanism for the United States to implement its obligations under the treaty. Like the legal foundations described above, the ESA recognized the value of the nation’s natural heritage, its “esthetic, ecological, educational, recreational, and scientific value to our Nation and its people.” The word “species” refers to “fish or wildlife” and “plants” (Sections 3(8) and 3(14)—the animal and plant kingdoms. Even though two lichen species were listed as Endangered in the 1990s (*Cladonia perforata* Evans, found in Florida and *Gymnoderma lineare* (Evans) Wei & Ahti, found in the southern Appalachians), the U.S. Fish and Wildlife Service (USFWS) currently considers the kingdom of fungi ineligible for federal listing (Krishna Gifford and Marty Miller, USFWS Region 5, personal communication, July 2019).

The USFWS was designated as the agency responsible for terrestrial and freshwater species and the National

Petition: *A formal request, with the support of adequate biological data, suggesting that a species, with the support of adequate biological data, be listed, reclassified, or delisted, or that critical habitat be revised for a listed species.*

Candidate: *those species for which the Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list but issuance of the proposed rule is precluded.*

Marine Fisheries Service became responsible for marine wildlife. The agencies conduct species status assessments, determine necessary protections, write recovery plans, and oversee protections for listed species. Despite the broad responsibilities, agency staff spend considerable effort reviewing development projects for ESA compliance.

Species are considered for federal listing when an outside organization *petitions* (see box at left) the USFWS to review the status of the species or when the USFWS determines a review is necessary, internally. When evaluating a species for listing, USFWS biologists consider the best scientific information available to evaluate five factors:

1. The present or threatened destruction, modification, or curtailment of a species’ habitat or range
2. Over-utilization of the species for commercial, recreational, scientific, or educational purposes
3. Disease or predation
4. Inadequacy of existing regulatory mechanisms
5. Other natural or manmade factors that affect the continued existence of the species

The first level of review is a 90-day finding based on information provided by the petitioner and what the USFWS has in-house. A positive 90-day finding initiates an intensive review including outside experts and all available information. The review process is so time-consuming, and the number of species that are *candidates* (see definition in box above) for listing is so large, that the USFWS has developed a workplan to prioritize candidate species and review the most imperiled species with the best available information first. The National Listing Workplan is available at www.fws.gov/angered/what-we-do/listing-workplan.html.

The USFWS also has undertaken *species status assessments* (SSAs) through which experts with knowledge about a candidate species are invited to contribute survey information and their best professional judgment about what would reverse declining trends. SSAs document the scientific understanding of a species' *resiliency*, *redundancy*, and *representation* (see box on next page) and become the basis for the listing decision. A species needs a sufficient number and distribution of viable populations to withstand environmental stochasticity (resiliency), catastrophes (redundancy), and changes in its environment (representation). Conservation partners can voluntarily implement recommendations in the SSA even as the listing review proceeds. In some cases, it may be possible to reverse declining threats or minimize stressors to the point that a species does not need to be federally listed.

Federally listed species are considered either *endangered* or *threatened* (see box at right). Listed species are protected in any state in which they occur, but states may provide additional protections or may protect additional species not recognized on the federal endangered species list.

The ESA protects species and their habitats, specifically habitats required by the species for feeding, breeding, and sheltering. In addition to these habitats, the Services (USFWS or National Marine Fisheries Service) can designate *critical habitat* (see box) that provides for additional consideration when a federal action may affect that habitat.

FEDERAL: CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA (CITES) (1973)

The Endangered Species Conservation Act of 1969 directed the Secretary of the Interior and the Secretary of State to convene an international meeting to develop "a binding international convention on the conservation of endangered species." The meeting resulted in the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1973. CITES is not a broad international agreement about conservation, but instead focuses on matters of international trade. Species can be listed in one of three appendices according to their level of extinction vulnerability (Bean and Rowland 1997).

Terms used in USFWS species status assessments

Species status assessment: undertaken for species for which the USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list but the proposed rule has not yet been issued.

Resiliency: the ability to sustain populations in the face of environmental variation and transient perturbations.

Representation: a species' ability to adapt to physical (e.g., climate conditions, habitat conditions, or structure across large areas) and biological (e.g., novel diseases, pathogens, predators) changes in its environment.

Redundancy: a species' ability to withstand catastrophic events at the species level

Endangered: applies to an animal or plant species in danger of extinction within the foreseeable future throughout all or a significant portion of its range.

Threatened: applies to a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Critical habitat: specific geographic areas, whether occupied by a listed or candidate species or not, that are determined to be essential for the conservation and management of that species, and that have been formally described in the Federal Register.

PENNSYLVANIA: WILD RESOURCE CONSERVATION ACT (1982)

The Wild Resource Conservation Act (P.L. 597, No. 170) (32 P.S. §§5301-5314) was adopted to “enhance the constitutional rights guaranteed by” the Environmental Rights Amendment of the Pennsylvania constitution. This act established a procedure for the protection of wild flora and imposed powers and duties on the Department of Environmental Resources, now DCNR, to “conserve and protect wild plant species.” The act defines wild plants as “naturally occurring native flora, except those commonly considered an agricultural commodity, including green and nongreen species or subspecies, variety or a part, product, seed or progeny thereof.” The act is described in detail on pages 3-26–3-52.

THE MODERN ERA

Since the 1980s, progress in the legal realm has trended toward coordinating protective legislation within and among international, national, and subnational levels. A notable example is the United Nations Convention on Biological Diversity. Numerous other efforts to connect environmental groups and enact state legislation and regulation have expanded conservation opportunities to go beyond a narrow focus on individual species to include habitats and multi-species initiatives (McKinstry et al. 2006). In Pennsylvania, wildlife agency regulations were originally focused on regulating hunting and fishing but they have broadened in purpose, and some in the conservation community believe they may provide agencies more authority than they have asserted in practice (McKinstry et al. 2006).

IDENTIFYING SPECIES IN NEED OF PROTECTION

In general, to determine T&E status, biologists track species’ population statuses and trends and continuously update categories that indicate conservation concern level. These assessment categories provide a systematic way to make sure species’ population declines are noticed, such declines are communicated to policy makers, and the species are considered for federal or state legal protections when appropriate. Chapter 2 of this *PABS Handbook* provides an overview of several standard species conservation assessment systems. Each considers indicators of imperilment at different geographic scales and with thresholds designed to meet the intended uses of the system.

PENNSYLVANIA STATE WILDLIFE ACTION PLAN—SPECIES OF GREATEST CONSERVATION NEED

An important record of animal species in need of funding for state agencies’ conservation programs is provided in the State Wildlife Action Plan (SWAP), updated every 10 years by the PGC and PFBC, based in large part on information provided by PABS (www.fishandboat.com/Resource/StateWildlifeActionPlan/Pages/default.aspx). State-by-state extirpation (referred to as regional extinction by the IUCN) is a form of species range contraction that ultimately will result in T&E listings by the federal government. This scenario was an original impetus for the development of SWAPs. Together, all of the states’ SWAPs present a national action agenda for the conservation of wildlife species. The plans are proactive, and if substantially implemented, would prevent many species from becoming federally listed and in some cases unrecoverable (Association of Fish and Wildlife Agencies Teaming with Wildlife Committee 2006). When a species is listed by the federal government, protections are by and large reactive, more expensive, and often limited to small and unstable metapopulations.

For the Pennsylvania SWAP, all vertebrate taxa were reviewed for inclusion as Species of Greatest Conservation Need (SGCN). Given limited time and resources and the immense invertebrate species diversity, only 750 invertebrate taxa were also selected for review. SGCN are eligible for federal funding through the State and Tribal Wildlife Grants Program, administered by the PFBC and PGC. As such, species considered as SGCN by a state are

prioritized for conservation action based on indicators of conservation need. Pennsylvania and most other states use some of the standard conservation assessments described above as part of the selection criteria for SGCN, and certainly many of the same factors are considered. The flow chart used by the PFBC and PGC gives a clear picture of the process (Appendix 1.2 of the State Wildlife Action Plan (PFBC-PGC 2015: www.pgc.pa.gov/Wildlife/WildlifeActionPlan/Documents/SWAP-CHAPTER-1-apx11-12.pdf).

All animal taxa can be categorized using the flow chart, which references both the IUCN Red List and NatureServe categories. For example, all native species with sufficient data to be categorized as Critically Endangered (CR), Endangered (EN), or Vulnerable (VU) on the Red List, or have global ranks of G1-G3, are considered SGCN in Pennsylvania. In addition, all federally listed species native to Pennsylvania are considered SGCN (federally Threatened, Endangered, Proposed, or Candidate). Beyond these categories, species with lower concern levels can be considered as SGCN in Pennsylvania if they are recognized as a regional priority regularly occurring in Pennsylvania, or are state listed, or have state ranks of S1-S3S4, or are recoverable despite an S-rank of SH or SX. Additional considerations are whether the state is responsible for a significant portion of a species' North American population or range, if a species has a threat impact score of High or Very High on the NatureServe Rank Calculator, or if a species' abundance or distribution has shown a cumulative decline of 10% in the last 10 years. Chapter 2 of this *PABS Handbook* gives a more detailed and nuanced account of the process.

PENNSYLVANIA PROTECTED SPECIES STATUTES AND REGULATIONS

For federally listed species, statutes and regulations specify that mandated federal recovery plans may limit or alter development and resource extraction in the vicinity of known or suspected occurrences. There is no state equivalent of the federal ESA in Pennsylvania; instead, state-listed species are protected through regulations established, updated, and administered separately by each state agency—DCNR, PBFC, and PGC—and through permit or water quality certification review by DEP.

Assisted by the Pennsylvania Natural Heritage Program (PNHP) and PABS, the PGC (birds and mammals), PFBC (fishes, reptiles, amphibians, and aquatic invertebrates) and DCNR (plants) each maintain a list of T&E species within Pennsylvania. These lists include federal T&E species faced with possible world-wide extinction. However, a majority of state-listed T&E species are not faced with global or national extinction but rather state extirpation. Therefore, Pennsylvania's approach for conservation of T&E species consists of four major functions: (1) participating in the recovery of federally listed T&E species; (2) determining which species are state Threatened or Endangered; (3) conserving imperiled species to prevent populations from becoming state or federally listed; and (4) preparing and implementing T&E species (or multi-species) management plans consistent with agency public trust obligations and the availability of funds. Taxonomic groups (such as algae, fungi, lichens, and terrestrial invertebrates) not currently addressed by the agencies listed above are orphans with respect to legal protections, but species in these groups are tracked by the Pennsylvania Natural Heritage Program and statuses are referenced in conservation planning and regulatory review. These groups are addressed below.

Candidates for listing as Pennsylvania Threatened or Endangered are subject to a mandated regulatory review process that allows for and facilitates public input. The review process requirements for DCNR differ from those of the PGC and PFBC. For example, DCNR must comply with the Regulatory Review Act and the Commissions are by law exempted from this step. More details on each agency's listing protocols are given in Chapter 4 of this *PABS Handbook*.

PABS, PNHP, PNDI—What do they mean?

The **Pennsylvania Biological Survey (PABS)** is a nonprofit, all-volunteer, independent organization whose purpose is to increase knowledge of, and foster the perpetuation of, the natural biological diversity of Pennsylvania. PABS is responsible for determining the status (Endangered, Threatened, etc.) of wild species of animals, plants, other organisms, and ecological communities in the state. Its over 160 members (including nearly 80 PhDs) are scientists, representatives of state and federal agencies concerned with natural resource management, representatives of Pennsylvania's major scientific research institutions, and other interested and knowledgeable individuals. PABS is governed by a Steering Committee that functions through technical and standing committees focusing on species groups or program areas. PABS acts in an advisory capacity to the Pennsylvania Natural Heritage Program.

The **Pennsylvania Natural Heritage Program (PNHP)** is a partnership between the Pennsylvania Department of Conservation and Natural Resources (DCNR), Pennsylvania Fish and Boat Commission (PFBC), Pennsylvania Game Commission (PGC), Western Pennsylvania Conservancy (WPC), and U.S. Fish and Wildlife Service (USFWS). PNHP is a member of NatureServe, an international network of natural heritage programs that gather and provide information on the location and status of important ecological resources (plants, vertebrates, invertebrates, ecological communities, and geologic features). PNHP's purpose is to provide current, reliable, and objective ecological data and analysis to help guide conservation work and land-use planning. It consists of roughly 65 staff members from the five member groups. Many are also members of PABS's Steering Committee and technical committees.

The **Pennsylvania Natural Diversity Inventory (PNDI)** is an environmental review system maintained by PNHP and used by the Pennsylvania Department of Environmental Protection (DEP) and applicants for DEP permits to determine the potential biodiversity impacts of development projects requiring DEP permits. The public interface is a web-based tool, "Conservation Explorer—PNDI Environmental Review," housed at the DCNR Bureau of Forestry's website. Because in the late 20th century the predecessor to PNHP was known as PNDI, there is still sometimes confusion between the two acronyms. PNDI, often pronounced "PIN-dee," is a process and the means used to carry it out, not an organization or agency.

PLANTS—DCNR

APPLICABLE STATUTE, REGULATION, AND POLICY

The Wild Resource Conservation Act (WRCA), enacted on 23 June 1982 (P.L. 597, No. 170; 32 P.S. §§5301-5314), established a procedure for the protection of wild flora and imposed powers and duties on the Department of Environmental Resources (DER). The Conservation and Natural Resources Act (28 June 1995, P.L. 89, No. 18) created DCNR and DEP and divided the functions previously integrated into DER; all of those relating to biodiversity conservation went to DCNR. The WRCA defines wild plants as "naturally occurring native flora ... including green and nongreen species or subspecies." DCNR does not currently claim formal jurisdiction over fungi, even though fungi were traditionally lumped under the rubric of plants until shortly before the passage of the act. There are differing viewpoints as to whether "nongreen species" was intended to include fungi and discussions are ongoing (see Fungi and Lichens, page 3-16).

Detailed regulatory provisions issued under the Wild Resource Conservation Act are in Title 17, Chapter 45 of the Pennsylvania Code (regulations), titled “Conservation of Pennsylvania Native Wild Plants.” The current text is at www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/017/chapter45/chap45toc.html and in Appendix A of this chapter of the *PABS Handbook* (page 3-26). The regulations:

- establish the classification system of conservation status in Pennsylvania, consisting of Extirpated, Endangered, Threatened, Rare, Vulnerable, Special Concern Population, and Tentatively Undetermined, and list every species and its status currently protected under Pennsylvania law;
- specify the requirements for, and allowable activities under, wild plant management permits and commercial licenses to harvest Vulnerable species from the wild;
- establish a system of Wild Plant Sanctuaries on private and public lands; and
- define unlawful conduct and the penalties for violations.

BIRDS AND MAMMALS—PGC

The Pennsylvania Game Commission (PGC) is mandated to “protect, propagate, manage and preserve the game or wildlife population as a renewable natural resource of this Commonwealth,” 34 Pa.C.S. §2161(a).

The statute governing Endangered or Threatened species allows the PGC to “add or remove any wild bird or wild animal native to this Commonwealth to or from the Pennsylvania native list of endangered or threatened species.” 34 Pa.C.S. §322(8) also provides the Commission the authority to “[a]dd to or change the classification of any wild bird or wild animal.” The regulation implementing these statutes, 58 Pa. Code §133, provides the list of Threatened and Endangered species (Subchapters B, Birds; and C, Mammals). Thresholds of imperilment justifying state-listing are based on the definitions of Endangered and Threatened species found in 58 Pa. Code §133.4.

Endangered—Species in imminent danger of extinction or extirpation throughout their range in this Commonwealth if the deleterious factors affecting them continue to operate. The term includes:

- (i) Species whose numbers have already been reduced to a critically low level or whose habitat has been so drastically reduced or degraded that immediate action is required to prevent their extirpation from this Commonwealth.
- (ii) Species whose extreme rarity or periphery places them in potential danger of precipitous declines or sudden extirpation throughout their range in this Commonwealth.
- (iii) Species that have been classified as “Pennsylvania Extirpated”, but which are subsequently found to exist in this Commonwealth as long as the conditions listed in subparagraph (i) or (ii) are met.
- (iv) Species determined to be Endangered under the Endangered Species Act of 1973 (16 U.S.C.A. §§1531–1544).

Threatened—Species that may become Endangered within the foreseeable future throughout their range in this Commonwealth unless the casual factors affecting the organism are abated. The term includes:

- (i) Species whose populations within this Commonwealth are decreasing or have been heavily depleted by adverse factors and while not actually Endangered, are still in critical condition.
- (ii) Species whose populations may be relatively abundant in this Commonwealth but are under severe threat from serious adverse factors that have been identified and documented.
- (iii) Species whose populations are rare or peripheral and in possible danger of severe decline throughout their range in this Commonwealth.
- (iv) Species determined to be “threatened” under the Endangered Species Act of 1973, that are not listed as “Pennsylvania Endangered.”

Species are considered for listing (or considered for listing status change) when (Roe 2006):

1. A PGC Commissioner or staff member recommends a status revision
2. A Chairperson of the Mammal or Ornithological Technical Committees of PABS petitions the PGC
3. A member of the public petitions the PGC

Petitions must be in writing and include a fully completed, standardized Species Status Documentation Form, submitted to the PGC Wildlife Management Director. The PGC then examines the best available population data, along with other conservation status information and refers to the language in the above definitions to determine if a species meets the definition of Endangered or Threatened.

The PGC protects these state-listed wild mammals or birds (including their eggs) by making it unlawful to bring into or remove from the Commonwealth, or to possess, transport, capture, or kill them. It is also unlawful to buy, sell, barter, or exchange state-listed wild birds or mammals, or parts thereof. In addition to the prevention of “take” of individual listed species, the PGC has many provisions to protect important habitat on state-owned lands. Though rarely used, the PGC can also seek compensatory or punitive damages, or injunctive relief, when habitats on private lands are degraded. 34 Pa.C.S. §2161.

The PGC endangered or threatened species statute (34 Pa.C.S. §2167; see Appendix B, page 3-52 of this chapter of the *PABS Handbook*), also outlines penalties, including misdemeanor of the second degree (with up to 2-year imprisonment) and possible seven-year forfeiture of the privilege to hunt (first violation), misdemeanor of the first degree (with up to 5-year imprisonment) and possible 10 years forfeiture for a second violation, and felony of the third degree (with up to 7-year imprisonment) and possible 15 years forfeiture for the third violation.

