

Understanding and Protecting Kentucky Wetlands

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What are Wetlands?

Wetlands are areas where water either covers the soil or soil is saturated permanently or seasonally. Wetlands have soils that have developed anaerobic (lacking oxygen) conditions in the upper part of the soil layer, known as hydric soils. Plant species that have adapted to survive in these conditions are known as hydrophytes. Since water is essential for almost everything on earth, wetlands are one of the most biologically productive ecosystems on the planet and are home to plants, mammals, birds, reptiles, amphibians, and fish that are uncommon in other ecosystems. Geographically, wetlands are typically located between areas of higher elevation and aquatic systems such as oceans and rivers. However, they are also found in topographically low-lying regions or depressions and can be found across the United States, whether along the coast or throughout Appalachia.

Wetland Terms Defined

Wetland hydrology: The ground is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support wetland ecology.

Wetland soils: Wetlands have hydric soils that are wet in the upper part of the soil layer, which develops anaerobic conditions (meaning it lacks oxygen) during the growing season. Peat can also develop in the upper layer of the soil profile in wetlands due to these specific conditions.

Wetland plants: Wetland plants can be referred to as hydrophytes or emergent vegetation, meaning that plants grow in or on water. Common wetlands plants include cattails, arrowheads, water lilies, and different kinds of sedges and rushes.

Types of Wetlands

Wetlands can occur naturally in the environment, have historically gone by a variety of names, and come in various forms. Typically, wetlands have been defined based on the source of water entering the wetlands (e.g., runoff, rainfall, groundwater); how long the soil is inundated or saturated to the surface (e.g., part of the year, most of the year, all year long); and the type of plants present (e.g., emergent vegetation, floating vegetation). Some common examples of natural wetlands include:

- **Bogs.** Wetlands that have peat deposits, acidic waters, and moss that cover the land surface are known as bogs. Bogs receive most of their water from rainfall events, as compared to surface runoff or groundwater.
- **Fens.** Peat-forming wetlands that receive their water from runoff and groundwater are called fens. Fens can support many diverse plant and animal species and contain grasses, sedges, rushes, and wildflowers.
- **Vernal pools.** Vernal pools are seasonal depressional wetlands that may be covered in shallow water during winter and spring but completely dry during the summer and fall. These types of wetlands are home to plants and animals that spend the dry season as seeds or eggs and then grow and reproduce during the wet season, such as wood frogs.
- **Swamps.** Any wetland that is dominated by woody plants is classified as a swamp. Swamps can be defined as either forested or shrub swamps and can be home to a variety of species such as the wood duck, cottonmouth snake, river otters, American crocodile, and many types of amphibians.
- **Marshes.** Marshes are wetlands that are continually flooded with water and have emergent soft-stemmed vegetation. Marshes can appear near the coast or inland.
- **Floodplains.** These wetlands exist next to a stream or river and are prone to flooding. These types of wetlands may also be referred to as bottomland hardwood forests.
- **Wet meadows.** This type of wetland resembles grasslands that are typically drier than marshes and are without standing water for most of the year.

Where are Wetlands in Kentucky?

Before the colonization of Kentucky, wetlands made up 6 percent of the Commonwealth; however, by the 1990s, 80 percent of these original wetlands were removed. Wetland loss in the state is mainly attributed to land management activities and land conversion from logging, the addition of cropland and pasturelands, and stream channelization. Highway construction, coal mining, and industrial and commercial activities also have contributed to wetland loss and degradation.

There are approximately 360,000 acres classified as wetlands in Kentucky today. While many of these wetlands occur in the western portion of the state, a variety of wetlands exist in all 120 counties. Most are privately owned and can be characterized as riverain systems, lakes, and ponds. Other common types of natural wetlands in Kentucky include freshwater forested wetlands, such as cypress swamps and bottomland hardwood forests, and freshwater emergent wetlands.

To find out about the type and the current state of wetlands in your area, go to the Fish and Wildlife Services Wetlands Mapper at <https://www.fws.gov/wetlands/data/mapper.html>.

Wetland Terms Defined

Cypress swamps: Forested freshwater swamps that are dominated by bald cypress trees.

Bottomland hardwood forests: Deciduous and evergreen forests located in low-lying areas adjacent to rivers.

Freshwater emergent wetlands: Wetlands that are dominated by soft-stemmed vegetation such as grasses, sedges, and rushes.



Different types of naturally occurring wetlands.

