

Natural Heritage Resources Fact Sheet

Virginia's Rare Natural Environments

Seasonal Ponds



Description

The use of the word "pond" may be somewhat misleading in the case of seasonal pond communities. More accurately, they are shallow depressions in the ground that contain standing water for all or, usually, part of the year. Some larger ponds are actually forested. The amount and duration of standing water varies among ponds and strongly influences the plant and animal associations that are present. Most ponds are sinkhole depressions which were created by the dissolution of underlying substrate and the subsequent

collection of water and sediments in the depression. In the coastal plain, this underlying material is calcareous and consists of ancient shell deposits.

In the Shenandoah Valley, the underlying material is limestone. Finally, some ponds are simply lowlands within dune landscapes. Sinkhole ponds in Virginia are referred to as seasonal because the depressions do not hold water for extended periods of time. The hydrology of seasonal ponds varies, but they generally have standing water during early spring, the wettest time of the year, and gradually dry through the summer and fall. The length of time standing water remains in the ponds can change from year to year; ponds will have more water for longer periods during wet years than during drought years. Seasonal ponds range anywhere in size from 50 feet to several hundred feet or more in diameter.

Distribution

Seasonal ponds are scattered throughout the coastal plain from the Maritime Provinces to the Gulf Coast of Texas. They are especially prevalent in the Carolinas where the ponds form a regular feature along the fall line. In Virginia, seasonal ponds are not as common. They are found in scattered sites in the southeastern part of the state, and on the Eastern Shore. Two sites of particular note are the Grafton Ponds complex in York County and Newport News, and the small ponds located within Seashore State Park and Natural Area in Virginia Beach. Seasonal ponds are also found in the Shenandoah Valley in Augusta and Rockingham Counties where the geologic features are different.

Flora and Fauna

Fluctuations of water levels vary considerably among ponds depending on their age and location. Water levels also vary from year to year within a single pond. The result is a diverse plant and animal richness within the entire pond complex that can add up to be more valuable than any

individual pond considered on its own. Several rare Virginia plant species such as harper's fimbriatilis and black-fruited spikerush are found along the edges of coastal plain seasonal ponds. The endemic Virginia sneezeweed is found at the margins of Shenandoah Valley seasonal ponds as are several other rare plant species.

Animal species also commonly inhabit seasonal ponds. Because the ponds contain standing water for only part of the year, they are unable to support fish and therefore provide an ideal, predator-free breeding habitat for many amphibian species. Mabee's salamander is a rare amphibian that breeds at some seasonal ponds in Virginia. Another rare amphibian, the barking tree frog, is a northern species with its southern range limit in Virginia. It is only found in the southeastern part of the state and requires a fish-free, freshwater habitat to reproduce. Several rare and unusual dragonflies also inhabit these specialized environments.

Values

Seasonal ponds are especially important for the unique diversity of plants and animals that inhabit them. A network of several ponds is a complex, interwoven system of wetland communities. Often, plant species in these ponds are at their southern limit, or are endemic to Virginia. In addition, the importance of these habitats as predator-free breeding grounds for amphibians cannot be overemphasized.

Threats

Considering the varied hydrologic nature of seasonal ponds and the diversity of life contained within an entire pond complex, protection of the surrounding habitat, with particular attention to maintaining water regimes, is required to preserve the character of these natural communities. Draining, ditching, and dredging can disrupt the natural water cycles upon which the community is based. In addition, nutrient levels need to be maintained in the ponds; runoff from fertilized agricultural fields can increase sediment and nutrient levels in ponds and alter the plant communities that can survive there. Finally, it is important to remember that few species will use seasonal ponds as their only habitat. Amphibians in particular may be present at ponds only to mate and lay eggs. Surrounding upland natural areas should be protected with the ponds themselves to provide both living habitats for species as well as an avenue for dispersal of seeds or young to new ponds.

Protection

Long-term protection of this rare community type will depend on environmentally sound planning and development around these areas. Although seasonal ponds may have some protection under wetland regulations of the Federal Clean Water Act, interpretations of these laws often change and should not be solely depended upon for protection. Additionally, regulations often don't provide for the protection of surrounding upland habitats, and may allow damaging activities in some cases. Protecting the hydrologic conditions of the ponds and adjacent upland environments is critical to their long-term preservation.