When a “take” is prosecuted, 58 Pa. Code §131.8 provides that the violator is liable for the replacement costs for wildlife killed. Under §925(i) of the act (relating to jurisdiction and penalties), in addition to any fines and costs imposed for violations of the act or the regulation, any person who unlawfully kills or possesses wildlife may be assessed replacement costs according to the following minimum cost scale:

General class.

- (i) Each Threatened or Endangered bird or mammal, \$5,000
- (ii) ... all other game species have \$ values assigned as well.

34 Pa.C.S. §925(i). In addition to the replacement costs for wildlife killed, prosecution of cases of damage to wildlife habitat generate fines that can provide significant funding. These funds are not earmarked for a specific purpose but go into the general fund.

For federally listed species that are also state-listed, the Commission works with the USFWS’s Pennsylvania Field Office to implement the recommendations relevant to Pennsylvania identified in the federal species recovery plan. A few state-listed species have a management plan that describes the population status and specifies thresholds for recovery. However, due to staff capacity limitations, most state-listed species do not yet have a state management plan.

FISHES, AMPHIBIANS, REPTILES, AND AQUATIC INVERTEBRATES — PFBC

The Pennsylvania Fish and Boat Code, Title 30 of the Pennsylvania Consolidated Statutes, governs the powers and jurisdiction of the PFBC. The following definitions from the law, 30 Pa.C.S. §102, explain the taxonomic scope of the agency.

Fish: when used as a noun, includes all game fish, fish bait, bait fish, amphibians, reptiles, and aquatic organisms.

Fish bait: unless otherwise provided by Commission regulation, crayfish or crabs, mussels, clams and the nymphs, larvae, and pupae of all insects spending any part of their life cycle in the water.

Bait fish: unless otherwise provided by Commission regulation, the following fish: (1) all forms of the minnow family (*Cyprinidae*) except carp and goldfish; (2) suckers, chubs, fallfish, lampreys, and eels measuring less than eight inches in length; and (3) all forms of darters, killifishes, and madtoms (otherwise known as stonecats).

Amphibian: Any of the cold-blooded, scaleless, vertebrates of the class amphibia, such as frogs, toads, and salamanders, the young usually being aquatic and breathing by gills and the adults usually losing the gills and breathing by lungs.

Reptiles: Any of the various species of cold-blooded vertebrates of the class Reptilia.

Game fish: Unless otherwise provided by PFBC regulation, the following fish: brook trout, *Salvelinus fontinalis*; brown trout, *Salmo trutta*; and rainbow trout, *Salmo gairdneri*, and the salmon family, *Salmoidea*; walleye, *Stizostedion vitreum*; chain pickerel, *Esox niger*; northern pike, *Esox lucius*; muskellunge, *Esox masquinongy*; fallfish, *Semotilus corporalis*; smallmouth bass, *Micropterus dolomieu*; largemouth bass, *Micropterus salmoides*; crappies, *Pomoxis* spp.; rock bass, *Ambloplites rupestris*; yellow perch, *Perca flavescens*; striped bass or rockfish, *Morone saxatilis*; suckers, *Catostomidae*; eels, *Anguilla rostrata*; chubs, *Semotilus* and *Nocomis*, measuring at least eight inches in length; sturgeon, *Acipenser oxyrinchus*; white perch, *Morone americana*; and all other species or varieties of fish except bait fish.

Aquatic organism: Any plant or animal that grows or lives, for at least some part of its life cycle, in or upon the water.

The PFBC is authorized to identify Threatened and Endangered species pursuant to 30 Pa.C.S. §2305, which provides: “The executive director shall establish a Pennsylvania Threatened Species List and a Pennsylvania Endangered Species List. The lists, and any revisions thereto, shall be published in the *Pennsylvania Bulletin*.” Listing decisions follow the PABS Status Determination process (see Chapter 2 of this *PABS Handbook*, Figure 2-1), using a form to document the factors considered (see Appendix C, this chapter). The list of Endangered, Threatened, and Candidate species and the regulations on special permits and qualified surveyors are in 58 PA Code, Chapter 75.

Regulations govern catching, taking, killing, importation, introduction, transportation, removal, possession, selling, offering for sale, or purchasing Threatened and Endangered species. The PFBC has the ability to issue permits for catching, taking, or possessing any of those species. Violations are considered third-degree misdemeanors. If a Threatened or Endangered fish is accidentally caught, and immediately released where it was captured in the condition in which it was captured, no violation has occurred. The official list of species appears in 58 PA Code, Chapter 75.

Several mechanisms are available to provide habitat protection, but none is specifically required for T&E species. They appear in the following sections of the Fish and Boat Code (Title 30 Pa.C.S.; click on the links for current text):

[§2305. Threatened and Endangered Species](#) (Appendix D, page 3-56 in this *PABS Handbook* chapter)

[§2306. Refuge Areas](#)

[§2502. Disturbance of Waterways and Watersheds](#)

[§2503. Littering](#)

[§2504. Pollution of Waters](#)

[§2506. Commonwealth Actions for Damage to Fish](#)

To plan recovery, the PFBC can develop [Species Action Plans](#) (recovery plans are not required for listed species). Seven priority listed species have action plans (as of this writing). The development of action plans for other listed species is limited by funding and staff capacity, but additional plans are under development. For other listed species, species accounts in the Wildlife Action Plan provide a basic summary of information including conservation statuses, conservation goals, habitat associations, and habitat requirements.

Funding for recovery can come from three sources: (1) The PFBC receives funds (Restricted Revenue Accounts) through damage assessments (e.g., pollution events), contingent upon limitations in the settlement agreement and species affected, and the funds may be applied to T&E species recovery; (2) The Wild Resources Conservation Program is state-funded and sponsored by DCNR to support recovery of T&E species, though the fund is not limited to listed species; and (3) Natural resource damages (NRD) settlements result from hazardous spills under the Comprehensive Environmental Response Compensation and Recovery Act (CERCLA; 42 U.S.C. §9601 et seq.); funds are sometimes dedicated to habitat recovery and species negatively impacted. NRD cases may be brought by the federal or state trustees for a natural resource that has been damaged by a release of a hazardous substance. State trustees can use funds from these cases for recovery and rehabilitation (42 U.S.C. §9607(f)). Although many states have brought actions seeking NRD themselves, Pennsylvania has generally only sought to recover NRD when the federal government has acted.

TERRESTRIAL INVERTEBRATES

Terrestrial invertebrates are essential to functioning ecosystems. As the dominant herbivores of most terrestrial communities, invertebrates move energy from plants to higher trophic levels, supporting a critical link in the food web. Terrestrial invertebrates are a major food source for many species of fish, amphibians, reptiles, birds, and mammals. Birds in particular rely on invertebrates during the nesting season to provide their young with adequate fat and protein. This resource is so valuable that many species will migrate thousands of miles from the tropics to take advantage of the seasonal bounty of invertebrates in temperate regions.

Thousands, perhaps tens of thousands, of terrestrial invertebrate species in Pennsylvania outnumber all of the other species of animals, plants, fungi, and protists put together (see pabiologicalsurvey.org/pennsylvanias-wild-species.html). The current Pennsylvania Wildlife Action Plan lists 450 invertebrate species as species of greatest conservation need (SGCN), many of which are terrestrial. Due to insufficient information, many groups of invertebrates were not included. Instead, except for tiger beetles and freshwater mussels, only the federally listed or candidate species are included until a more thorough review can be completed for these important taxa. Several invertebrate taxa (e.g., dragonflies, damselflies, and mussels) are the subject of current Regional Conservation Need (RCN) project status reviews by experts in the region and will result in updated invertebrate lists. However, as of this writing no state-level legal protections are available to recognize and remedy their extinction vulnerabilities.

Hundreds of species are tracked and status assessments are prepared for them by PABS's Invertebrates Technical Committee (ITC) and Mollusks Technical Committee and by PNHP. DCNR reviews occurrences of tracked terrestrial invertebrate species during the PNDI permit review process and provides voluntary measures for invertebrate conservation but no state agency has statutory authority for terrestrial invertebrates. Invertebrates are all eligible for listing at the federal level. **Among states' T&E species protection laws in the Northeast Region, Pennsylvania's is the only body of state law that does not yet cover terrestrial invertebrates.**

FUNGI AND LICHENS

Despite recognition of their importance, fungi have been largely ignored in conservation consideration and planning (Allen and Lendemer 2015). Beginning with a 1969 publication, fungi (including lichens, which are fungi housing bacterial or algal symbionts) have been classified in their own taxonomic kingdom alongside plants and animals (Whittaker 1969); a widely accepted system today recognizes eight kingdoms (Roskov et al. 2020). Current consensus places fungi in the tree of life in the same overarching group (Opisthokonta) as animals, more closely related to each other than either is to plants (Keeling et al. 2009) (see Figure 1 on page 3-20, below).

However, many non-scientists and some state management agencies have continued, in the historical tradition, to consider fungi in the kingdom of plants. It is perhaps for this reason, together with the cryptic nature of fungi except during usually brief periods when they have visible spore-producing organs, that fungus conservation has been thought by some to be covered as a part of plant conservation and at the same time is virtually nonexistent. Because of the longstanding misconception that fungi are plants, whether the DCNR Wild Resource Conservation Act was intended to protect fungi under the rubric of “nongreen plants” is debated. The author of the WRCA, Larry Schweiger, has confirmed that “nongreen” was specifically inserted to include life forms with characteristics superficially resembling those of plants, including fungi and lichens. The fact that at least 21 species of actual plants found in the wild in Pennsylvania are nongreen, that is, wholly parasitic either on other plants (15 species) or on mycorrhizal fungi (6 species) adds further uncertainty about whether the law covers the state’s nearly 8,000 known, and possibly many more not-yet-identified, native species of fungi and lichens.

Within the Northeast Region, few states with imperiled species legislation have provisions for fungi, and as noted above, fungi are currently deemed ineligible for Federal ESA listing and are not currently within DCNR’s formal jurisdiction.

While many species of fungi lack adequate survey information to determine rarity, PABS’ Mycological and Protists Technical Committee (MAP) is actively working on status assessments for some species. In 2018 the MAP reviewed *Wynnea sparassoides* Pfister and determined that its status is Endangered because its population in the state is not peripheral to the species’ main range and it meets PABS criteria D10, “Total number of mature individuals in Pennsylvania very small or restricted population estimated to have <250 mature individuals” (Hassinger and Plischke 2018). A list of potentially rare fungus species that warrant status assessment is maintained by the MAP. This is the first step towards more formal protection.

DEP REGULATIONS

As put forth in its Policy for Pennsylvania Natural Diversity Inventory (PNDI) Coordination During Permit Review and Evaluation (“DEP PNDI policy,” Document Number: 021-0200-001), the Department of Environmental Protection (DEP) provides guidance to applicants seeking permits administered by DEP on how to comply with applicable laws for the protection of T&E species and other species of conservation concern during the permit review process. Permit applicants must use the Pennsylvania Natural Heritage Program’s Conservation Explorer PNDI tool, the primary source of species and ecological community occurrence information for the permit review process. The review process is described in greater detail in Chapter 4 of this *PABS Handbook*.

The following definitions from the DEP PNDI policy help explain its scope and effect:

Critical Habitat: The specific areas within the geographic area occupied by a Threatened or Endangered species designated in accordance with the Endangered Species Act of 1973, 16 U.S.C. §1531 et seq., that exhibit those physical and biological features essential to the conservation of the species and which may require special management considerations or protections.

Impact: A negative effect on a plant or animal species, including destruction of species and loss of critical habitat.

Jurisdictional Agencies: DCNR (Bureaus of Forestry and Topographic and Geologic Survey), PFBC, PGC, and USFWS.

Permit: Authorizations issued by DEP, giving approval to perform a regulated activity. For the purpose of this policy, “permits” includes the authorization types such as: permits, plan approvals and registrations under general permits. This definition does not include certifications and licenses.

Permit Application: An application, notice of intent, request for plan approval, registration or other request for a permit.

Permitted Activity: An activity requiring a permit under laws and regulations administered by DEP.

Rare and Significant Ecological Features: Non-species resources identified on a PNDI Receipt. These include unique geological features, other significant natural features, and significant natural communities.

Other Species of Conservation Concern: Plant and animal species that are not listed as Threatened or Endangered by a jurisdictional agency, but are identified on a PNDI Receipt as an at-risk species. These include plant and animal species that are classified as rare, vulnerable, tentatively undetermined, or candidate.

Threatened and Endangered Species: Those animal and plant species identified as a Threatened or Endangered species, as determined under: Endangered Species Act of 1973, 16 U.S.C.A. §1531 et seq.; Wild Resource Conservation Act, 32P.S. §5301; Fish and Boat Code, 30Pa. C.S.A. §101 et seq.; and Game and Wildlife Code, 34 Pa. C.S.A. §101 et seq. This also includes animal and plant species proposed for listing as Endangered or Threatened, pursuant to the Endangered Species Act of 1973, 16 U.S.C.A. §1531 et seq.

The DEP PNDI policy provides the procedures to assist permit applicants in complying with DEP’s statutes and regulations for the protection of species and their habitats. For example, the policy explains:

- Use of PNDI to perform project screenings
- Use of the PNDI Receipt to identify potential species impacts within the project area
- Submission of the PNDI Receipt to DEP and jurisdictional agencies
- Jurisdictional agency consultation and the importance of early coordination
- Protection of other special concern species as required by specific permitting programs
- Any exemptions from the requirements
- How applicants are to address potential impacts identified on the PNDI Receipt

RARE AND SIGNIFICANT ECOLOGICAL FEATURES

In addition to species, the PNDI database also includes rare and significant ecological features that are not necessarily tied to specific protected species, namely unique geological features, other significant natural features, and significant natural communities. If a PNDI Receipt generates a potential impact on a rare and significant ecological feature, DCNR identifies voluntary conservation measures during the DEP permitting process since such features do not yet have legal protections in Pennsylvania. An exception is wetland plant communities, but the protection stems from such communities’ status as wetlands, not the rarity of the communities themselves. In general, protection for rare plant communities is dependent on the T&E plants and animals present.

DISCUSSION

Pennsylvania does not have one state Endangered Species Law covering all taxonomic groups, under which all other regulations fall. Rather, each agency (DCNR, PGC, and PFBC) has a separate law authorizing it to list and protect Threatened and Endangered species within its jurisdictional authority. Because the laws use common language to refer to groups of species, rather than the taxonomic hierarchy, there remain confusion and gaps regarding which taxonomic groups are protected in Pennsylvania. DCNR covers plants, PGC covers wild birds and mammals, PFBC covers reptiles, amphibians, fish, and aquatic invertebrates. (The Pennsylvania Department of

WHAT IS THE SCOPE OF THE LAW WITH REGARD TO TAXONOMIC GROUPS?

Agriculture regulates nonnative plants and insects, including honeybees; none are T&E species, which by definition are all native.) Hypothetically, marine (ocean-dwelling) species in these taxonomic groups would also be included, and Pennsylvania's historically limited

conservation responsibility for marine species will expand in the future as climate change drives the saltwater transition inland. There are no mechanisms to recognize the imperilment of other taxa beyond plants, birds, mammals, reptiles, amphibians, fish and aquatic invertebrates. It is important to maintain clear divisions of responsibility between the agencies, while closing taxonomic gaps. When clarifying agency authority, it is important to recognize that while agencies have the opportunity to protect species inclusively within taxonomic groups under their purview, they may not have the resources to regularly inventory and monitor all species in all habitats statewide.

Recommendation* When pertinent legal text is considered for revision, the following terms currently in the laws should be replaced with scientifically valid taxonomic terminology as used in the Catalog of Life and the Integrated Taxonomic Information System (Roskov et al. 2020), aligning Pennsylvania law with current taxonomic standards (see Figure 1, page 24).

- In the Wild Resource Conservation Act, references to “flora” and “green and nongreen species” could be edited to clarify that the law applies to the kingdom of Plants (Plantae).
- In PGC’s code, references to “wildlife” and “animals” could be clarified to indicate the agency has authority for birds (Class Aves) and mammals (Class Mammalia).
- In PFBC’s code, references to “fish,” “fish bait,” and “bait fish” could be clarified to indicate the agency has authority for all aquatic animals (Table 2) and other aquatic organisms in accurate, contemporary terminology.

The definitions in PFBC regulations (page 3-14 above) include “aquatic organism: any plant or animal that grows or lives in or upon the water,” but DCNR also has clear authority over all plants regardless of the habitat they are found in. In contrast to this overlap in protection, there are also some gaps in protection for species.

Recommendation* Fungi, lichens, terrestrial invertebrates, and any other “orphan” taxa should be assigned an agency with authority for their statewide protection, including on non-public lands.

For fish and wildlife, information provided on the Species Status Change Documentation form is the best record of the evidence and criteria for listing (see Appendix C for an example). Several aspects of the listing process are

WHAT ARE THE CRITERIA FOR LISTING AND THE EVIDENCE THAT CAN BE CONSIDERED?

addressed in other chapters of this *PABS Handbook*. Chapter 2 explains the criteria considered, thresholds set, and process followed by PABS when determining conservation status. The PABS conservation status is an important piece of evidence, but not the sole

evidence, referenced by agencies when determining state listing status. Chapter 4 explains more about the transparency of the listing process and the engagement of other agencies and the citizens in final listing decisions.

Across all taxonomic groups, state-listed animals are protected from being taken from the wild, except with a permit. Species with conservation status warranting Threatened or Endangered listing status are at risk of extinction due to severe and/or multiple threats. By preventing “take” the state regulates threats related to

WHAT PROTECTIONS ARE PROVIDED TO LISTED SPECIES, WHAT SHOULD BE INCLUDED IN RECOVERY PLANS, AND HOW IS THIS WORK FUNDED?

hunting, fishing, harvesting, collecting, and otherwise harming individual animals. Through the environmental review consultation process species have limited direct protections, where state agencies may offer guidance on potential

development activities to avoid and minimize impacts. But listed species are not protected against indirect threats related to habitat loss or degradation (e.g., development, agriculture, pollution, energy production, invasive species, fire suppression, damming of waterways).

Members of PABS recognize that limited staff capacity and fiduciary authority constrain the number of taxonomic groups and species that can be adequately surveyed and considered for listing. PABS also recognizes that multi-species, habitat-focused conservation can have lasting positive effects on biodiversity conservation overall. Existing spatial planning tools, such as Pennsylvania Conservation Explorer for regulatory purposes and the non-regulatory Wildlife Action Plan Conservation Opportunity Area Tool, help bridge single-species and habitat perspectives. These tools also promote conservation measures for orphaned taxa groups or species that are not tracked by the Pennsylvania Natural Heritage Program. Continued enhancement and broader use of these tools to protect natural communities would benefit Pennsylvania’s biodiversity.