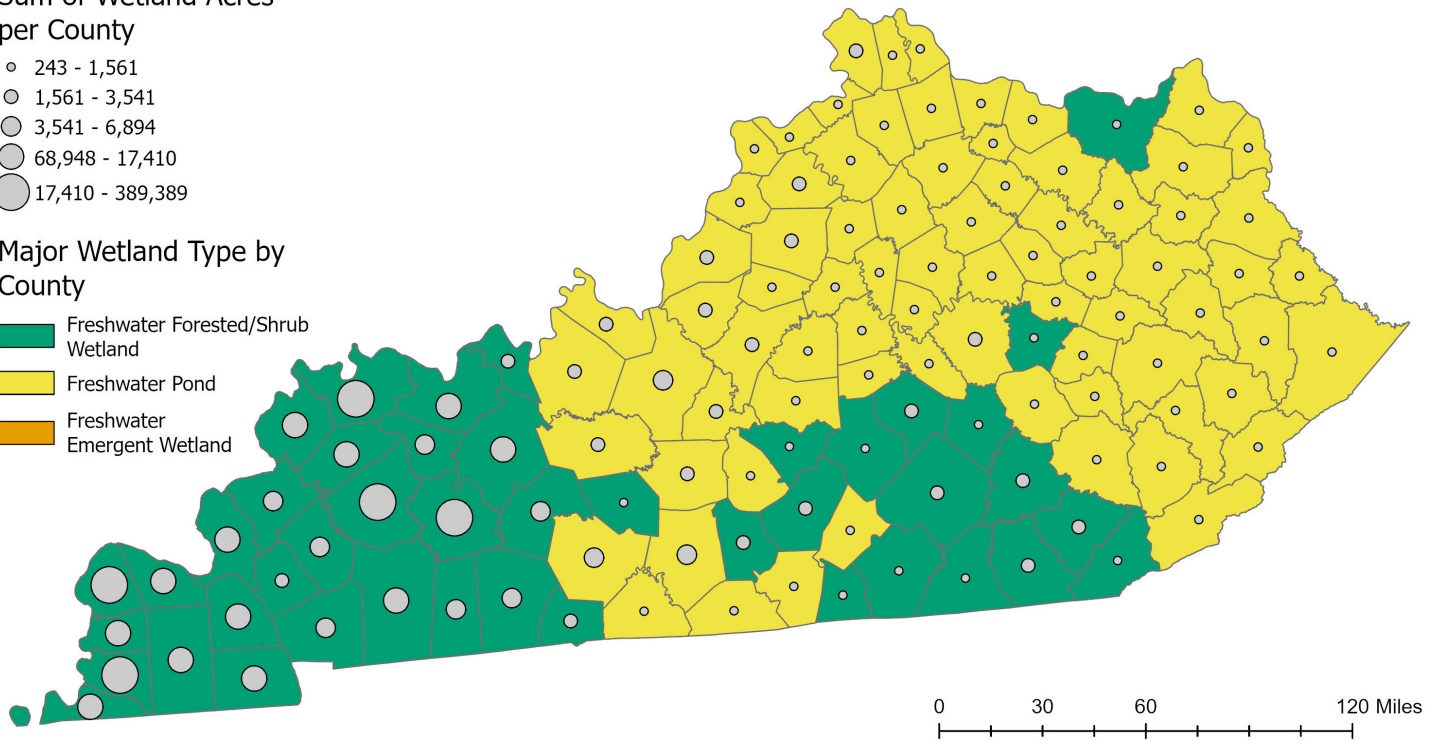
Photos by Tiffany Messer, Emily Nottingham, and Kentucky Division of Water

Sum of Wetland Acres per County

- 243 - 1,561
- 1,561 - 3,541
- 3,541 - 6,894
- 68,948 - 17,410
- 17,410 - 389,389

Major Wetland Type by County

- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Freshwater Emergent Wetland



Map of Kentucky's existing wetlands, showing the prominent type of wetland and acres of wetland per county (source: U.S. Fish and Wildlife Service).

Wetland Type

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

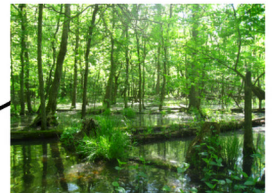
Murphy's Pond: A 175-Acre Bald Cypress Swamp



