



May is American Wetlands Month! The month was designated in 1991 by the U.S. Environmental Protection Agency and its partners to celebrate the important benefits of wetlands. Here, learn about the many plants found in wetlands some of the interesting adaptations they have developed.



Cypress swamp.
National Park Service

A **wetland** is an area of transition between a land-based and water-based ecosystem. Types of wetlands include marshes, swamps, bogs, and fens. Though there are many different types of wetlands, they have three physical characteristics in common:

- 1. Water** – Wetlands are saturated or covered with shallow water for at least some period during the year. However, because of tides, rainfall, snowmelt, and drought, the presence of water does not necessarily indicate a wetland.
- 2. Hydric Soil** – Hydric soil is formed under saturated conditions, often has limited or no oxygen, and may include an upper layer of decaying plant matter that decomposes slowly or not at all;
- 3. Hydrophytes** – Wetlands provide habitat for hydrophytes, or “water-loving” (aquatic) plants, that are adapted to living in saturated soil all or part of the year.

Because it may be difficult to distinguish if an area is a wetland, and between different types of wetlands, plant species are often used as indicators. The soil type and quality, fluctuation of water levels and flooding, and climate and seasonal weather patterns in a wetland influence what plant species grow there.

BENEFITS OF WETLAND PLANTS

Wetlands plants serve many functions, including:

- Soaking up water that would otherwise cause rivers and lakes to flood;
- Slowing the flow of water;
- Lessening the effects of coastal erosion;
- Filtering excess nutrients, sediment, and pollutants out of water;
- Providing protection, breeding grounds, and food for fish and aquatic wildlife and nesting areas for migratory birds; and
- Supplying unique and staple food crops for humans, such as rice and cranberries.

AQUATIC PLANT CLASSIFICATION

Conditions in wetlands vary widely, and inhabitants are often adapted to a wide range of water quality conditions, such as salinity (saltiness), temperature, tidal currents, turbidity (cloudiness), flooding, drought, excess pollution, and low or no oxygen in the soil.

Wetlands plants are usually categorized as:

Emergent – rooted in soil, but plant parts extend above the water;

Submergent – the entire plant lives underwater;

Floating – leaves float on the surface, while roots hang down into the water or are planted in the soil; or

Riparian – found along the edges of wetlands or other water bodies.



Water lilies, an example of floating aquatic vegetation.



Venus Flytrap

INTERESTING ADAPTATIONS: CARNIVOROUS/INSECTIVOROUS PLANTS

Because of low-nutrient soils in bogs and other wetland areas, some plants have adapted to getting their nutrients in a different way – by feeding on insects.

- The trap-like leaves of the **Venus flytrap**, *Dionaea muscipula*, are colorful and contain sweet nectar to attract insects. When an insect lands on the leaves, three specialized hairs on the leaves trigger the trap to close, trapping the prey within the plant for further digestion. Flytraps are riparian, living on the edges of wetlands, and can be found in a very small region of the United States, in North Carolina and South Carolina.

- There are 10 species of **Pitcher Plant** living in eastern North America. Pitcher plants also trap insects by attracting them to their flower-like, pitcher-shaped leaf. Once an insect enters the leaf, downward-facing hairs, steep sides, and a waxy substance on the leaves prevent the insect from flying or crawling back out. It then drowns in a pool of water at the bottom and is further digested by acidic fluid in the stem. The California Pitcher Plant, *Darlingtonia californica*, also called Cobra Lily, is only found in a small region of southern Oregon and northern California.



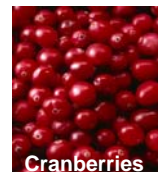
INTERESTING ADAPTATIONS: BROADLEAF CATTAIL

The **Broadleaf Cattail**, *Typha latifolia* L., is an emergent aquatic plant, meaning it is rooted in the soil, but stems, leaves, and flowers grow above the surface. Cattails are adapted to a wide range of soil and water conditions. They can be found in marshes throughout all of the continental United States, Alaska, Hawaii, and much of Canada. They provide prime habitat for waterfowl and other marsh birds, including whooping cranes and blackbirds, and are a staple food for muskrats and beavers.

Cattail stems are very well adapted to living in low or no-oxygen soil. They contain air spaces called *aerenchymas* that move oxygen down through the stem to the roots. These air spaces also help provide support to the plant during winds, tides, and floods. Because they can survive in myriad conditions, they can also become an *invasive species*, dominating a marsh ecosystem.

WETLAND CROPS: CRANBERRIES

The **cranberry**, *Vaccinium macrocarpon* Aiton, is a close relative of the blueberry. Cranberries, native to the northeastern, south-central, and southeastern United States, are fruits that grow on long vines in bogs, which have acidic water and special soil that contains layers of sand and decaying matter. This important crop is also cultivated in man-made wetlands. The lifecycle of a cranberry vine is intricately tied to seasons and weather conditions:



1. **Early summer** – pink flower blooms are pollinated by bees, after which cranberry fruits begin to develop;
2. **Early fall** – cranberries grow fully and are harvested in September or October;
3. **Fall to early winter** – new flower buds become dormant due to low temperatures and shorter days;
4. **Mid-winter** – growers flood the bogs with water, which freezes and insulates the buds;
5. **Late-winter to early spring** – when the ice thaws, the plants remain dormant until they are exposed to temperatures of 32 to 45 degrees Fahrenheit for a critical amount of time; and
6. **Late spring** – the plants begin new growth and their pink flowers bloom.



EXOTIC AQUATIC: PURPLE LOOSESTRIFE

Some aquatic plants found in North American wetlands are non-native, meaning they were introduced from a different part of the world. These non-native species can become invasive and dominate the ecosystem, out-competing non-invasive species for nutrients and space. One such example is **Purple Loosestrife**, *Lythrum salicaria* L., which is native to Europe and Asia. It was introduced to North America as a landscape plant because of its attractive purple flowers. But, because it is well-adapted to a wide range of water, soil, and climate conditions, it has become an *invasive species* in wetlands and other moist areas.

Examples of other such “exotic aquatics” include **Hydrilla**, **Alligatorweed**, and **Eurasian Watermilfoil**.

PROTECT YOUR LOCAL WETLAND PLANTS!

- Avoid transporting and planting invasive species. When planting a garden or maintaining your wetland, be sure to ask your local nursery for native plants. Clean hiking boots and outdoor equipment before you go to new areas to prevent the spread of hitchhiking plant seeds and other invasive species. Clean your boat thoroughly before transporting it to a different body of water, and don't release aquarium contents into the wild.
- Nearly 75 percent of America's wetlands are privately owned. If you have wetlands on your property, leave them in their natural state. If your wetlands have been altered, consider restoring them to their natural state.
- Pesticides, fertilizers, and herbicides applied to your lawn can make their way into nearby wetlands. Consider reducing or eliminating your use of these products, and when you do use them, make sure to use no more than the prescribed amount. Avoid using these products before rainstorms – rain both reduces their effectiveness and makes it more likely that these products will wash into local wetlands.
- Participate in volunteer clean-up, restoration, or monitoring activities with a local wetlands group.

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