Beyond habitat protection, it is difficult to legally guard against disease transmission or to address issues associated with species’ reliance on other species for survival (e.g., host plants for butterflies, host fish for mussel reproduction) or species challenged by increased pressure from other species through predation or competition. To be more effective at recovering species at risk of extinction or extirpation, state endangered species laws could address threats more comprehensively.

Habitat connectivity is an issue that is being addressed in different ways in different states. In New England, the [Staying Connected Initiative](#) is being implemented in several states in a coordinated way. Virginia will produce a Wildlife Corridor Action Plan to mitigate impacts from roads and other infrastructure (Virginia’s Legislative Information System 2020). A more focused venture, the Pennsylvania Riparian Buffer Initiative, hosted by DCNR, embraces similar motivations and aspirations. “Wildlife corridors” are defined in law in New Hampshire and New Jersey in recognition of their importance to wildlife. Enhanced opportunities for the creation or protection of wildlife corridors in Pennsylvania would be an asset in sustaining T&E species, particularly in the coming decades as species’ ranges shift in response to climate change.

(continued on page 3-23)

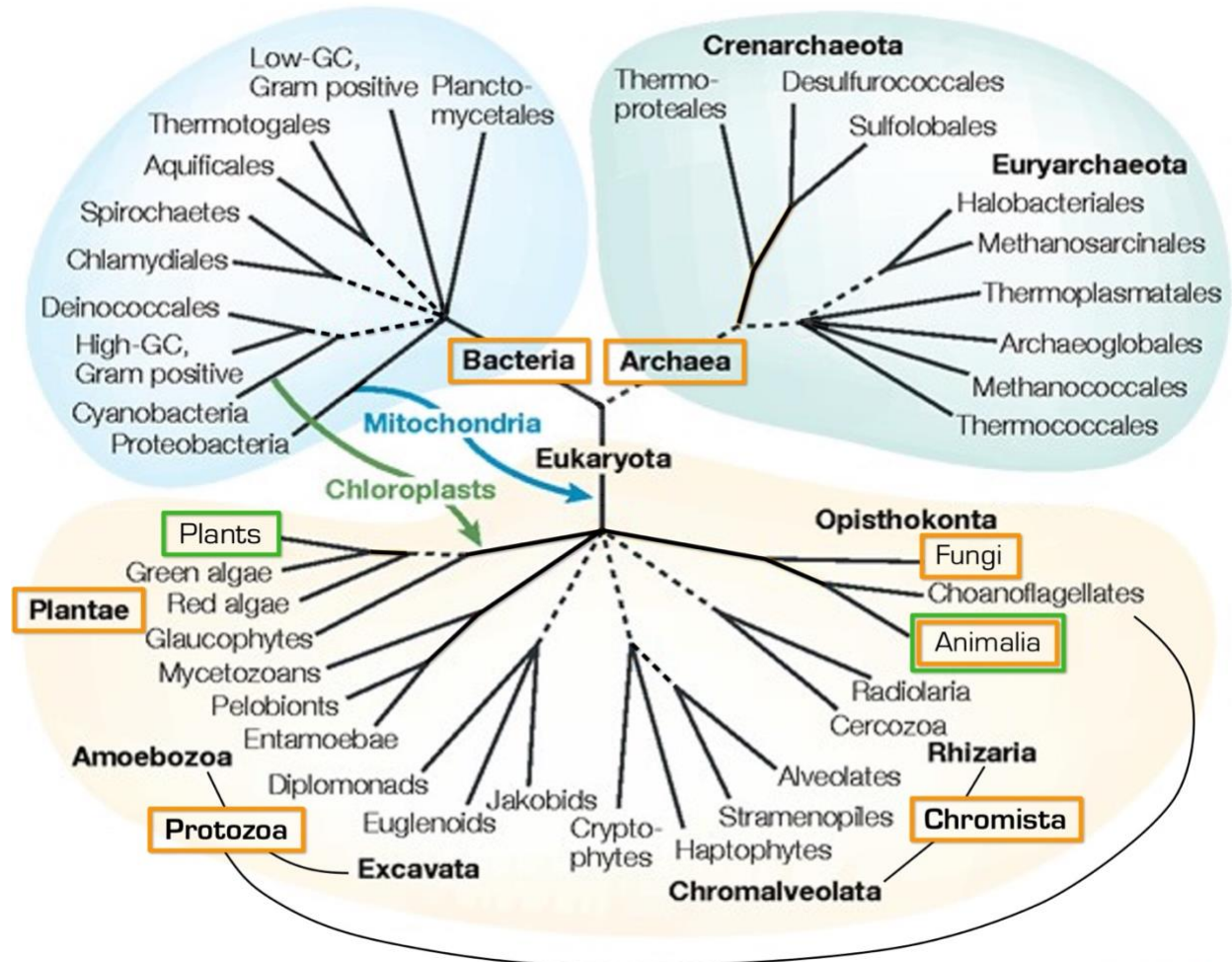


Figure 1. Updated understanding of the tree of life. Since the advent of genetic analysis as the main tool for classifying organisms based on their evolutionary relationships, biologists have departed far from the centuries-old classification of all living things into two kingdoms, plants and animals. The most fundamental present-day classification of life forms is in three *domains*, Bacteria and Archaea (single-celled organisms without a nucleus), and their evolutionary offspring Eukaryota (single-celled and multicellular organisms with cell nuclei, mitochondria, and in some cases chloroplasts). This graphic (adapted from Delsuc et al. 2005) illustrates how the domains are comparable to each other in diversity at the highest (i.e., most ancient) taxonomic divisions.

The seven **orange rectangles** mark taxa currently designated as kingdoms in the Catalogue of Life (Roskov et al. 2020). Kingdoms are categories of convenience rather than adhering strictly to the hierarchy of evolutionary relationships. The eighth kingdom in the Catalogue of Life consists of viruses (not shown)—parasitic offshoots of organisms in all of the other kingdoms. The kingdom Protozoa, in some earlier literature lumped with Chromista and labeled Protista, Proctotista, or the “grab bag” kingdom, includes two groups of uncertain affinity, the Amoebozoa and Excavata, plus an unrelated subset of the group Opisthokonta—the Choanoflagellates, the closest living relatives of animals and fungi.

The two **green rectangles** mark the only taxa currently receiving limited protection in Pennsylvania’s T&E species laws and regulations, limited because plant protections are weak and the majority of all animal species—terrestrial invertebrates—as yet have no legal status in the state.

Table 2. Animal taxa under PFBC jurisdiction. Taxonomy is according to Roskov et al. 2020. For taxa not yet assigned to an order, subclass or superorder names are substituted and so labeled. “PA inventory unavailable” indicates that multiple classes or orders are likely present but it is uncertain how many or which ones occur in the state.

group	phylum	class	order
aquatic VERTEBRATES	Chordata		
snakes, lizards		Reptilia	Squamata
turtles			Testudines
frogs, toads		Amphibia	Anura
salamanders			Caudata
bony fishes		Actinopterygii	
sturgeons, paddlefishes			Acipenseriformes
bowfin			Amiiformes
eels			Anguilliformes
silversides			Atheriniformes
shads, alewives			Clupeiformes
carps, minnows			Cypriniformes
killifishes			Cyprinodontiformes
pikes			Esociformes
burbot			Gadiformes
sticklebacks			Gasterosteiformes
gar			Lepisosteiformes
smelts			Osmeriformes
mooneyes			Osteoglossiformes
perches, sunfishes, basses			Perciformes
trout-perches and allies			Percopsiformes
trout, salmon			Salmoniformes
sculpins			Scorpaeniformes
catfishes			Siluriformes
lampreys		Cephalaspidomorphi	Petromyzontiformes
aquatic ARTHROPODS	Arthropoda		
insects		Insecta	
aquatic beetles			Coleoptera
aquatic flies, midges, mosquitoes			Diptera
mayflies			Ephemeroptera
water-striders, other aquatic bugs			Hemiptera
dobsonflies, fishflies, alderflies			Megaloptera
dragonflies, damselflies			Odonata
stoneflies			Plecoptera
caddisflies			Trichoptera
water springtail		Collembola	Poduromorpha
arachnids		Arachnida	
semiaquatic spiders			Araneae
water mites			Trombidiformes
branchiopods		Branchiopoda	
fairy shrimps			Anostraca
water-fleas			Diplostraca
tadpole shrimps			Notostraca

(continued on next page)

group	phylum	class	order
aquatic ARTHROPODS (continued)	Arthropoda		
crayfishes, crabs, scuds, isopods		Malacostraca	
scuds			Amphipoda
crayfishes, grass shrimps, crabs			Decapoda
aquatic isopods			Isopoda
opossum shrimps			Mysida
maxillopodans		Maxillopoda	
fishlice			Arguloida
copepods			Copepoda (subclass)
tongue worms			Pentastomida
mussel shrimps		Ostracoda	Podocopida
aquatic MOLLUSKS	Mollusca		
clams, mussels		Bivalvia	
zebra mussel			Myida
pill clams			Sphaeriida
freshwater mussels			Unionida
<i>Corbicula</i>			Venerida
aquatic snails		Gastropoda	
mystery snails			Architaenioglossa
pleurocerid snails			Caenogastropoda (subclass)
valve snails			Heterobranchia (subclass)
pond, ramshorn, & bubble snails			Hygrophila (superorder)
spring snails and allies			Littorinimorpha
aquatic ANNELIDS	Annelida		
leeches		Clitellata	Arhynchobdellida
aquatic earthworms			Lumbriculida
BRYOZOANS	Bryozoa	Gymnolaemata	Ctenostomatida
HYDRAS, FRESHWATER JELLYFISH	Cnidaria		
hydras		Hydrozoa	Anthoathecata
freshwater jellyfish			Limnomedusae
HAIRY-BACKS	Gastrotricha	—	Chaetonotida
ENTOPROCTS	Kamptozoa	Entoprocta	Solitaria
SPOROZOANS	Myxozoa	Myxosporea	Bivalvulida
aquatic ROUNDWORMS	Nematoda	[PA inventory unavailable]	
aquatic HORSEHAIR WORMS	Nematomorpha	[PA inventory unavailable]	
aquatic PROBOSCIS WORMS	Nemertea	[PA inventory unavailable]	
aquatic FLATWORMS	Platyhelminthes		
aquatic tapeworms		Cestoda	[PA inventory unavailable]
aquatic flukes		Trematoda	[PA inventory unavailable]
aquatic flatworms		Turbellaria	[PA inventory unavailable]
SPONGES	Porifera	Demospongiae	Spongillida
ROTIFERS, SPINY-HEADED WORMS	Syndermata	[PA inventory unavailable]	
aquatic WATER-BEARS	Tardigrada		
eutardigrades		Eutardigrada	[PA inventory unavailable]
heterotardigrades		Heterotardigrada	[PA inventory unavailable]

At this time, there are no requirements for recovery plans for state-listed species, however listed animal species are included in the State Wildlife Action Plan with detailed recognition of relevant threats, and proposed conservation actions that can address the threats and recover imperiled or declining species. Species of Greatest Conservation Need, identified in the Pennsylvania Wildlife Action Plan, are eligible for funding through the State and Tribal Wildlife Grants Program, administered by the PFBC and PGC. Plants are not included as SGCN and are ineligible for State and Tribal Wildlife Grants. Funding for T&E plant conservation is available through the DCNR Wild Resource Conservation Program and USFWS Section 6, which extends eligibility to state-listed plants in some years.

The outcomes for T&E species' recovery of PABS's work in determining the population status and risk of extirpation and of the agencies' work in developing and implementing recovery plans depend critically on effective state laws, regulations, and policies and on adequate funds being made available year after year for on-the-ground implementation. Recent research has shown extreme disparities in federally listed species recovery outcomes among: higher taxonomic groups; lengths of time since a species was listed; levels of threat; applicability of state-level policies; occurrences on private vs. publicly protected land; and amounts of funding allocated (Haines et al. 2021). No such analysis has been conducted on state-listed species, but the conclusions of the study, which was on species protected under the Endangered Species Act (ESA), are instructive when considering updates to state law, regulation, and policy. To quote the conclusions of Haines et al. 2021:

When reviewing the pattern of species recovery under the ESA, recovered species were more likely to be vertebrates, protected under the ESA for a longer period of time, affected by a lower number and diversity of threats, received protections from other policies outside the ESA, occurred more on protected lands, and received a higher proportion of recovery funding. Based on these observed patterns, recovery for species still listed, especially plants and invertebrates, could improve if they receive more recovery funding and are protected sooner under the ESA before suffering from a greater number and diversity of threats.

One purpose in developing an IUCN "green list" [of species that were once vulnerable and are now recovered] is to develop an optimistic vision of species conservation and provide learned lessons from species conservation success stories to provide a road map on how to achieve species recovery. Based on our observed patterns of species recovery under the ESA, we suggest five strategies to improve species recovery:

- 1. Time: Allow species ample time to recover and list them sooner, recognizing that biological and ecological processes are time-limited, and acknowledge that it is incorrect to conclude the ESA is a failure based on duration of listings without accounting for the time requirements.*
- 2. Funding: Increase federal, state, and private sector financial support for effective recovery actions (e.g., direct population management, control of problem species and habitat restoration; Malcom et al. 2019) and prioritize funding within a resource allocation framework as part of a decision support tool (Gerber et al. 2018).*
- 3. Regulations: Reestablish, maintain and develop environmental governmental policies that support species recovery efforts (e.g., regulations on take, pollution, energy development and off-road vehicle activity) and provide assurances that recovered species maintain their recovered status post-recovery (e.g., Clean Water Act, Migratory Bird Treaty Act).*
- 4. Agreements: Increase federal and state governmental support to establish innovative and tailored private landowner incentive programs, including agency agreements such as Memoranda of Understanding and Recovery Management Agreements to protect habitat and implement recovery actions.*
- 5. Land protection: In collaboration with local communities, enhance the amount of protected space for listed species that provide habitat space and the flexibility to implement effective recovery actions.*

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APPENDIX A: CHAPTER 45: CONSERVATION OF PENNSYLVANIA NATIVE WILD PLANTS

Title 17 Chapter 45 is regularly updated as new information is collected on species population status and as environmental changes lead to increased or decreased risk of extirpation. The current version is posted at www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/017/chapter45/chap45toc.html (accessed on 2021-07-27 for this version of *PABS Handbook* Chapter 3).

Subchapter ... Section

- A. GENERAL PROVISIONS ... 45.1
- B. CLASSIFIED PLANTS ... 45.11
- C. UNLAWFUL CONDUCT ... 45.31
- D. WILD PLANT MANAGEMENT PERMITS ... 45.41
- E. VULNERABLE PLANTS ... 45.61
- F. PRIVATE WILD PLANT SANCTUARIES ... 45.81
- G. PENALTIES ... 45.91

Authority

The provisions of this Chapter 45 issued under the act of June 23, 1982 (P. L. 597, No. 170) (32 P.S. §§5301—5314), unless otherwise noted.

Source

The provisions of this Chapter 45 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; renumbered from 25 Pa. Code Chapter 82, June 7, 1996, effective June 8, 1996, 26 Pa.B. 2707, unless otherwise noted. Immediately preceding text appears at serial pages (180623) to (180624), (183027) to (183028) and (180627) to (180659).

Cross References

This chapter cited in 17 Pa. Code §11.211 (relating to natural resources); and 17 Pa. Code §21.115 (relating to natural resources).

Subchapter A. GENERAL PROVISIONS

Section

- 45.1. Scope.
- 45.2. Definitions.
- 45.3. Classified plant taxonomy.

§45.1. Scope.

This chapter establishes a plant classification system, creates permit and license procedures and regulates other activities related to this Commonwealth's native wild plant management. This chapter applies to vulnerable plants, to naturally occurring wild plants native to this Commonwealth and to activities and persons associated with them.

§45.2. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Act—The Wild Resource Conservation Act (32 P. S. §§5301—5314).

Export—The transfer of plants, or parts thereof, across state lines for profit.

Ginseng—The plant species identified as *Panax quinquefolius* L.

Naturally occurring—Plant species whose natural range occurs in this Commonwealth.

Pennsylvania Endangered—A classification of plant species which are in danger of extinction throughout most or all of their natural range within this Commonwealth, if critical habitat is not maintained or if the species is greatly exploited by man. This classification also includes populations of plant species that have been classified as Pennsylvania Extirpated, but which subsequently are found to exist in this Commonwealth.

Pennsylvania Extirpated—A classification of plant species believed by the Department to be extinct within this Commonwealth. The plants may or may not exist outside this Commonwealth. If plant species classified as Pennsylvania Extirpated are found to exist, the species automatically will be considered to be classified as Pennsylvania Endangered.

Pennsylvania Rare—A classification of plant species which are uncommon within this Commonwealth because they may be found in restricted geographic areas or in low numbers throughout this Commonwealth.

Pennsylvania Threatened—A classification of plant species which may become endangered throughout most or all of their natural range within this Commonwealth, if critical habitat is not maintained to prevent their further decline in this Commonwealth, or if the species is greatly exploited by man.

Pennsylvania Vulnerable—A classification of plant species which are in danger of population decline within this Commonwealth because of their beauty, economic value, use as a cultivar or other factors which indicate that persons may seek to remove these species from their native habitats.

Special Concern Population—A classification that is composed of colonies, groups or single individuals of a plant species that the Department has determined to be a unique occurrence deserving protection. Among the factors that may be used to classify a plant population within this category are the existence of unusual geographic locations, unisexual populations or extraordinarily diverse plant populations.

Tentatively Undetermined—A classification of plant species which are believed to be in danger of population decline, but which cannot presently be included within another classification due to taxonomic uncertainties, limited evidence within historical records or insufficient data.

Wild plants—Naturally occurring native flora, except those commonly considered an agricultural commodity, including green and nongreen species or subspecies, variety or a part, product, seed or progeny thereof.

Authority

The provisions of this §45.2 amended under section 7 of the Wild Resource Conservation Act (32 P.S. §5307); and sections 305(a)(9) and 313(g) of the Conservation and Natural Resources Act (71 P.S. §§1340.305(a)(9) and 1340.313(g)).