St. Anne's Convent: Forested Wetland



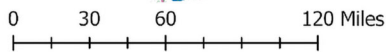
Trumbo Bottoms: Oxbow lake



Cliff Palace Pond



Hazeldell Meadow: Wet meadow



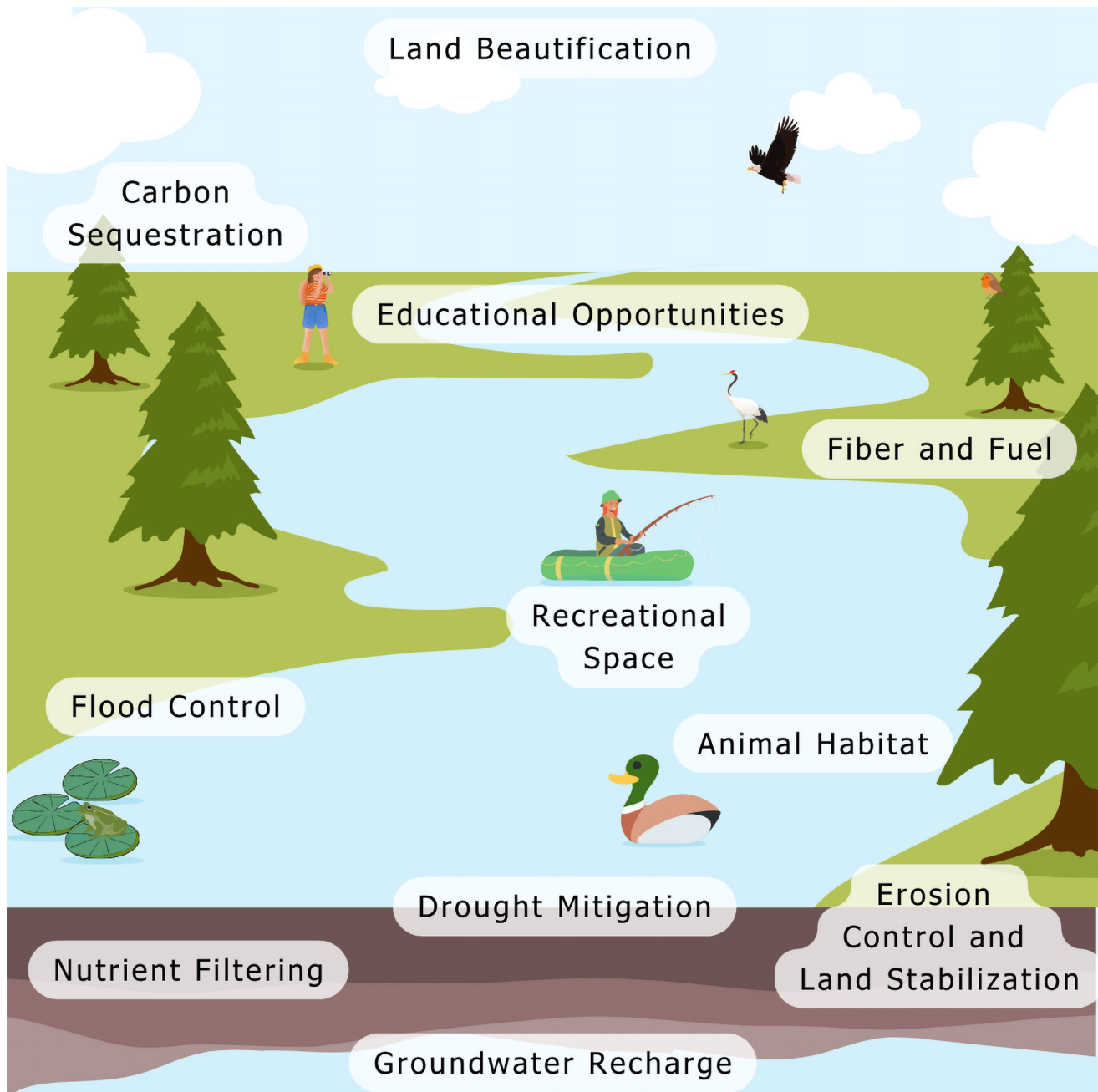
Map of Kentucky's existing wetlands (source: U.S. Fish and Wildlife Service). Photos by Kentucky Division of Water

Why are Wetlands Important to Kentucky?

Kentucky's wetlands provide the Commonwealth with many services, such as tupelo honey tracts in the western forested wetlands, endangered species habitat, and recreational opportunities, in addition to saving Kentucky millions of dollars annually by reducing flood damage and trapping and transforming common pollutants found in surface and groundwater. In fact, wetlands are often referred to as nature's kidneys because of two key benefits: 1) the ability to break down contaminants in the environment such as pesticides, fertilizers, metals, and sediment; and 2) the capacity to store billions of gallons of water.

Wetlands also provide a variety of other services:

- Flood control
- Erosion control and land stabilization
- Drought mitigation
- Groundwater recharge
- Trapping sediment
- Nutrient filtering
- Carbon sequestration
- Habitat and food for animals such as ducks, bald eagles, swamp rabbits, wood frogs, blue catfish, and many more
- Fiber and fuel from logs, peat, and fodder
- Land beautification
- Recreational space for hunting, fishing, kayaking, bird watching, and hiking
- Educational opportunities



Wetland services.

How Can I Help Protect Wetlands?

Wetland loss and degradation have limited the function and broad applicability of the services that wetlands provide. Protection of existing wetlands and construction of new wetlands are viable options to help mitigate the loss of services. Steps to protect wetlands have been established through the federal and state governments and nonprofit organizations.