Source

The provisions of this §45.2 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; amended June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816; amended December 21, 2018, effective December 22, 2018, 48 Pa.B. 7757. Immediately preceding text appears at serial pages (378083) to (378084) and (217121).

§45.3. Classified plant taxonomy.

Nomenclature used to identify species taxonomy in Subchapter B (relating to classified plants) is according to Rhoads, A. F. and Block, T. A. (2007), *The Plants of Pennsylvania: An Illustrated Manual*, Second Edition,

Philadelphia, Pennsylvania: University of Pennsylvania Press., unless a different taxonomic source is indicated immediately following the scientific name.

Authority

The provisions of this §45.3 amended under section 7 of the Wild Resource Conservation Act (32 P.S. §5307); and sections 305(a)(9) and 313(g) of the Conservation and Natural Resources Act (71 P.S. §§1340.305(a)(9) and 1340.313(g)).

Source

The provisions of this §45.3 amended December 21, 2018, effective December 21, 2018, 48 Pa.B. 7757. Immediately preceding text appears at serial page (217121).

Subchapter B. CLASSIFIED PLANTS

Section

- 45.11. Pennsylvania Extirpated.
- 45.12. Pennsylvania Endangered.
- 45.13. Pennsylvania Threatened.
- 45.14. Pennsylvania Rare.
- 45.15. Pennsylvania Vulnerable.
- 45.16. [Reserved].
- 45.17. [Reserved].
- 45.18. [Reserved].
- 45.19. [Reserved].
- 45.20. Special Concern Population.
- 45.21. Tentatively Undetermined.

Cross References

This subchapter cited in 17 Pa. Code §45.3 (relating to classified plant taxonomy).

§45.11. Pennsylvania Extirpated.

Plant species classified as Pennsylvania Extirpated are as follows:

Scientific Name	Common Name
<i>Aeschynomene virginica</i> (L.) Britton, Stearns & Poggenb.	Sensitive Joint-Vetch
<i>Agalinis decemloba</i> (Greene) Pennell	Blue Ridge False Foxglove
<i>Agrostis altissima</i> (Walter) Tuck.	Tall Bentgrass
<i>Arctostaphylos uva-ursi</i> (L.) Spreng.	Bearberry Manzanita
<i>Asclepias rubra</i> L.	Red Milkweed
<i>Astragalus neglectus</i> (Torr. & A. Gray) Sheldon	Cooper's Milk-Vetch
<i>Berberis canadensis</i> P. Mill.	American Barberry
<i>Buchnera americana</i> L.	Bluehearts
<i>Carex adusta</i> Boott	Crowded Sedge
<i>Carex alopecoidea</i> Tuckerman	Foxtail Sedge
<i>Carex backii</i> Boott	Rocky Mountain Sedge
<i>Carex barrattii</i> Schwein. & Torr.	Barratt's Sedge
<i>Carex chordorrhiza</i> L.f.	Creeping Sedge
<i>Carex foenea</i> Willd.	Fernald's Hay Sedge
<i>Carex hyalinolepis</i> Steud.	Shoreline Sedge
<i>Carex nigra</i> (L.) Reichard	Black Sedge

Scientific Name	Common Name
<i>Carex sartwellii</i> Dewey	Sartwell's Sedge
<i>Chamaecyparis thyoides</i> (L.) Britton, Stearns & Poggenb.	Atlantic White-Cedar
<i>Commelina erecta</i> L.	Slender Dayflower
<i>Commelina virginica</i> L.	Virginia Dayflower
<i>Coreopsis rosea</i> Nutt.	Pink Tickseed
<i>Crassula aquatica</i> (L.) Schönland	Water-Pigmyweed
<i>Crotonopsis elliptica</i> Willd.	Elliptical Rushfoil
<i>Cynoglossum boreale</i> Fernald	Northern Hound's Tongue
<i>Cyperus polystachyos</i> Rottb.	Many-Spiked Flatsedge
<i>Cypripedium candidum</i> Muhl. ex Willd.	Small White Lady's-Slipper
<i>Desmodium sessilifolium</i> (Torr.) Torr. and A. Gray	Sessile-Leaved Tick Trefoil
<i>Dichanthelium leibergii</i> (Vasey) Freckmann	Leiberg's Panic Grass
<i>Dichanthelium spretum</i> (Schult.) Freckmann	Eaton's Witchgrass
<i>Diphasiastrum sabinifolium</i> (Willd.) Holub.	Fir Clubmoss
<i>Distichlis spicata</i> (L.) Greene	Sea-Shore Salt-Grass
<i>Draba reptans</i> (Lam.) Fernald	Carolina Whitlow-Grass
<i>Echinacea laevigata</i> (C. L. Boynton & Beadle) S. F. Blake	Smooth Purple Coneflower
<i>Elatine americana</i> (Pursh) Arn.	Long-Stem Waterwort
<i>Eleocharis tricostata</i> Torr.	Three-Ribbed Spike-Rush
<i>Eleocharis tuberculosa</i> (Michx.) Roem. & Schult.	Long-Tuberclad Spike-Rush
<i>Elodea schweinitzii</i> (Planch) Casp.	Schweinitz's Waterweed
<i>Eriocaulon decangulare</i> L.	Ten-Angle Pipewort
<i>Eriocaulon parkeri</i> B. L. Rob.	Parker's Pipewort
<i>Eryngium aquaticum</i> L.	Marsh Eryngo
<i>Eupatorium album</i> L. var <i>album</i>	White Thoroughwort
<i>Eupatorium leucolepis</i> (DC) Torr. & A. Gray	White-Bracted Thoroughwort
<i>Euphorbia obtusata</i> Pursh	Blunt-Leaved Spurge
<i>Fimbristylis puberula</i> (Michx.) Vahl	Hairy Fimbry
<i>Galactia regularis</i> (L.) Britton, Stearns & Poggenb.	Eastern Milk-Pea
<i>Galactia volubilis</i> (L.) Britton	Downy Milk-Pea
<i>Gentiana catesbaei</i> Walter	Elliott's Gentian
<i>Gentianopsis virgata</i> (Raf.) Holub	Narrow-Leaved Fringed Gentian
<i>Helianthus angustifolius</i> L.	Swamp Sunflower
<i>Hordeum pusillum</i> Nutt. Á Löve	Little-Barley
<i>Hottonia inflata</i> Elliott	American Featherfoil
<i>Hydrocotyle umbellata</i> L.	Many-Flowered Pennywort
<i>Hypericum adpressum</i> Raf. ex Barton	Creeping St. John's-Wort
<i>Hypericum crux-andreae</i> (L.) Crantz	St. Peter's-Wort
<i>Hypericum denticulatum</i> Walter	Coppery St. John's-Wort
<i>Hypericum gymnanthum</i> Engelm. & A. Gray	Clasping-Leaved St. John's-Wort
<i>Ilex glabra</i> (L.) A. Gray	Inkberry
<i>Itea virginica</i> L.	Virginia-Willow
<i>Juncus greenei</i> Oakes & Tuck.	Greene's Rush
<i>Koeleria macrantha</i> (Ledeb.) Schultes	Junegrass
<i>Leiophyllum buxifolium</i> (Berg.) Elliott	Sand-Myrtle
<i>Lespedeza stuevei</i> Nutt.	Tall Bush-Clover
<i>Limosella australis</i> R. Br.	Awl-Shaped Mudwort
<i>Lobelia nuttallii</i> Roem. & Schult.	Nuttall's Lobelia
<i>Ludwigia sphaerocarpa</i> Elliott	Spherical-Fruited Seedbox
<i>Lysimachia quadriflora</i> Sims	Four-Flowered Loosestrife
<i>Matelea carolinensis</i> (Jacq.) Woods.	Carolina Milkvine
<i>Micranthemum micranthemoides</i> (Nutt.) Wettst.	Nuttall's Mud-Flower

Scientific Name	Common Name
<i>Muhlenbergia capillaris</i> (Lam.) Trin.	Short Muhly
<i>Myrica heterophylla</i> Raf.	Evergreen Bayberry
<i>Onosmodium virginianum</i> (L.) A. DC.	Virginia False Gromwell
<i>Ophioglossum vulgatum</i> L. var. <i>pycnostichum</i> Fernald	Adders Tongue
<i>Phoradendron leucarpum</i> (Raf.) Reveal & M. C. Johnst.	Christmas Mistletoe
<i>Phyllanthus caroliniensis</i> Walt.	Carolina Leaf-Flower
<i>Platanthera cristata</i> (Michx.) Lindl.	Crested Yellow Orchid
<i>Platanthera leucophaea</i> (Nutt.) Lindl.	Prairie White-Fringed Orchid
<i>Polygala lutea</i> L.	Yellow Milkwort
<i>Populus heterophylla</i> L.	Swamp Cottonwood
<i>Potamogeton alpinus</i> Balbis	Northern Pondweed
<i>Potamogeton praelongus</i> Wulfen	White-Stem Pondweed
<i>Prenanthes racemosa</i> Michx.	Glaucous Rattlesnake-Root
<i>Proserpinaca pectinata</i> Lam.	Comb-Leaved Mermaid-Weed
<i>Ranunculus hederaceus</i> L.	Long-Stalked Crowfoot
<i>Rhododendron calendulaceum</i> (Michx.) Torr.	Flame Azalea
<i>Rhynchospora fusca</i> (L.) Aiton f.	Brown Beak-Rush
<i>Rhynchospora gracilentia</i> A. Gray	Beak-Rush
<i>Ruellia caroliniensis</i> (Walter ex J. F. Gmel.) Steud.	Carolina Petunia
<i>Sabatia campanulata</i> (L.) Torr.	Slender Marsh-Pink
<i>Sabatia stellaris</i> Pursh	Sea Pink
<i>Saccharum giganteum</i> (Walter) Pers.	Sugarcane-Plumegrass
<i>Sagittaria filiformis</i> J. G. Sm.	Water Arrow-Head
<i>Schoenoplectus heterochaetus</i> Chase (Sojak)	Slender Bulrush
<i>Scutellaria serrata</i> Andr.	Showy Skullcap
<i>Sisyrinchium fuscatum</i> E. P. Bicknell	Sand Blue-Eyed Grass
<i>Smilax pseudochina</i> L.	Long-Stalked Greenbrier
<i>Sparganium natans</i> L.	Small Bur-Reed
<i>Spiraea virginiana</i> Britton	Virginia Spiraea
<i>Spiranthes magnicamporum</i> Sheviak	Ladies'-Tresses
<i>Trifolium reflexum</i> L.	Buffalo Clover
<i>Triglochin palustris</i> L.	Marsh Arrowgrass
<i>Utricularia fibrosa</i> Walt.	Fibrous Bladderwort
<i>Utricularia resupinata</i> B. D. Greene ex Bigelow	Northeastern Bladderwort

Authority

The provisions of this §45.11 amended under section 7 of the Wild Resource Conservation Act (32 P.S. §5307); and sections 305(a)(9) and 313(g) of the Conservation and Natural Resources Act (71 P.S. §§1340.305(a)(9) and 1340.313(g)).

Source

The provisions of this §45.11 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; amended June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816; amended December 21, 2018, effective December 22, 2018, 48 Pa.B. 7757. Immediately preceding text appears at serial pages (217121) to (217124).

§45.12. Pennsylvania Endangered.

Plant species classified as Pennsylvania Endangered are as follows:

Scientific Name	Common Name
<i>Aconitum reclinatum</i> A. Gray	White Monkshood

Scientific Name	Common Name
<i>Acorus americanus</i> (Raf.) Raf.	Sweet Flag
<i>Agalinis auriculata</i> (Michx.) S. F. Blake	Eared False Foxglove
<i>Agalinis paupercula</i> (A. Gray) Britton	Small-Flowered False Foxglove
<i>Alisma triviale</i> Pursh	Broad-Leaved Water-Plantain
<i>Alnus viridis</i> (Vill.) DC	Mountain Alder
<i>Amelanchier bartramiana</i> (Tausch) M. Roem.	Oblong-Fruited Serviceberry
<i>Ammania coccinea</i> Rottb.	Scarlet Ammannia
<i>Anemone cylindrica</i> A. Gray	Long-Headed Anemone
<i>Arabis missouriensis</i> Greene	Missouri Rockcress
<i>Arethusa bulbosa</i> L.	Dragon's-Mouth
<i>Arnica acaulis</i> (Walter) Britton, Stearns & Poggenb.	Leopard's-Bane
<i>Artemisia campestris</i> L. ssp. <i>caudata</i> (Michx.) Hall & Clements.	Beach Wormwood
<i>Asclepias variegata</i> L.	White Milkweed
<i>Asplenium resiliens</i> Kunze	Black-Stemmed Spleenwort
<i>Bidens beckii</i> (Torr. ex Spreng.) Greene	Beck's Water-Marigold
<i>Boltonia asteroides</i> (L.) L'Hér.	Aster-Like Boltonia
<i>Cardamine pratensis</i> L. var. <i>palustris</i> Wimm. & Grab. ¹	Cuckooflower
<i>Carex atherodes</i> Spreng.	Awed Sedge
<i>Carex aurea</i> Nutt.	Golden-Fruited Sedge
<i>Carex bebbii</i> (Bailey) Fern.	Bebb's Sedge
<i>Carex bicknellii</i> Britton	Bicknell's Sedge
<i>Carex bullata</i> Willd.	Bull Sedge
<i>Carex careyana</i> Dewey	Carey's Sedge
<i>Carex collinsii</i> Nutt.	Collin's Sedge
<i>Carex crinita</i> Lam. var. <i>brevicrinis</i> Fernald	Short-Hair Sedge
<i>Carex eburnea</i> Boott	Ebony Sedge
<i>Carex formosa</i> Dewey	Handsome Sedge
<i>Carex garberi</i> Fernald	Elk Sedge
<i>Carex geyeri</i> Boott	Geyer's Sedge
<i>Carex gravida</i> Bailey	Heavy Sedge
<i>Carex mitchelliana</i> M. A. Curtis	Mitchell's Sedge
<i>Carex pauciflora</i> Lightf.	Few-Flowered Sedge
<i>Carex polymorpha</i> Muhl.	Variable Sedge
<i>Carex pseudocyperus</i> L.	Cyperus-Like Sedge
<i>Carex retrorsa</i> Schwein.	Backward Sedge
<i>Carex typhina</i> Michx.	Cat-Tail Sedge
<i>Carex viridula</i> Michx.	Green Sedge
<i>Cerastium velutinum</i> Raf. var. <i>villosissimum</i> (Pennell) J. K. Morton	Octoraro Creek Chickweed
<i>Chasmanthium laxum</i> (L.) H. O. Yates	Slender Wild-Oats
<i>Chenopodium foggii</i> Wahl	Fogg's Goosefoot
<i>Chrysogonum virginianum</i> L.	Green-and-Gold
<i>Cirsium horridulum</i> Michx.	Horrible Thistle
<i>Cladium mariscoides</i> (Muhl.) Torr.	Twig-Rush
<i>Clematis viorna</i> L.	Leather-Flower
<i>Clethra acuminata</i> Michx.	Mountain Pepperbush
<i>Clitoria mariana</i> L.	Butterfly Pea
<i>Coeloglossum viride</i> (L.) Hartm.	Long-Bracted Green Orchis
<i>Conioselinum chinense</i> (L.) Britton, Stearns & Poggenb.	Hemlock-Parsley
<i>Cryptogramma stelleri</i> (Gmel.) Prantl	Slender Rockbrake

¹ Source: Gleason, H. A. and A. Cronquist, *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*, 1991, Second Edition

Scientific Name	Common Name
<i>Cymophyllus fraserianus</i> (Ker Gawl.) Kartesz & Gandhi	Fraser's Sedge
<i>Cyperus acuminatus</i> Torr. & Hook.	Short-Pointed Flatsedge
<i>Cyperus diandrus</i> Torr.	Umbrella Sedge
<i>Cyperus houghtonii</i> Torr.	Houghton's Flatsedge
<i>Cyperus refractus</i> Engelm.	Reflexed Flatsedge
<i>Cyperus retrorsus</i> Chapman	Retorse Flatsedge
<i>Cyripedium parviflorum</i> Salisb. var. <i>makasin</i> ²	Northern Small Yellow Lady's-Slipper
<i>Cyripedium parviflorum</i> Salisb. var. <i>parviflorum</i> ²	Southern Small Yellow Lady's-Slipper
<i>Delphinium exaltatum</i> Aiton	Tall Larkspur
<i>Desmodium humifusum</i> (Muhl.) Beck	Trailing Tick-Trefoil
<i>Diarrhena obovata</i> (Gleason) Bradenburg	Obovate Beakgrain
<i>Dicentra eximia</i> (Ker Gwal.) Torr.	Wild Bleeding-Heart
<i>Dichanthelium scoparium</i> (Lam.) Gould	Velvety Panic Grass
<i>Dichanthelium xanthophysum</i> (A. Gray) Freckmann	Slender Panic Grass
<i>Dodecatheon meadia</i> L.	Shooting-Star
<i>Dryopteris campyloptera</i> (Kunze) Clarkson	Mountain Wood Fern
<i>Echinochloa walteri</i> (Pursh) A. Heller	Walter's Barnyard-Grass
<i>Eleocharis caribaea</i> (Rottb.) S. F. Blake	Capitate Spike-Rush
<i>Eleocharis compressa</i> Sull.	Flat-Stemmed Spike-Rush
<i>Eleocharis elliptica</i> Kunth	Slender Spike-Rush
<i>Eleocharis obtusa</i> (Willd.) Schult. var. <i>peasei</i> Svenson	Wright's Spike-Rush
<i>Eleocharis parvula</i> (Roem. & Schult.) Link ex Buffon & Fingerh.	Dwarf Spike-Rush
<i>Eleocharis pauciflora</i> (Lightf.) Link var. <i>fernaldii</i> Swenson	Few-Flowered Spike-Rush
<i>Eleocharis quadrangulata</i> (Michx.) Roem. & Schult.	Four-Angled Spike-Rush
<i>Eleocharis rostellata</i> (Torr.) Torr.	Beaked Spike-Rush
<i>Eleocharis tenuis</i> (Willd.) Schult. var. <i>verrucosa</i> (Svenson) Svenson	Slender Spike-Rush
<i>Equisetum scirpoides</i> Michx. ²	Dwarf Scouring-Rush
<i>Equisetum variegatum</i> Schleich.	Variegated Scouring-Rush
<i>Eriophorum gracile</i> Koch ex Roth	Slender Cotton-Grass
<i>Eriophorum tenellum</i> Nutt.	Rough Cotton-Grass
<i>Euphorbia ipecacuanhae</i> L.	Wild Ipecac
<i>Euphorbia purpurea</i> (Raf.) Fernald	Glade Spurge
<i>Eurybia spectabilis</i> (Aiton) Nesom	Showy Aster
<i>Festuca paradoxa</i> Desv.	Cluster Fescue
<i>Fraxinus profunda</i> (Bush) Bush	Pumpkin Ash
<i>Galium labradoricum</i> Wiegand	Bog Bedstraw
<i>Gaylussacia dumosa</i> (Andr.) Torr. & A. Gray	Dwarf Huckleberry
<i>Geranium bicknellii</i> Britton	Cranesbill
<i>Glyceria borealis</i> (Nash) Batch.	Small Floating Mannagrass
<i>Glyceria obtusa</i> (Muhl.) Trin.	Blunt Manna-Grass
<i>Goodyera tessellata</i> Lodd.	Checkered Rattlesnake-Plantain
<i>Gymnopogon ambiguus</i> (Michx.) Britton, Stearns & Poggenb.	Broad-Leaved Beardgrass
<i>Helianthemum bicknellii</i> Fernald	Bicknell's Hoary Rockrose
<i>Heteranthera multiflora</i> (Griseb.) Horn.	Multi-Flowered Mud-Plantain
<i>Hieracium traillii</i> Greene	Maryland Hawkweed
<i>Hierochloa odorata</i> (L.) Beauv.	Vanilla Sweet-Grass
<i>Huperzia porophila</i> (F. E. Lloyd & Underw.) Holub	Sandstone-Loving Firmoss
<i>Hydrophyllum macrophyllum</i> Nutt.	Large-Leaved Water-Leaf
<i>Iodanthus pinnatifidus</i> (Michx.) Steud.	Purple-Rocket

² Source: *Flora of North America*

Scientific Name	Common Name
<i>Iris cristata</i> Sol. ex Aiton	Dwarf Crested Iris
<i>Iris prismatica</i> Pursh	Slender Blue Flag
<i>Iris verna</i> L.	Dwarf Iris
<i>Isotria medeoloides</i> (Pursh) Raf.	Small-Whorled Pogonia
<i>Juncus brachycarpus</i> Engelm.	Short-Fruited Rush
<i>Juncus dichotomus</i> Elliott	Forked Rush
<i>Juncus longii</i> Fern.	Long's Rush
<i>Juncus militaris</i> Bigelow	Bayonet Rush
<i>Juncus scirpoides</i> Lam.	Scirpus-Like Rush
<i>Lespedeza angustifolia</i> (Pursh) Elliott	Narrow-Leaved Bush-Clover
<i>Ligusticum canadense</i> (L.) Britton	Nondo Lovage
<i>Linum intercursum</i> E. P. Bicknell	Sandplain Wild Flax
<i>Linum sulcatum</i> Riddell	Grooved Yellow Flax
<i>Lipocarpha micrantha</i> (Vahl) G. C. Tucker	Common Hemicarpha
<i>Listera australis</i> Lindl.	Southern Twayblade
<i>Listera cordata</i> (L.) R. Br.	Heartleaf Twayblade
<i>Listera smallii</i> Wiegand	Kidney-Leaved Twayblade
<i>Lithospermum caroliniense</i> (J. F. Gmel.) MacMill.	Hispid Gromwell
<i>Lithospermum latifolium</i> Michx.	American Gromwell
<i>Lobelia kalmii</i> L.	Brook Lobelia
<i>Lobelia puberula</i> Michx.	Downy Lobelia
<i>Lonicera oblongifolia</i> (Goldie) Hook.	Swamp Fly-Honeysuckle
<i>Lonicera villosa</i> (Michx.) Roem. & Schult.	Mountain Fly-Honeysuckle
<i>Ludwigia decurrens</i> Walter	Upright Primrose-Willow
<i>Ludwigia polycarpa</i> Short & Peter	False Loosestrife Seedbox
<i>Lycopodiella alopecuroides</i> (L.) Cranfill	Foxtail Bog Clubmoss
<i>Lycopodiella margueritae</i> J. G. Bruce, W. H. Wagner & Beitel	Marguerite's Clubmoss
<i>Lycopus rubellus</i> Moench.	Taper-Leaved Bugle-Weed
<i>Lyonia mariana</i> (L.) D. Don	Staggerbush
<i>Malaxis bayardii</i> Fernald	Adder's-Mouth
<i>Marshallia grandiflora</i> Beadle & F. E. Boynton	Large-Flowered Marshallia
<i>Matelea obliqua</i> (Jacq.) Woodson	Oblique Milkvine
<i>Mitella nuda</i> L.	Naked Bishop's-Cap
<i>Monarda punctata</i> L.	Spotted Bee-Balm
<i>Montia chamissoi</i> (Ledeb. ex Spreng.) Greene	Chamisso's Miner's-Lettuce
<i>Muhlenbergia uniflora</i> (Muhl.) Fern.	Fall Dropseed Muhly
<i>Myriophyllum farwellii</i> Morong	Farwell's Water-Milfoil
<i>Myriophyllum sibiricum</i> Komarov	Northern Water-Milfoil
<i>Myriophyllum verticillatum</i> L.	Whorled Water-Milfoil
<i>Najas marina</i> L.	Holly-Leaved Naiad
<i>Oclemena nemoralis</i> (Aiton) E. Greene	Leafy Bog Aster
<i>Onosmodium molle</i> Michx. var. <i>hispidissimum</i> (Mack.) Cronquist	False Gromwell
<i>Ophioglossum engelmannii</i> Prantl	Limestone Adder's-Tongue
<i>Packeria antennariifolia</i> (Britton) W. A. Weber & Löve	Cat's-Paw Ragwort
<i>Panicum amarum</i> Elliott var. <i>amarulum</i> (A. Hitchc. & Chase) P. G. Palmer	Beachgrass
<i>Parnassia glauca</i> Raf.	Grass-of-Parnassus
<i>Passiflora lutea</i> L.	Passion-Flower
<i>Paxistima canbyi</i> A. Gray	Canby's Mountain-Lover
<i>Persicaria careyi</i> (Olney) Greene	Carey's Smartweed
<i>Persicaria setacea</i> (Baldwin) Small	Swamp Smartweed
<i>Phlox ovata</i> L.	Mountain Phlox
<i>Phlox subulata</i> L. ssp. <i>brittonii</i> (Small) Wherry	Moss Pink

Scientific Name	Common Name
<i>Piptatherum pungens</i> (Torr. ex Spreng.) Dorn	Slender Mountain Ricegrass
<i>Platanthera aquilonis</i> Sheviak, Lindleyana ³	Northern Green Orchid
<i>Platanthera dilatata</i> (Pursh) Lindl. ex Beck	Tall White Bog-Orchid
<i>Platanthera huronensis</i> (Nutt.) Lindl.	Huron Green Orchid
<i>Poa autumnalis</i> Muhl. ex Elliott	Autumn Bluegrass
<i>Polemonium van-bruntiae</i> Britton	Jacob's-Ladder
<i>Polygala cruciata</i> L.	Cross-Leaved Milkwort
<i>Polygala curtissii</i> A. Gray	Curtis' Milkwort
<i>Polygala incarnata</i> L.	Pink Milkwort
<i>Polystichum braunii</i> (Spenn.) Fee	Braun's Holly Fern
<i>Populus balsamifera</i> L.	Balsam Poplar
<i>Potamogeton friesii</i> Rupr.	Fries' Pondweed
<i>Potamogeton gramineus</i> L.	Grassy Pondweed
<i>Potamogeton hillii</i> Morong	Hill's Pondweed
<i>Potamogeton obtusifolius</i> Mert. & Koch	Blunt-Leaved Pondweed
<i>Potamogeton pulcher</i> Tuck.	Spotted Pondweed
<i>Potamogeton strictifolius</i> A. Benn.	Narrow-Leaved Pondweed
<i>Potamogeton tennesseensis</i> Fernald	Tennessee Pondweed
<i>Potamogeton vaseyi</i> J. W. Robbins	Vasey's Pondweed
<i>Potentilla fruticosa</i> L.	Shrubby Cinquefoil
<i>Potentilla paradoxa</i> Nutt.	Bushy Cinquefoil
<i>Potentilla tridentata</i> Aiton	Three-Toothed Cinquefoil
<i>Prunus maritima</i> Marshall	Beach Plum
<i>Prunus nigra</i> Ait.	Canada Plum
<i>Ptilimnium capillaceum</i> (Michx.) Raf.	Mock Bishop-Weed
<i>Pycnanthemum torrei</i> Benth.	Torrey's Mountain-Mint
<i>Quercus falcata</i> Michx.	Southern Red Oak
<i>Quercus phellos</i> L.	Willow Oak
<i>Quercus shumardii</i> Buckley	Shumard Oak
<i>Ranunculus fascicularis</i> Muhl. ex J. M. Bigelow	Tufted Buttercup
<i>Ratibida pinnata</i> (Vent.) Barnhart	Gray-Headed Prairie Coneflower
<i>Rhamnus lanceolata</i> Pursh	Lanceolate Buckthorn
<i>Rhexia mariana</i> L.	Maryland Meadow-Beauty
<i>Rhododendron atlanticum</i> (Ashe) Rehder	Dwarf Azalea
<i>Rhynchospora capillacea</i> Torr.	Capillary Beak-Rush
<i>Ribes missouriense</i> Nutt. ex Torr. & A. Gray	Missouri Gooseberry
<i>Rubus cuneifolius</i> Pursh	Sand Blackberry
<i>Ruellia humilis</i> Nutt.	Fringed-Leaved Petunia
<i>Sagittaria calycina</i> Engelm.	Long-Lobed Arrowhead
<i>Scheuchzeria palustris</i> L.	Pod-Grass
<i>Schoenoplectus acutus</i> (Muhl. ex Bigel.) Löve & Löve	Hard-Stemmed Bulrush
<i>Schoenoplectus smithii</i> (A. Gray) Sojak	Smith's Bulrush
<i>Schoenoplectus torreyi</i> (Olney) Palla	Torrey's Bulrush
<i>Scirpus ancistrochaetus</i> Schuyler	Northeastern Bulrush
<i>Scleria minor</i> (Britton) Stone	Small Nut-Rush
<i>Scleria muhlenbergii</i> Steud.	Reticulated Nut-Rush
<i>Scleria verticillata</i> Muhl. ex Willd.	Whorled Nut-Rush
<i>Sedum rosea</i> (L.) Scop.	Roseroot Stonecrop
<i>Sericocarpus linifolius</i> (L.) Britton, Stearns & Poggenb.	Narrow-Leaved White-Topped Aster

³ Source: *Flora of North America*

Scientific Name	Common Name
<i>Shepherdia canadensis</i> (L.) Nutt.	Canada Buffalo-Berry
<i>Sida hermaphrodita</i> (L.) Rusby	Virginia Mallow
<i>Sisyrinchium atlanticum</i> E. P. Bicknell	Eastern Blue-Eyed-Grass
<i>Solidago arguta</i> Aiton var. <i>harrisii</i> (E. S. Steele) Cronquist	Harris' Goldenrod
<i>Solidago curtissii</i> Torr. & A. Gray	Curtis' Goldenrod
<i>Solidago erecta</i> Banks ex Pursh	Slender Goldenrod
<i>Solidago simplex</i> Kunth ssp. <i>randii</i> (Porter) Ringius var. <i>racemosa</i> (Greene) Ringius	Sticky Goldenrod
<i>Sorbus decora</i> (Sarg.) Schneid.	Showy Mountain-Ash
<i>Sparganium androcladum</i> (Engelm.) Morong	Branching Bur-Reed
<i>Spiranthes casei</i> Catling & Cruise	Case's Ladies'-Tresses
<i>Spiranthes ovalis</i> Lindl.	October Ladies'-Tresses
<i>Spiranthes romanzoffiana</i> Cham.	Hooded Ladies'-Tresses
<i>Spiranthes vernalis</i> Engelm. & A. Gray	Spring Ladies'-Tresses
<i>Sporobolus clandestinus</i> (Biehler) A. Hitchc.	Rough Dropseed
<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	Sand Dropseed
<i>Sporobolus heterolepis</i> (A. Gray) A. Gray	Prairie Dropseed
<i>Stachys nuttallii</i> Shuttlew. ex Benth.	Nuttall's Hedge-Nettle
<i>Swertia caroliniensis</i> (Walter) Kuntze	American Columbo
<i>Symphyotrichum boreale</i> (Torr. & Gray) Á Löve & D. Löve	Northern Bog Aster
<i>Taenidia montana</i> (Mack.) Cronquist	Mountain Pimpernel
<i>Thalictrum coriaceum</i> (Britt.) Small	Thick-Leaved Meadow-Rue
<i>Trichostema setaceum</i> Houtt.	Narrow-Leaved Blue-Curls
<i>Trifolium virginicum</i> Small	Kate's-Mountain Clover
<i>Triphora trianthophora</i> (Swartz) Rydb.	Nodding Pogonia
<i>Triplasis purpurea</i> (Walter) Chapm.	Purple Sandgrass
<i>Trollius laxus</i> Salisb.	Spreading Globe-Flower
<i>Veronia glauca</i> (L.) Willd.	Tawny Ironweed
<i>Viburnum nudum</i> L.	Possum Haw Viburnum
<i>Viola brittoniana</i> Pollard	Coast Violet
<i>Vitis novae-angliae</i> Fernald	New England Grape
<i>Vitis rupestris</i> Scheele	Sand Grape
<i>Zigadenus glaucus</i> (Nutt.) Nutt.	White Camas

Authority

The provisions of this §45.12 amended under section 7 of the Wild Resource Conservation Act (32 P.S. §5307); and sections 305(a)(9) and 313(g) of the Conservation and Natural Resources Act (71 P.S. §§1340.305(a)(9) and 1340.313(g)).

Source

The provisions of this §45.12 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; amended June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816; amended December 21, 2018, effective December 22, 2018, 48 Pa.B. 7757. Immediately preceding text appears at serial pages (217125) to (217130) and (353987) to (353988).

Cross References

This section cited in 7 Pa. Code §128.102 (relating to protected designated areas).

§45.13. Pennsylvania Threatened.

Plant species classified as Pennsylvania Threatened are as follows:

Scientific Name	Common Name
<i>Aconitum uncinatum</i> L.	Blue Monkshood
<i>Actaea podocarpa</i> DC	American Bugbane
<i>Ammophila breviligulata</i> Fernald	American Beachgrass
<i>Arceuthobium pusillum</i> Peck	Dwarf Mistletoe
<i>Aristida purpurascens</i> Poir.	Arrow-Feather Three-Awn
<i>Asplenium bradleyi</i> D. C. Eaton	Bradley's Spleenwort
<i>Baptisia australis</i> (L.) R. Br.	Blue False Indigo
<i>Bidens bidentoides</i> (Nutt.) Britt.	Swamp Beggar-Ticks
<i>Bouteloua curtipendula</i> (Michx.) Torr.	Tall Gramma
<i>Camassia scilloides</i> (Raf.) Cory	Wild Hyacinth
<i>Carex alata</i> Torr.	Broad-Winged Sedge
<i>Carex aquatilis</i> Wahlenb.	Water Sedge
<i>Carex cryptolepis</i> Mack.	Northeastern Sedge
<i>Carex diandra</i> Schrank	Lesser Panicked Sedge
<i>Carex flava</i> L.	Yellow Sedge
<i>Carex oligosperma</i> Michx.	Few-Seeded Sedge
<i>Carex paupercula</i> Michx.	Bog Sedge
<i>Carex prairea</i> Dewey	Prairie Sedge
<i>Carex schweinitzii</i> Schwein.	Schweinitz's Sedge
<i>Carex sterilis</i> Willd.	Atlantic Sedge
<i>Carex tetanica</i> Schkuhr	Wood's Sedge
<i>Carex wiegandii</i> Mack.	Wiegand's Sedge
<i>Chamaesyce polygonifolia</i> (L.) Small	Seaside Spurge
<i>Chrysopsis mariana</i> (L.) Elliott	Maryland Golden-Aster
<i>Cypripedium reginae</i> Walter	Showy Lady's-Slipper
<i>Digitaria cognatum</i> (Schultes) Pilger	Fall Witch-Grass
<i>Dodecatheon amethystinum</i> (Fassett) Fassett	Jeweled Shooting-Star
<i>Eleocharis intermedia</i> (Muhl.) Schult.	Matted Spike-Rush
<i>Eleocharis robbinsii</i> Oakes	Robbins' Spike-Rush
<i>Ellisia nyctelea</i> L.	Ellisia
<i>Erigenia bulbosa</i> (Michx.) Nutt.	Harbinger-of-Spring
<i>Eriophorum viridicarinatum</i> (Engelm.) Fernald	Thin-Leaved Cottongrass
<i>Euthamia caroliniana</i> (L.) Greene ex Porter & Britton	Grass-Leaved Goldenrod
<i>Fimbristylis annua</i> (All.) Roem. & Schult.	Annual Fimbristylis
<i>Gaylussacia brachycera</i> (Michx.) A. Gray	Box Huckleberry
<i>Hypericum densiflorum</i> Pursh	Bushy St. John's-Wort
<i>Hypericum majus</i> (A. Gray) Britton	Canadian St. John's-Wort
<i>Ilex opaca</i> Aiton	American Holly
<i>Juncus alpinoarticulatus</i> Chaix in Vill. ssp. <i>nodulosus</i> (Wahlenb.) Hämet-Ahti.	Richardson's Rush
<i>Juncus arcticus</i> Willd. var. <i>littoralis</i> (Engelm.) Boivin.	Baltic Rush
<i>Juncus brachycephalus</i> (Engelm.) L. Buch.	Small-Headed Rush
<i>Juncus torreyi</i> Coville	Torrey's Rush
<i>Lathyrus japonicus</i> Willd.	Beach Pea
<i>Lathyrus ochroleucus</i> Hook.	Wild Pea
<i>Linnaea borealis</i> L.	Twinflower
<i>Lobelia dortmanna</i> L.	Water Lobelia
<i>Lycopodiella appressa</i> (Chapm.) Cranfill	Appressed Bog Clubmoss
<i>Magnolia tripetala</i> (L.) L.	Umbrella Magnolia
<i>Magnolia virginiana</i> L.	Sweetbay Magnolia