Federal Resources

The federal government has enacted several federal statutory prohibitions and incentives to reduce wetland loss.

- The Clean Water Act, established in 1972, contains Section 404, which “establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands.” Federal regulations are extended to wetlands with a continuous surface connection to bodies that are “waters of the United States,” defined as traditional navigable waters, the territorial seas, and interstate waters.
- The wetland conservation provisions of the 1985 Food Security Act (also known as “Swampbuster”) limit federal aid to farmers who converted wetlands into land used for agricultural production.
- In 1986, the Emergency Wetlands Resources Act was enacted to encourage wetland protection at the state level by requiring wetland protection to be addressed in the Statewide Comprehensive Outdoor Recreation Plan to qualify for funding.
- The Intermodal Surface Transportation Efficiency Act, established by the Federal Highway Administration in 1991 (expanded to the Transportation Efficiency Act for the 21st Century in 1998), allows the federal government to purchase conservation easements from landowners who agree to protect and restore wetlands on their land. The goal of this program is to design and build transportation that fits harmoniously into the community and natural environment. This program also includes funding to help support wetland mitigation during construction.

Several governmental agencies created programs to assist private and public landowners in conserving and protecting wetlands.

- The USDA Natural Resources Conservation Service (NRCS) offers a voluntary program, the Wetlands Reserve Program, that helps farmers identify wetlands on their land and provides support to farmers so that they can meet requirements set by the Clean Water Act Section 404 and the Swampbuster provision of the Food Security Act. This is done through easement payments and restoration financial assistance for restoring and protecting altered wetlands.
- The USDA Forest Service Stewardship Incentive Program helps landowners protect and improve forested lands, to include wetlands and riparian areas, through financial and technical assistance.

- The United States Department of Interior Fish and Wildlife Service offers several programs, such as Partners for Wildlife and the North American Wetlands Conservation Act grant program. These programs aid landowners in the restoration and protection of wetlands through conservation easements and economic incentives for farming practices that benefit waterfowl. Additionally, grant funds can be obtained to help public agencies protect, enhance, restore, and manage wetlands.
- The Federal Highway Administration established the Intermodal Surface Transportation Efficiency Act with the goal of designing and building transportation that fits harmoniously into the community and natural environment. This includes funding to help support wetland mitigation during construction.
- The Department of Defense oversees the Legacy Resource Management Program, which promotes research, management, and conservation of historical resources on public lands.

Kentucky Resources

Kentucky has also put in place programs to help protect wetlands at the state level. To learn more about this program and what Kentucky is doing to protect its wetlands, go to <https://eec.ky.gov/Environmental-Protection/Water/Protection/Pages/Wetlands.aspx>.

- The Kentucky Energy and Environment Cabinet established the Kentucky Wetlands Rapid Assessment Method in 2010. This was put in place to better manage and protect Kentucky’s wetlands.
- The Kentucky Department of Fish and Wildlife Resources has also worked to help promote and protect wetlands within the Commonwealth through technical guidance provided to landowners and developers when identifying wetlands and creating a restoration plan. The Kentucky Department of Fish and Wildlife also manages 39,000 acres of wetlands in Kentucky to protect waterfowl habitat.
- The Kentucky Office of Nature Preserves works to protect and manage wetlands by locating significant natural areas that should be dedicated as state nature preserves. Management and restoration activities are then dedicated to restoring the site to its prior condition, before human influences. The Mississippi River wetlands located in western Kentucky are an example of an area managed by the Kentucky Office of Nature Preserves.

Nonprofit Resources

Nonprofit organizations have also played a role in protecting and restoring wetlands across the United States and Kentucky.

- The Nature Conservancy, a global environmental organization, worked to restore 9,000 acres of frequently flooded farmlands in Kentucky back to forested wetlands in 2021.
- Ducks Unlimited is a nonprofit organization whose primary focus is the restoration, conservation, and management of waterfowl habitat. They have conserved approximately 13,000 acres of wetlands in the Commonwealth from 1988 to 2017.

Community Resources

Beyond getting involved with local agencies and nonprofit organizations, here are several actions you can take to help preserve and protect wetlands in your area:

- Learn more about the wetlands near you and the animals that live there.
- Dispose of waste like motor oil, paints, batteries, and aerosols properly.
- Don't litter, and pick up trash when you see it.
- Pick up pet waste in public areas.
- Conserve water and electricity by turning the faucet off while brushing your teeth, fixing water leaks, turning the lights off when you leave a room, and unplugging devices when not in use.
- Recycle plastic, paper, cardboard, and tin.
- Limit pesticide and fertilizer use.
- Prevent soil erosion by covering bare soil with mulch or straw and seeding with a native groundcover.
- Enjoy wetlands by hiking, canoeing, bird watching, taking photographs, and relaxing in nature!

Further Reading

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