Scientific Name	Common Name
<i>Melica nitens</i> Nutt.	Three-Flowered Melic Grass
<i>Minuartia glabra</i> (Michx.) Mattf.	Appalachian Sandwort
<i>Myrica gale</i> L.	Sweet-gale
<i>Myriophyllum tenellum</i> Bigelow	Slender Water-Milfoil
<i>Najas gracillima</i> (A. Braun) Magnus	Bushy Naiad
<i>Nymphoides cordata</i> (Elliott) Fernald	Floating-Heart
<i>Oenothera argillicola</i> Mack.	Shale-Barren Evening-Primrose
<i>Panicum tuckermanii</i> Fernald	Tuckerman's Panic-Grass
<i>Phemeranthus teretifolius</i> (Pursh) Raf.	Round-Leaved Fameflower
<i>Platanthera peramoena</i> (A. Gray) A. Gray	Purple Fringeless Orchid
<i>Poa paludigena</i> Fernald & Wiegand	Bog Bluegrass
<i>Potamogeton confervoides</i> Reichenb.	Tuckerman's Pondweed
<i>Potamogeton richardsonii</i> (Benn.) Rydb.	Red-Head Pondweed
<i>Ptelea trifoliata</i> L.	Hoptree
<i>Ranunculus longirostris</i> Godron	Eastern White Water-Crowfoot
<i>Ribes triste</i> Pallas	Wild Red Currant
<i>Ruellia strepens</i> L.	Limestone Petunia
<i>Salix candida</i> Flugge ex Willd.	Hoary Willow
<i>Salix serissima</i> (Bailey) Fernald	Autumn Willow
<i>Scirpus pedicellatus</i> Fernald	Stalked Bulrush
<i>Scleria pauciflora</i> Muhl. ex Willd.	Few-Flowered Nutrush
<i>Solidago uliginosa</i> Nutt.	Bog Goldenrod
<i>Spiraea betulifolia</i> Pallas var. <i>corymbosa</i> (Raf.) Maxim.	Dwarf Spiraea
<i>Streptopus amplexifolius</i> (L.) DC	Twisted-Stalk
<i>Symphotrichum depauperatum</i> (Fernald) Nesom	Serpentine Aster
<i>Symphotrichum novi-belgii</i> (L.) Nesom var. <i>novi-belgii</i>	New York Aster
<i>Utricularia intermedia</i> Hayne	Flat-Leaved Bladderwort
<i>Viola appalachensis</i> L. K. Henry	Appalachian Blue Violet
<i>Vittaria appalachiana</i> Farrar & Mickel	Appalachian Grass-Fern

Authority

The provisions of this §45.13 amended under section 7 of the Wild Resource Conservation Act (32 P.S. §5307); and sections 305(a)(9) and 313(g) of the Conservation and Natural Resources Act (71 P.S. §§1340.305(a)(9) and 1340.313(g)).

Source

The provisions of this §45.13 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; amended June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816; amended December 21, 2018, effective December 22, 2018, 48 Pa.B. 7757. Immediately preceding text appears at serial pages (353988) to (353991).

Cross References

This section cited in 7 Pa. Code §128.102 (relating to protected designated areas).

§45.14. Pennsylvania Rare.

Plant species classified as Pennsylvania Rare are as follows:

Scientific Name	Common Name
<i>Amaranthus cannabinus</i> (L.) Sauer	Water-Hemp Ragweed
<i>Andromeda polifolia</i> L.	Bog-Rosemary
<i>Aplectrum hyemale</i> (Muhl. ex Willd.) Nutt.	Puttyroot

Scientific Name	Common Name
<i>Baccharis halimifolia</i> L.	Eastern Baccharis
<i>Cakile edentula</i> (Bigelow) Hook.	American Sea-Rocket
<i>Carex disperma</i> Dewey	Soft-Leaved Sedge
<i>Carex lasiocarpa</i> Ehrh.	Many-Fruited Sedge
<i>Collinsia verna</i> Nutt.	Spring Blue-Eyed Mary
<i>Cyperus engelmannii</i> Steud.	Engelmann's Flatsedge
<i>Cyperus schweinitzii</i> Torr.	Schweinitz's Flatsedge
<i>Dichanthelium commonsianum</i> (Ashe) Freckmann var. <i>euchlamydeum</i> (Shinners) Pohl	Cloaked Panic Grass
<i>Eleocharis olivacea</i> Torr.	Capitate Spike-Rush
<i>Epilobium strictum</i> Muhl.	Downy Willow-Herb
<i>Gaultheria hispidula</i> (L.) Muhl. ex Bigelow	Creeping Snowberry
<i>Juncus filiformis</i> L.	Thread Rush
<i>Ledum groenlandicum</i> Oeder	Common Labrador-Tea
<i>Lupinus perennis</i> L.	Blue Lupine
<i>Lygodium palmatum</i> (Bernh.) Sw.	Hartford Fern
<i>Menziesia pilosa</i> (Michx.) Juss.	Minniebush
<i>Opuntia humifusa</i> (Raf.) Raf.	Eastern Prickly-Pear
<i>Orontium aquaticum</i> L.	Golden Club
<i>Packera anonyma</i> (A. W. Wood) W. A. Weber & Á Löve	Appalachian Groundsel
<i>Potamogeton robbinsii</i> Oakes	Flat-Leaved Pondweed
<i>Potamogeton zosteriformis</i> Fernald	Flat-Stemmed Pondweed
<i>Potentilla anserina</i> L.	Silverweed
<i>Prunus pumila</i> L. var. <i>pumila</i>	Sand Cherry
<i>Pyrularia pubera</i> Michx.	Buffalo-Nut
<i>Ranunculus micranthus</i> (Gray) Nutt. ex Torr. & Gray	Small-Flowered Crowfoot
<i>Rotala ramosior</i> (L.) Koehne	Toothcup
<i>Sagittaria subulata</i> (L.) L. Buch.	Subulate Arrowhead
<i>Schizachyrium scoparium</i> (Michx.) Nash var. <i>littorale</i> (Nash) Gould	Seaside Bluestem
<i>Schoenoplectus fluviatilis</i> (Torr.) Strong	River Bulrush
<i>Sedum telephioides</i> Michx.	Allegheny Stonecrop
<i>Solidago roanensis</i> Porter	Tennessee Golden-Rod
<i>Tipularia discolor</i> (Pursh) Nutt.	Crane-fly Orchid
<i>Trillium nivale</i> Riddell	Snow Trillium
<i>Wolffiella gladiata</i> (Hegelm.) Hegelm.	Bog-mat
<i>Xyris montana</i> Ries.	Yellow Eyed Grass
<i>Zizania aquatica</i> L.	Indian Wild Rice

Authority

The provisions of this §45.14 amended under section 7 of the Wild Resource Conservation Act (32 P.S. §5307); and sections 305(a)(9) and 313(g) of the Conservation and Natural Resources Act (71 P.S. §§1340.305(a)(9) and 1340.313(g)).

Source

The provisions of this §45.14 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; amended June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816; amended December 21, 2018, effective December 22, 2018, 48 Pa.B. 7757. Immediately preceding text appears at serial pages (353991) to (353992).

§45.15. Pennsylvania Vulnerable.

Plant species classified as Pennsylvania Vulnerable are as follows:

Scientific Name	Common Name
Cypripedium parviflorum Salisb. var. pubescens (Willd.) Correll	Large Yellow Lady's-Slipper
Hydrastis canadensis L.	Goldenseal
Panax quinquefolius L.	Ginseng

Authority

The provisions of this §45.15 amended under section 7 of the Wild Resource Conservation Act (32 P.S. §5307); and sections 305(a)(9) and 313(g) of the Conservation and Natural Resources Act (71 P.S. §§1340.305(a)(9) and 1340.313(g)).

Source

The provisions of this §45.15 amended December 21, 2018, effective December 22, 2018, 48 Pa.B. 7757. Immediately preceding text appears at serial page (353992).

§45.16. [Reserved].

Source

The provisions of this §45.16 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; reserved June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816. Immediately preceding text appears at serial page (123456).

§45.17. [Reserved].

Source

The provisions of this §45.17 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; reserved June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816. Immediately preceding text appears at serial page (123456).

§45.18. [Reserved].

Source

The provisions of this §45.18 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; reserved June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816. Immediately preceding text appears at serial page (123456).

§45.19. [Reserved].

Source

The provisions of this §45.19 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; reserved June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816. Immediately preceding text appears at serial page (123456).

§45.20. Special Concern Population.

As of January 1, 1988, no plant species have been listed solely within the classification of Special Concern Population.

Source

The provisions of this §45.20 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027.

§45.21. Tentatively Undetermined.

Plant species classified as Tentatively Undetermined are as follows:

Scientific Name	Common Name
<i>Adiantum pedatum</i> L. ssp. <i>caulderi</i> Cody	Northern Maidenhair Fern
<i>Agalinis obtusifolia</i> Raf.	False-Foxglove
<i>Aletris farinosa</i> L.	Colic-Root
<i>Ambrosia psilostachya</i> DC.	Naked-Spiked Ambrosia
<i>Amelanchier humilis</i> Wiegand	Low Serviceberry
<i>Amelanchier obovalis</i> (Michx.) Ashe	Coastal Juneberry
<i>Amelanchier sanguinea</i> (Pursh) DC.	Roundleaf Juneberry
<i>Andropogon glomeratus</i> (Walter) Britton, Stearns & Poggenb.	Bushy Bluestem
<i>Antennaria solitaria</i> Rydb.	Single-Headed Pussy-Toes
<i>Arabis hirsuta</i> (L.) Scop.	Western Hairy Rock-Cress
<i>Aristida dichotoma</i> Michx. var. <i>curtissii</i> A. Gray	Poverty Grass
<i>Aristida longespica</i> Poir. var. <i>geniculata</i> (Raf.) Fernald	Long-Spike Three-Awn
<i>Aristolochia macrophylla</i> Lam.	Pipevine
<i>Carex buxbaumii</i> Wahlenb.	Brown Sedge
<i>Carex crawfordii</i> Fernald	Crawford's Sedge
<i>Carex haydenii</i> Dewey	Cloud Sedge
<i>Carex limosa</i> L.	Mud Sedge
<i>Carex longii</i> Mack.	Long's Sedge
<i>Carex lupuliformis</i> Sartwell	False Hop Sedge
<i>Carex meadii</i> Dewey	Mead's Sedge
<i>Carex mesochorea</i> Mack.	Midland Sedge
<i>Castilleja coccinea</i> (L.) Spreng.	Scarlet Indian Paintbrush
<i>Chasmanthium latifolium</i> (Michx.) H. O. Yates	Wild-Oats
<i>Chenopodium capitatum</i> (L.) Asch.	Strawberry Goosefoot
<i>Corallorrhiza wisteriana</i> Conrad	Spring Coral-Root
<i>Crataegus brainerdii</i> Sarg.	Brainerd's Hawthorne
<i>Crataegus mollis</i> (Torr. & A. Gray) Scheele	Downy Hawthorne
<i>Cuscuta cephalanthi</i> Engelm.	Buttonbush Dodder
<i>Cuscuta corylii</i> Engelm.	Hazel Dodder
<i>Cuscuta polygonorum</i> Engelm.	Smartweed Dodder
<i>Cyperus odoratus</i> L.	Rusty Flatsedge
<i>Cyperus tenuifolius</i> (Steud.) Dandy	Thin-Leaved Flatsedge
<i>Cystopteris laurentiana</i> (Weath.) Blasdell	Laurentian Bladder-Fern
<i>Desmodium glabellum</i> (Michx.) Kuntze	Tall Tick-Trefoil
<i>Desmodium nuttallii</i> (Schindl.) Schub.	Nuttall's Tick-Trefoil
<i>Dichanthelium annulum</i> (Ashe) LeBlond	Annulus Panic Grass
<i>Dichanthelium boreale</i> (Nash) Freckmann	Northern Panic Grass
<i>Dichanthelium commonsianum</i> (Ashe) Freckmann	Cloaked Panic Grass
<i>Dichanthelium lucidum</i> (Ashe) LeBlond	Shining Panic Grass
<i>Dichanthelium villosissimum</i> (Nash) Freckmann	Long-Haired Panic Grass
<i>Dichanthelium yadkinense</i> (Ashe) Mohlenbr.	Yadkin River Panic Grass
<i>Dracocephalum parviflorum</i> Nutt.	American Dragonhead
<i>Elatine minima</i> (Nutt.) Fisch. & C. A. Mey	Small Waterwort
<i>Elymus virginicus</i> L. var. <i>submuticus</i> Hook.	Wild Rye
<i>Epilobium palustre</i> L.	Marsh Willow-Herb
<i>Eupatorium rotundifolium</i> L.	Round-Leaved Thoroughwort
<i>Filipendula rubra</i> (Hill) B. L. Rob.	Queen-of-the-Prairie
<i>Gentiana alba</i> Muhl. ex Nutt.	Yellow Gentian
<i>Gentiana saponaria</i> L.	Soapwort Gentian
<i>Gentiana villosa</i> L.	Striped Gentian
<i>Glyceria acutiflora</i> Torr.	Sharp-Flowered Manna-Grass
<i>Gratiola aurea</i> Muhl. ex Pursh	Golden Hedge-Hyssop

Scientific Name

Gymnocarpium appalachianum K. M. Pryer & Haufler
Houstonia purpurea L. var. *purpurea*
Hypericum drummondii (Grev. & Hook) Torr. & A. Gray
Juncus biflorus Elliott
Lathyrus palustris L.
Lemna turionifera Landolt
Leucothoe racemosa (L.) A. Gray
Liatrix scariosa (L.) Willd.
Lonicera hirsuta Eaton
Luzula bulbosa (A. W. Wood) Rydb.
Lythrum alatum Pursh
Malaxis monophyllos (L.) Swartz var. *brachypoda* (A. Gray) F. Morris & E. A. Eames
Meehania cordata (Nutt.) Britton
Muhlenbergia cuspidata (Torr.) Rydb.
Nuphar microphylla (Pers.) Fernald
Oenothera pilosella Raf.
Oxydendrum arboreum (L.) DC.
Oxypolis rigidior (L.) Raf.
Packeria plattensis (Nutt.) W. A. Weber & Á Löve
Panicum flexile (Gatt.) Scribn.
Panicum longifolium Torr.
Paronychia fastigiata (Raf.) Fernald var. *nuttallii* (Small) Fernald
Parthenium intergrifolium L.
Paspalum floridanum (Michx.) var. *glabratum* Engelm. ex Vasey
Paspalum laeve (Michx.) var. *pilosum* Scribn.
Paspalum setaceum Michx.
Phlox pilosa L.
Phyla lanceolata (Michx.) Greene
Physalis virginiana Mill.
Platanthera ciliaris (L.) Lindl.
Platanthera hookeri (Torr. ex Gray) Lindl.
Pluchea odorata (L.) Cass.
Poa languida A. Hitchc.
Podostemum ceratophyllum Michx.
Polygala polygama Walter
Polygonella articulata (L.) Meisn.
Polygonum amphibium L. var. *stipulaceum* (Coleman) Fern.
Polygonum ramosissimum Michx.
Potamogeton filiformis Pers. var. *borealis* (Raf.) St. John
Potamogeton oakesianus J. W. Robbins
Potamogeton perfoliatus L.
Pycnanthemum verticillatum (Michx.) Pers. var. *pilosum* (Nutt.) Cooperr.
Ranunculus aquatilis L. var. *diffusus* With.
Ranunculus flammula L.
Rhamnus alnifolia L' Hér
Rhynchospora recognita (Gale) Kral
Ribes lacustre (Pers.) Poir.
Rorippa palustris (L.) Besser var. *palustris*⁴

Common Name

Appalachian Oak Fern
 Purple Bluets
 Nits-and-Lice
 Grass-Leaved Rush
 Vetchling
 Winter Duckweed
 Swamp Dog-Hobble
 Northern Blazing-Star
 Hairy Honeysuckle
 Wood-Rush
 Winged Loosestrife
 White Adder's-Mouth

 Heart-Leafed Meehania
 Sharp-Pointed Muhly
 Small Yellow Pond-Lily
 Evening-Primrose
 Sourwood
 Stiff Cowbane
 Prairie Ragwort
 Wiry Witchgrass
 Long-Leaved Panic Grass
 Whitlow Wort
 American Fever-Few
 Florida Beadgrass
 Field Beadgrass
 Slender Beadgrass
 Downy Phlox
 Lance Fog-Fruit
 Virginia Ground-Cherry
 Yellow Fringed Orchid
 Hooker's Orchid
 Shrubby Camphor-Weed
 Drooping Bluegrass
 Riverweed
 Racemed Milkwort
 Eastern Jointweed
 Stipuled Water-Smartweed
 Bushy Knotweed
 Slender Pondweed
 Oakes' Pondweed
 Clasping-Stemmed Pondweed
 Hairy Mountain-Mint
 White Water-Crowfoot
 Lesser Spearwort
 Alder-Leaved Buckthorn
 Small Globe Beak-Rush
 Swamp Currant
 Yellow Cress

⁴ Source: Gleason, H. A. and A. Cronquist, Manual of Vascular Plants of Northeastern United States and Adjacent Canada, 1991, Second Edition

Scientific Name	Common Name
<i>Rosa virginiana</i> P. Mill.	Virginia Rose
<i>Rubus setosus</i> Bigelow	Small Bristleberry
<i>Rumex hastatulus</i> Baldwin ex Elliott	Heart Sorrell
<i>Salix petiolaris</i> Sm.	Meadow Willow
<i>Salvia reflexa</i> Hornem.	Lance-Leaved Sage
<i>Samolus parviflorus</i> Raf.	Pineland Pimpernel
<i>Saxifraga micranthidifolia</i> (Haw.) Steud.	Lettuce Saxifrage
<i>Scleria triglomerata</i> Michx.	Whip Nut-Rush
<i>Scutellaria saxatilis</i> Riddell	Rock Skullcap
<i>Senna marilandica</i> (L.) Link	Wild Senna
<i>Sisyrinchium albidum</i> Raf.	Blue-Eyed-Grass
<i>Solidago rigida</i> L.	Hard-Leaved Goldenrod
<i>Spiranthes tuberosa</i> Raf.	Slender Ladies'-Tresses
<i>Stachys hyssopifolia</i> Michx.	Hyssop Hedge-Nettle
<i>Stylosanthes biflora</i> (L.) Britton, Stearns & Poggenb.	Pencil-Flower
<i>Symphotrichum dumosum</i> (L.) Nesom	Bushy Aster
<i>Symphotrichum ericoides</i> (L.) Nesom	White Heath Aster
<i>Taxus canadensis</i> Marsh.	American Yew
<i>Trillium flexipes</i> Raf.	Declined Trillium
<i>Triosteum angustifolium</i> L.	Horse Gentian
<i>Tripsacum dactyloides</i> (L.) L.	Eastern Gammagrass
<i>Uvularia pudica</i> Michx.	Mountain Bellwort
<i>Viburnum trilobum</i> Marshall	Highbush-Cranberry
<i>Viola renifolia</i> A. Gray	Kidney-Leaved Violet
<i>Viola tripartita</i> Elliott	Three-parted Violet
<i>Vitis cinerea</i> (Englem. in A. Gray) Englem. ex Millardet var. <i>baileyana</i> (Munson) Comeaux	Possum-Grape
<i>Wolffia borealis</i> (Engelm.) Landolt	Dotted Dotted Watermeal

Authority

The provisions of this §45.21 amended under section 7 of the Wild Resource Conservation Act (32 P.S. §5307); and sections 305(a)(9) and 313(g) of the Conservation and Natural Resources Act (71 P.S. §§1340.305(a)(9) and 1340.313(g)).

Source

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Subchapter C. UNLAWFUL CONDUCT

Section

- 45.31. General restrictions regarding threatened or endangered species.
- 45.32. Plants in State Parks and State Forest lands.
- 45.33. General restrictions regarding vulnerable plants.
- 45.34. Restrictions regarding private wild plant sanctuaries.
- 45.35. Compliance with regulations.

§45.31. General restrictions regarding threatened or endangered species.

(a) A person, other than the landowner, a person having a bona fide property interest in the affected land or Bureau of Forestry personnel in the performance of their official duties, may not disturb, pick, take, possess, destroy, mutilate, remove, collect or transplant plants classified as Pennsylvania Endangered or Pennsylvania Threatened, except as otherwise provided in this chapter.

(b) A person may not transport with the intent to sell, sell or export plants classified as Pennsylvania Endangered or Pennsylvania Threatened.

§45.32. Plants in State Parks and State Forest lands.

A person may not disturb, pick or take wild plants from State Parks and State Forest lands, except as provided by this chapter, and Chapters 11, 21 and 23 (relating to general provisions; general provisions; and State Forest Picnic areas).

§45.33. General restrictions regarding vulnerable plants.

(a) A person, other than the landowner, a person having a bona fide interest in the affected land or Bureau of Forestry personnel in the performance of their official duties, may not disturb, pick, take or possess plants classified as Pennsylvania Vulnerable, except as otherwise provided in this chapter.

(b) A person may not buy, trade or barter plants classified as Pennsylvania Vulnerable, or parts thereof, with the intent to sell them within this Commonwealth, or export them from this Commonwealth, except as otherwise provided in this chapter.

§45.34. Restrictions regarding private wild plant sanctuaries.

A person, other than the landowner or a person having a bona fide property interest in the affected land, may not willfully adversely alter or destroy the local ecosystem of a private wild plant sanctuary.

§45.35. Compliance with regulations.

Violation of this chapter is punishable as provided in the act and §45.91 (relating to penalties).

Subchapter D. WILD PLANT MANAGEMENT PERMITS

Section

- 45.41. General requirements for a permit.
- 45.42. Permit activities.
- 45.43. Compliance with permit.
- 45.44. Permit application contents.
- 45.45. Permit fee; expiration of permit.
- 45.46. Criteria for approval of a wild plant management permit.
- 45.47. Conditions of permit.
- 45.48. Reporting of new information.
- 45.49. Transfer of permit prohibited.
- 45.50. Revocation.

§45.41. General requirements for a permit.

(a) A person, other than the landowner, a person having a bona fide property interest in the affected land or Bureau of Forestry personnel in the performance of their official duties, may not remove, collect or transplant wild plants classified as Pennsylvania Endangered or Pennsylvania Threatened, unless the person has first applied for and obtained a wild plant management permit in writing from the Department.

(b) It is lawful to continue to possess Pennsylvania Endangered and Pennsylvania Threatened plant species that the holder has verified to the Department as being collected prior to January 1, 1988.

§45.42. Permit activities.

(a) The Department may issue permits to remove, collect or transplant wild plants classified as Pennsylvania Endangered or Pennsylvania Threatened, for the following activities:

(1) To conduct botanical and taxonomic studies.

(2) To transplant Pennsylvania Endangered or Pennsylvania Threatened wild plants from land areas threatened by future land development, surface mining, agricultural encroachment or other activities into public or private wild plant sanctuaries, to help assure their perpetuation as members of ecosystems.

(3) To transplant Pennsylvania Endangered or Pennsylvania Threatened wild plants into designated public and private wild plant sanctuaries to enhance their numbers or to restore their natural range.

(b) The holder of a valid wild plant management permit is permitted to disturb, pick, take and possess wild plants classified as Pennsylvania Endangered or Pennsylvania Threatened, if the activities are necessary to perform the activity for which the wild plant management permit is issued.

§45.43. Compliance with permit.

A holder of a wild plant management permit shall act in compliance with the terms and conditions of the permit, the requirements of the act and this chapter and other applicable State law.

§45.44. Permit application contents.

(a) An application for a wild plant management permit under this subchapter shall be submitted to the Department in writing, upon forms to be provided by the Department.

(b) An application for a permit shall be accompanied by information such as maps, plans, specifications and other data as the Department may require in order to determine compliance with the standards, requirements and purposes of this chapter.

(c) Information set forth in the application shall be current, presented clearly and concisely and supported by appropriate references to technical or other written material made available to the Department.

(d) An application for a wild plant management permit shall contain the following information:

(1) The name, address and phone number of the applicant.

(2) A description of the activity for which the permit is sought.

(3) The plant species to be affected by the activity.

(4) The geographic locations of the activity.

(5) A statement that landowner consent will be obtained prior to the permitted activity.

(6) Documentation of the applicant's botanical knowledge, experience and credentials.

(7) Wild plant management permit history, including the identification numbers of previous wild plant management permits that have been issued to the applicant.

(8) Other information the Department may require.

(e) An application for a permit shall be signed and verified by the applicant with a statement that the information contained in the application is true and correct to the best of the applicant's knowledge, information and belief.

Source

The provisions of this §45.44 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; amended June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816. Immediately preceding text appears at serial page (123463).

§45.45. Permit fee; expiration of permit.

(a) An application for a wild plant management permit shall be accompanied by a check for \$5 payable to the "Commonwealth of Pennsylvania."

(b) A wild plant management permit remains valid for 1 year following the date of permit issuance.

§45.46. Criteria for approval of a wild plant management permit.

An application for a wild plant management permit will not be approved unless the application affirmatively demonstrates, and the Department, in writing, finds the following:

(1) Potential threats exist to harm the wild plant population's ability to perpetuate itself, and the habitat into which the plants will be transplanted is suitable or there is a justifiable need for collection of the wild plants for taxonomic and botanical studies.

(2) The applicant's botanical knowledge and experience are sufficient to enable the applicant to carry out the activity applied for on the application.

(3) The application is accurate and complete and the requirements of the act and this subchapter have been satisfied.

(4) There is no history of past or continuing violations or conduct which indicate the applicant's lack of ability or intention to comply with the act or this chapter.

(5) The proposed activity will not affect the continued existence of, or destroy or adversely modify, the critical habitat of wild plants classified as Pennsylvania Endangered or Pennsylvania Threatened.

(6) The proposed activity will perpetuate wild plants as members of ecosystems, enhance the numbers of the wild plants, restore the range of the wild plants or add to scientific knowledge.

(7) The assessment of the probable cumulative impacts of the activity indicate that the approval of the activity will be in the best interests of wild plant management.

§45.47. Conditions of permit.

(a) The permittee shall carry the wild plant management permit during the removal, collection or transplanting of wild plants, and shall present the permit for inspection upon request by a person authorized to enforce the act.

(b) The permittee shall report the results of the activity to the Department. The reports shall include the following:

(1) The method of specimen identification or transplanting procedure.

(2) The results of the activity.

(3) The problems encountered with the activity.

(4) The wild plant management permit number.

(5) The record of all Pennsylvania Endangered and Pennsylvania Threatened plant species collected or observed including their identity, location and date of collection.

(6) The complete label information for all resulting herbarium specimens including the location where specimens have been deposited.

(7) The written permission of the landowner on forms provided by the Department.

(c) The permittee shall submit a report of the results of transplanting activity to the Department, by October 31 next following the calendar year in which the transplanting was effected.

(d) The permittee shall submit a report of removal and collection activities performed for taxonomic studies to the Department by the end of the calendar year for which the permit was issued.

Source

The provisions of this §45.47 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; amended June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816. Immediately preceding text appears at serial pages (123464) to (123465).

§45.48. Reporting of new information.

The permittee shall notify the Department of changes in facts or information stated in the application. Based upon the notice, the Department may require a new permit or take other appropriate action.

§45.49. Transfer of permit prohibited.

A wild plant management permit is nontransferable.

§45.50. Revocation.

(a) The Department may revoke a wild plant management permit for good cause. Good cause includes, but is not limited to, the following factors:

(1) Failure to comply with this chapter or the act.

(2) Failure to comply with a term or condition of the permit.

(3) Changes in the circumstances described in the application for the permit which indicate that the activity no longer is in the best interests of wild plant management.

(b) A person whose permit has been revoked for the reasons listed in subsection (a)(1) and (2) is not eligible to apply for, and may not obtain, another wild plant management permit for a period of 2 years from the date of revocation.

Subchapter E. VULNERABLE PLANTS

Section

45.61. Commercial license requirements.

45.62. Contents of commercial license application.

45.63. Criteria for license approval.

45.64. Commercial license fee and expiration.

45.65. Transaction records.

45.66. Inspection and review.

45.67. Transfer of license prohibited.

45.68. Revocation.

45.69. Vulnerable plant harvest seasons and conditions.

45.70. Pennsylvania ginseng certification.

45.71. Transfer of certificate prohibited.

45.72. Possession of unsold ginseng.

§45.61. Commercial license requirements.

A person may not buy, trade or barter Pennsylvania Vulnerable plants, or parts thereof, with the intent to sell them within this Commonwealth, or export these plants or parts from this Commonwealth, without first applying for and obtaining a commercial license in writing from the Department. A person may take or possess these plants if the activities are necessary to perform the licensed activity.

§45.62. Contents of commercial license application.

(a) An application for a license under this subchapter shall be submitted to the Department in writing, upon forms provided by the Department.

(b) An application for a commercial license shall be accompanied by information or data as the Department may require to determine compliance with the standards, requirements and purposes of the act and this chapter.

(c) Information set forth in the application shall be current and presented clearly and concisely.

(d) An application to obtain a commercial license shall contain the following information:

(1) The name, address and phone number of the applicant.

(2) The activity sought to be licensed.

(3) A brief and complete description of the applicant's business as it relates to dealing in Pennsylvania Vulnerable plants.

(4) The address where books or records describing commercial transactions of Pennsylvania Vulnerable plants will be kept.

(5) The name, address and telephone number of the person authorized to make records or inventories of Pennsylvania Vulnerable plants available for examination by the Department.

(6) If the application is in the name of a business, the form of the business—for example, corporation, firm, partnership—and the name and address of each partner, officer, director and shareholder who owns 10% or more of the shares in the business.

(7) The common and scientific names of the Pennsylvania Vulnerable plant species for which a commercial license is sought.

(8) The commercial license history, including the identification numbers of previous commercial licenses that have been issued by the Department to the applicant.

(9) Other information the Department may require.

(e) An application shall be dated and signed by the applicant. Business applications shall be signed by a partner or officer, who shall set forth his title.

(f) An application for a commercial license shall be verified by the applicant with a statement that the information in the application is true and correct to the best of the applicant's knowledge, information and belief.

§45.63. Criteria for license approval.

An application for a commercial license will not be approved unless the application affirmatively demonstrates and the Department finds, in writing, the following:

(1) The application is accurate and complete and the requirements of the act and this chapter have been satisfied.

(2) There is no history of past or continuing violations or conduct which indicate the applicant's lack of ability or intention to comply with the act or this chapter.

§45.64. Commercial license fee and expiration.

(a) An application for a commercial license will be accompanied by a check payable to the "Commonwealth of Pennsylvania" in the amount of \$50.

(b) A commercial license expires on June 30 of the year next following the year of its issuance.

§45.65. Transaction records.

(a) The holder of a commercial license issued under this subchapter shall maintain transaction records. The transaction records shall include the following information regarding Pennsylvania Vulnerable plant activities:

(1) The names and addresses of persons from whom the licensee purchased or otherwise acquired the Pennsylvania Vulnerable plants, and the dates of purchase or acquisition.

(2) The names and addresses of persons to whom Pennsylvania Vulnerable plants were deposited, traded, sold, transferred, bartered, exported or otherwise disposed of, and the dates upon which these activities occurred.

- (3) The scientific and common names of the plants.
 - (4) The county of origin of the plants.
 - (5) A description of the form of the plants—for example, whole plant, root, seeds, green or dry.
 - (6) The year of harvest of the plants.
 - (7) The weight, destination and date of export for each shipment of the plants that are exported.
 - (8) A statement of whether the plants are wild or cultivated.
 - (9) The weight in pounds and ounces and estimated number of the plants per transaction. For the purposes of evaluating the number of ginseng plants per transaction, the estimated number of ginseng plants will be determined by taking a sample from each transaction of the number of ginseng roots in 1 pound.
 - (10) Other information the Department may require.
- (b) The holder of a commercial license shall keep transaction records required to be maintained by this subchapter for 5 years after the occurrence of the transactions to which the records relate. The records shall be made available to the Department upon request.
- (c) The holder of a commercial license to deal in ginseng shall submit a dealer quarterly report relating to transaction records, on forms provided by the Department within 15 days of the end of each quarter of the calendar year. This dealer report shall be submitted to the Department and shall contain the following information for the quarter:
- (1) The date of the report.
 - (2) The quarter in which transactions occurred.
 - (3) The name, address and phone number of the licensee.
 - (4) The license number and date issued.
 - (5) The weight in pounds and ounces of wild ginseng purchased or otherwise acquired from harvesters, by county of harvest, and a statement of whether the roots were green or dried.
 - (6) The average price per pound paid for wild ginseng.
 - (7) The weight in pounds and ounces of cultivated ginseng purchased or otherwise acquired from growers, by county of harvest, and a statement of whether the roots were green or dried.
 - (8) The average price per pound for cultivated ginseng.
 - (9) The weight in pounds and ounces of ginseng purchased or otherwise acquired from other licensees, and a statement of whether the purchased or acquired ginseng was wild or cultivated and if roots were green or dried.
 - (10) The number of pounds and ounces of wild ginseng and of cultivated ginseng in the licensee's possession on the reporting date.
 - (11) The weight in pounds and ounces of ginseng sold, traded or bartered, whether the ginseng was wild or cultivated and if roots were dried or green.
 - (12) The identification number of State certificates used to ship ginseng from this Commonwealth.
 - (13) Other information the Department may require.
- (d) The holder of a commercial license to buy and sell ginseng shall submit an annual dealer report for the prior calendar year. The annual dealer report shall be completed on forms supplied by the Department and shall contain the information required in subsection (c) compiled for the previous calendar year. The report shall be submitted annually for the prior calendar year to the Department within 15 days of the beginning of the calendar year.

Source

The provisions of this §45.65 adopted December 4, 1987, effective January 1, 1988, 17 Pa.B. 5027; amended June 18, 1993, effective June 19, 1993, 23 Pa.B. 2816. Immediately preceding text appears at serial pages (123467) to (123468).

§45.66. Inspection and review.

The licensee shall make available for inspection by the Department transaction records and Pennsylvania Vulnerable plant materials to be sold, traded, bartered or exported and that are on the premises. The records shall be made available for copying by the Department.

§45.67. Transfer of license prohibited.

A commercial license is nontransferable.

§45.68. Revocation.

(a) The Department may revoke a commercial license it has issued, for good cause. Good cause includes, but is not limited to, the following factors:

- (1) Failure to comply with this chapter or the act.
- (2) Failure to comply with a term or condition of the license.

(b) A person whose commercial license has been revoked is not eligible to apply for, and may not obtain, another commercial license for a period of 2 years from the date of revocation.

§45.69. Vulnerable plant harvest seasons and conditions.

(a) A person may not harvest ginseng except in compliance with applicable law, this chapter and the following restrictions:

- (1) A person may harvest ginseng plants only from September 1 through November 30.
- (2) Only mature ginseng plants with at least three leaves of five leaflets each may be harvested and only when the berries are red.
- (3) Persons harvesting ginseng plants shall plant the seeds from the plants in the immediate vicinity of the collection site.

(b) A person may not possess harvested, green ginseng roots between April 1 and September 1 of a calendar year.

(c) A person may not harvest Pennsylvania Vulnerable plants other than ginseng except in compliance with applicable law, this chapter and the following restrictions:

- (1) A person may harvest the plants only if they are mature and the current year's seeds have matured.
- (2) A person harvesting the plants shall plant the seeds from the plants in the immediate vicinity of the collection site.
- (3) A person may not harvest the plants in a way that will harm the species' ability to perpetuate itself successfully.

(d) The permitted harvesting of Pennsylvania Vulnerable plants includes picking, taking, digging, disturbing and possessing the plants if the activities are necessary to legally harvest the plants. Possession of legally taken Pennsylvania Vulnerable plants is permitted.

Authority

The provisions of this §45.69 amended under section 7 of the Wild Resource Conservation Act (32 P. S. §5307); and sections 305 and 313 of the Conservation and Natural Resources Act (71 P. S. §§1340.305 and 1340.313).

Source

The provisions of this §45.69 amended July 19, 2013, effective July 20, 2013, 43 Pa.B. 4077. Immediately preceding text appears at serial page (217152).

§45.70. Pennsylvania ginseng certification.

- (a) A person may not export Pennsylvania ginseng from this Commonwealth without first obtaining a commercial license and a Pennsylvania ginseng certificate.
- (b) A Pennsylvania ginseng certificate shall be required for each export shipment of Pennsylvania ginseng.
- (c) To be certified, the state of origin for wild ginseng or cultivated ginseng shall be Pennsylvania.
- (d) A Pennsylvania ginseng certificate will not be issued unless the licensee presents the shipment to the Department at a designated facility and presents the following information on a Pennsylvania ginseng certificate application form, available from the Department:
 - (1) The licensee's name and commercial license number.
 - (2) The date of the application.
 - (3) The name and address of buyer and export destination.
 - (4) A statement of whether the ginseng is wild or cultivated.
 - (5) A statement of whether the ginseng is green or dry.
 - (6) The year of harvest of ginseng being certified.
 - (7) The state of origin.
 - (8) The weight in pounds and ounces written numerically and in full and verified by a weigh slip from a Commonwealth certified weigh station or scale.
 - (9) The shipment number.
 - (10) Other information the Department may require.
- (e) The Pennsylvania ginseng certificate application shall be verified by the licensee with a statement that the information contained in the form is true and correct to the best of the licensee's knowledge, information and belief, and that the ginseng was legally taken under this chapter and applicable law.
- (f) The Department may countersign the application and issue a Pennsylvania ginseng certificate if the Department is satisfied that the information in the application is complete, and if the Department finds that a representative sample supports the information in the application.

§45.71. Transfer of certificate prohibited.

A Pennsylvania ginseng certificate is nontransferable.

§45.72. Possession of unsold ginseng.

- (a) A licensee who has ginseng unsold on March 31 of the year after harvest is required to obtain a weigh slip for the unsold ginseng from a Commonwealth certified weigh station or scale and submit a copy of that slip to the Department by May 1.
- (b) A licensee may not obtain a Pennsylvania ginseng certificate to export unsold ginseng in the licensee's possession in excess of the amount shown on the weigh slip.

Subchapter F. PRIVATE WILD PLANT SANCTUARIES

Section

- 45.81. Establishment.
- 45.82. Purpose.
- 45.83. Application.
- 45.84. Criteria for issuance of designation.
- 45.85. Responsibilities.
- 45.86. Withdrawal of designation.
- 45.87. Revocation.
- 45.88. Private wild plant sanctuary restrictions.

45.89. Transfer of private wild plant sanctuary designation prohibited.

§45.81. Establishment.

The Department may designate sites as private wild plant sanctuaries upon request.

§45.82. Purpose.

This subchapter provides protection for this Commonwealth's native wild plants and their habitat.

§45.83. Application.

(a) An application for private wild plant sanctuary designation shall be concurred in by all parties with an interest in the land and submitted to the Department by the landowner on forms provided by the Department. The forms shall contain a space for the signatures of all parties with an interest in the land, indicating their approval for private wild plant sanctuary designation.

(b) An application for private wild plant sanctuary designation shall contain the following information:

(1) The name, address and phone number of applicant.

(2) The location of the area to be designated, including a copy of a U.S.G.S. 7½ minute quadrangle or part thereof with the location plotted thereon.

(3) The size of the area.

(4) A description of the area including:

(i) Classified plant species existing on the site.

(ii) Habitat description.

(5) Other current and planned uses of the area.

(6) Other information the Department may require.

(c) An application for private wild plant sanctuary designation shall be verified by the applicant with a statement that the information contained in the application is true and correct to the best of the applicant's knowledge, information and belief.

§45.84. Criteria for issuance of designation.

A designation of private wild plant sanctuary will not be made unless the applicant demonstrates and the Department finds the following:

(1) The proposed private wild plant sanctuary will benefit and provide protection for native wild plants and their habitats.

(2) The area proposed for private wild plant sanctuary designation is relatively undisturbed.

(3) The area contains an occurrence of a classified native wild plant species, is a habitat suitable for a classified native wild plant species, or is deemed by the Department to be a unique habitat or plant community; or if designated, the area would significantly enhance efforts to protect classified native wild plants.

§45.85. Responsibilities.

(a) The landowner of a designated private wild plant sanctuary shall utilize the designated lands and waters in a manner consistent with the purposes of sanctuary designation.

(b) The landowner shall notify the Department, in writing, of the following:

(1) An intent to sell or transfer ownership of the land on which the designated private wild plant sanctuary is located.

(2) Threats to the designated private wild plant sanctuary or the classified native wild plants within.

(3) Significant habitat changes within the designated private wild plant sanctuary.

(4) A proposed change in land use of the designated area.

§45.86. Withdrawal of designation.

Designation as a private wild plant sanctuary may be withdrawn at the request of the landowner.

§45.87. Revocation.

The Department may revoke designation of a private wild plant sanctuary for good cause. Good cause includes, but is not limited to, the following factors:

- (1) Degradation of the private wild plant sanctuary site.
- (2) Failure to comply with a term or condition of the private wild plant sanctuary designation.
- (3) Failure to comply with the act or this chapter.
- (4) Failure to utilize the lands in a manner deemed by the Department to be consistent with the purposes of private wild plant sanctuary designation.

§45.88. Private wild plant sanctuary restrictions.

A person, other than the landowner or a person having a bona fide property interest in the affected land, may not willfully adversely alter or destroy the local ecosystem of a private wild plant sanctuary.

§45.89. Transfer of private wild plant sanctuary designation prohibited.

Private wild plant sanctuary designations are nontransferable.

Subchapter G. PENALTIES

Section

45.91. Penalties.

§45.91. Penalties.

Penalties for unlawful conduct are established by the act as follows:

- (1) A person who violates a provision of the act relating to commercial licensing, or regulations issued thereunder, shall be sentenced to pay a fine of not more than \$200, or have the license revoked, or both.
- (2) A person found to be illegally in possession of a wild plant species or part thereof protected by this chapter, or a person who willfully destroys or mutilates an endangered plant species protected by this chapter, shall be sentenced to pay a fine of up to \$100 for each plant taken or destroyed.
- (3) A person who violates other provisions of the act or this chapter shall, for violation, be sentenced to pay a fine of not more than \$100.

Cross References

This section cited in 17 Pa. Code §45.35 (relating to compliance with regulations).

APPENDIX B: PENNSYLVANIA GAME COMMISSION CODE

§2167. Endangered or threatened species.

(a) Changes to list.—The commission may, by regulation, add or remove any wild bird or wild animal native to this Commonwealth to or from the Pennsylvania native list of endangered or threatened species.

(b) Possession, transportation, capturing or killing.—Except as otherwise provided in this title, it is unlawful for any person, acting either for himself or as the representative of another, to bring into or remove from this Commonwealth, or to possess, transport, capture or kill, or attempt, aid, abet or conspire to capture or kill, any wild bird or wild animal, or any part thereof, or the eggs of any wild bird, which are endangered or threatened species. It is the duty of every officer having authority to enforce this title to seize all wild birds or wild animals, or any part thereof, or the eggs of any wild bird, which have been declared endangered or threatened.

(c) Purchase, sale, barter or exchange.—Except as otherwise provided in this title, it is unlawful for any person, acting either for himself or as a representative of another, at any time to buy, sell, barter or exchange, or to offer for sale or barter, or to have in possession for sale or barter, or to aid, abet or conspire in the possession, sale, barter or exchange, or to give away any endangered or threatened species or subspecies of wild birds or wild animals, or parts thereof. It is the duty of every officer having authority to enforce this title to seize all endangered or threatened wild birds or wild animals, or any part thereof. This subsection shall not be construed to permit any individual or agency other than the commission to sell the skins or parts of game or wildlife or the plumage or parts of birds killed as a protection to crops or accidentally killed upon the highways or seized as contraband.

(d) Penalties.—A violation of this section shall be graded as follows:

(1) A first violation is a misdemeanor of the second degree and may result in forfeiture of the privilege to hunt or take wildlife anywhere within this Commonwealth for a period of seven years.

(2) A second violation within a seven-year period or during the same criminal episode as the first violation is a misdemeanor of the first degree and may result in the forfeiture of the privilege to hunt or take wildlife anywhere within this Commonwealth for a period of ten years.

(3) A third or subsequent violation within a seven-year period or during the same criminal episode as the first or second violation is a felony of the third degree and may result in the forfeiture of the privilege to hunt or take wildlife anywhere within this Commonwealth for a period of 15 years.

§2924. Endangered or threatened species permits.

(a) Issuance.—The commission may issue permits for the importation, exportation, sale, exchange, taking or possession of any birds or animals classified as endangered or threatened, living or dead, or any parts thereof, including eggs.

(b) Species native to Commonwealth.—The commission may issue permits for birds or animals native to this Commonwealth which are taken from the wild in this Commonwealth and which are classified by the commission as endangered or threatened in Title 58 of the Pennsylvania Code.

(c) Species not native to Commonwealth.—The commission may join with the appropriate Federal agency in issuing joint permits for any birds or animals not native to this Commonwealth which are classified as endangered or threatened in the Code of Federal Regulations. An endorsement by the director on a copy of a Federal permit with an addendum of any further restrictions will be considered a joint permit if no formal joint permit is issued.

(d) Unlawful acts.—It is unlawful for any person to import, export, transport, sell, resell, exchange, take or possess or conspire, aid, abet, assist or attempt to import, export, transport, sell, resell, buy, exchange, take or possess any birds or animals of any endangered or threatened species, living or dead, or any parts thereof, including eggs, or to violate any regulations pertaining to such wildlife or this section.

(e) Penalties.—

- (1) A violation of subsection (b) or (c) relating to permit violations is a summary offense of the first degree.
- (2) The penalty for a violation of any other provision of this section is the same as set forth in section 2167(b) and (c) (relating to endangered or threatened species).
- (3) A person who proves possession of any of the items prohibited by this section on or before March 28, 1974, shall be exempt from the penalties and forfeitures for mere possession.

APPENDIX C: FISHES OF CONCERN STATUS CHANGE/DOCUMENTATION FORM

Pennsylvania Biological Survey

Fishes Technical Committee

1. Common Name:

2. Scientific Name:

3. Previous PA Status:

4. New PA Status:

5. Federal Status:

6. G-Rank:

7. S-Rank:

8. Criteria:

9. Adjacent State/Province S-Rank

Delaware:

Maryland:

New Jersey:

New York:

Ohio:

Ontario:

W. Virginia:

10. Summary of Change:

11. Range

North America:

Pennsylvania:

12. Pennsylvania's Position Within Range: ____ Central ____ Peripheral ____ Disjunct

13. Historic (more than 25 years ago) Occurrence in Pennsylvania:

14. Historic Abundance in Pennsylvania:

15. Recent (25 years ago—present) Occurrence in Pennsylvania:

16. Recent Abundance in Pennsylvania:

17. Population Trend:

____ Declining ____ Stable ____ Increasing ____ Unknown

18. Biological/Reproduction Parameters: (*Life Requisite Specializations, Age to Sexual Maturity, Life Expectancy, Fecundity, etc.*)

19. Reproductive Status in Pennsylvania:

Reproduces regularly No recent evidence of reproduction Does not breed in PA
(migratory)

Comments:

20. Habitat Description:

21: Historic Habitat Loss/Range Contraction Factors and Extent:

22. Current Level of Habitat/Watershed Protection:

- Unknown
- None
- Minimal
- Moderate
- High
- Other (*Explain*)

23. Current and Future Threats: (*Watershed Degradation, Habitat Loss, Pollution, Exploitation, Disease, Competition, Predation, etc.*):

Degree of Threat:

- Very High High Moderate Low Unknown

24. Taxonomic Uniqueness: (*Extent to which taxon is related to other taxonomic units, i.e., subspecies, monotypic genera or family:*

25. Additional Research or Documentation Needed:

26. Conservation/Management Recommendations:

27. Attachments

28. Preparer:

Name:

Address:

Date:

29. Approved by Fishes Technical Committee vote on _____

30. Final PA Fish & Boat Commission action:

APPENDIX D: PENNSYLVANIA FISH AND BOAT COMMISSION CODE

§2305. Threatened and Endangered Species.

(a) Establishment and publication of lists.—The executive director shall establish a Pennsylvania Threatened Species List and a Pennsylvania Endangered Species List. The lists, and any revisions thereto, shall be published in the *Pennsylvania Bulletin*.

(b) Rules, regulations, and permits.—The commission may promulgate rules and regulations governing the catching, taking, killing, importation, introduction, transportation, removal, possession, selling, offering for sale, or purchasing of threatened and endangered species and, if deemed advisable, may issue permits for catching, taking, or possessing any of those species.

(c) Penalty.—Any person intentionally violating any rule or regulation promulgated under this section commits a misdemeanor of the third degree. Each fish caught, taken, killed, imported, transported, removed, introduced, possessed, sold, offered for sale, or purchased in violation of any rule or regulation promulgated under this section shall constitute a separate offense. Catching a threatened or endangered species shall not constitute a violation if it is immediately released where it was captured in the condition in which it was captured.

Title 58: [Chapter 75. Endangered Species](#)

Section

- 75.1. Endangered species.
- 75.2. Threatened species.
- 75.3. Candidate species.
- 75.4. Special permits.
- 75.5. Qualified surveyors for endangered and threatened species and their habitat.

§75.1. Endangered Species.

(a) *General.* The species of fish, amphibians and reptiles and invertebrates listed in subsections (b)—(d) are classified endangered. The catching, taking, killing, possessing, importing to or exporting from this Commonwealth, selling, offering for sale or purchasing of any individual of these species, alive or dead, or any part thereof, without a special permit from the Executive Director is prohibited.

(b) *Fish.*

(c) *Amphibians and Reptiles.*

(d) *Invertebrates.*

§75.2. Threatened Species.

(a) *General.* The species of fish, amphibians, reptiles and invertebrates listed in subsections (b)—(d) are classified as threatened. The catching, taking, killing, possessing, importing to or exporting from this Commonwealth, selling, offering for sale or purchasing, of any individual of these species, alive or dead, or any part thereof, without a special permit from the Executive Director is prohibited.

(b) *Fish.*

(c) *Amphibians and Reptiles.*

(d) *Invertebrates.*

§75.3. Candidate Species.

(a) *General.* The species listed in subsections (b) and (c) are considered candidate species which could achieve endangered or threatened status in the future. They are subject to seasons, size, creel—bag—and possession limits specified in this subpart. A person who catches these species is encouraged to release them immediately and unharmed to the waters or other area from which they were taken.

(b) *Fish.*

(c) *Amphibians and Reptiles.*

§75.4. Special Permits.

The Executive Director, or a designee, may issue special permits under section 2305 of the code (relating to threatened and endangered species) to take, catch, kill or possess threatened or endangered species upon written application on forms provided by the Commission.

(1) Special permits will be issued only upon a showing of unique or extraordinary circumstances justifying the permit and the applicant shows that the permitted action does one of the following:

(i) Has no demonstrable adverse impacts on the population of the species in this Commonwealth.

(ii) Is in the best interest of the protection, conservation and management of the species.

(iii) Is necessary and appropriate in the interests of public health and safety or promotes essential research or public education and information.

(2) Persons and institutions requesting special permits shall apply before taking, catching, killing, possessing or acquiring the threatened or endangered species. Application forms and information are available from the Natural Diversity Section, Division of Environmental Services, 595 East Rolling Ridge Drive, Bellefonte, Pennsylvania 16823.

§75.5. Qualified Surveyors for Endangered and Threatened Species and their Habitat.

(a) *Requirement.* To conduct surveys for endangered or threatened species or their habitat in connection with an application for a proposed or planned development activity, a surveyor shall be deemed qualified by the Commission.

(b) *Qualification.* An individual who wishes to be qualified by the Commission to conduct surveys for endangered or threatened species shall demonstrate to the Commission's satisfaction that he meets the qualified surveyor requirements as approved by the Executive Director and published in the *Pennsylvania Bulletin*. The individual shall demonstrate his qualifications by submitting the completed application provided by the Commission. Individuals on existing Commission lists as of January 5, 2013, will be deemed qualified for purposes of this section provided they submit the completed application provided by the Commission.

(c) *List.* Upon qualification, the Commission will place the names of the individuals meeting these requirements on its qualified surveyor list for the species described in the application. The Commission will make these lists available to the public on its web site at www.fishandboat.com.

(d) *Duration.* The Commission's qualification of a surveyor is valid for 10 calendar years and expires on December 31 of the 10th year for which it was granted.

(e) *Renewal.* A qualified surveyor shall apply for renewal of the Commission's qualification every 10 years by submitting the completed renewal application provided by the Commission within 90 days prior to the qualification's expiration.

Denial and revocation. The Commission may deny qualification of a surveyor who does not meet the requirements of this section. The Commission may revoke the qualification of a surveyor when the surveyor no longer meets the requirements of this section. A person aggrieved under this subsection may appeal to the Executive Director in accordance with 1 Pa. Code §35.20 (relating to appeals from actions of the staff). Part II of 1 Pa. Code (relating to General Rules of Administrative Practice and Procedure) applies.

(a) *Other requirements.* When applicable, a qualified surveyor shall meet the requirements of §§51.71 and 75.4 (relating to scientific collectors' permits; and special permits).

APPENDIX E: PENNSYLVANIA OFFENSES AND PENALTIES

From the Pennsylvania Crime Code: Title 101, Chapter 15, §15.66:

(a) *Classification of offenses.* The act (18 Pa.C.S. §106(e)) provides that an offense defined by any statute shall be classified as provided in 18 Pa.C.S. §106 (relating to classes of offenses) which provides that:

(1) A crime is a murder of the first degree or of the second degree if it is so designated or if a person convicted of criminal homicide may be sentenced to death or life imprisonment.

(2) A crime is a felony of the first degree if it is murder of the third degree or if it is so designated or if a person convicted thereof may be sentenced to a term of imprisonment, the maximum of which is more than ten years.

(3) A crime is a felony of the second degree if it is so designated or if a person convicted thereof may be sentenced to a term of imprisonment, the maximum of which is not more than ten years.

(4) A crime is a felony of the third degree if it is so designated or if a person convicted thereof may be sentenced to a term of imprisonment, the maximum of which is not more than 7 years, or if it is a crime declared to be a felony without specification of degree.

(5) A crime is a misdemeanor of the first degree if it is so designated or if a person convicted thereof may be sentenced to a term of imprisonment, the maximum of which is not more than 5 years.

(6) A crime is a misdemeanor of the second degree if it is so designated or if a person convicted thereof may be sentenced to a term of imprisonment, the maximum of which is not more than 2 years, or if it is an offense declared by law to constitute a crime, without specification of the class thereof, if the maximum sentence does not make it a felony.

(7) A crime is a misdemeanor of the third degree if it so designated or if a person convicted thereof may be sentenced to a term of imprisonment, the maximum of which is not more than 1 year, or if it is a crime declared to be a misdemeanor, without specification of degree.