

# Natural Heritage Resources Fact Sheet

## Groundwater Seepage Wetlands of the Coastal Plain and Piedmont

### Description

Wetlands vary tremendously across the landscape, owing to differences in topography, water source and the dynamics of water movement. Groundwater seepage wetlands - sometimes called *seepage swamps* or *bogs* - occur at stream-heads or alongside streams. Seeps occur where a gently sloping land surface intersects the water table. The seepage water is always clear, cold and relatively pure since it is derived from subterranean aquifers. These wetlands are rarely seasonally flooded and therefore do not receive the nutrient-rich silt deposited in bottomland swamps and marshes.

Seepage wetlands support unusual vegetation and many plants which occur in no other habitat. Perhaps the most characteristic tree is the sweetbay magnolia, whose semi-evergreen leaves are conspicuous in late autumn when the

leaves of other trees have been shed. Also present are red maple, loblolly pine, tupelo and sweet gum. Typical shrubs include spicebush, sweet pepperbush, poison sumac, possum-haw, highbush blueberry, fetterbush and inkberry, all of which catbriers often entwine. The herbaceous layer can be very diverse, especially when cutting or periodic fire eliminates competing woody species. Sedges, grasses, orchids, skunk cabbage, and even carnivorous pitcher-plants and sundews can flourish in such situations amid thick beds of sphagnum moss. Diverse seepage wetlands are sometimes found in powerline and railroad rights-of-way which are kept open by mowing and bush-hogging. The fire-maintained landscapes of Fort Pickett and Fort A.P. Hill also contain exemplary bog-like seepage wetlands. Ecologists suspect that many rare plants were once more

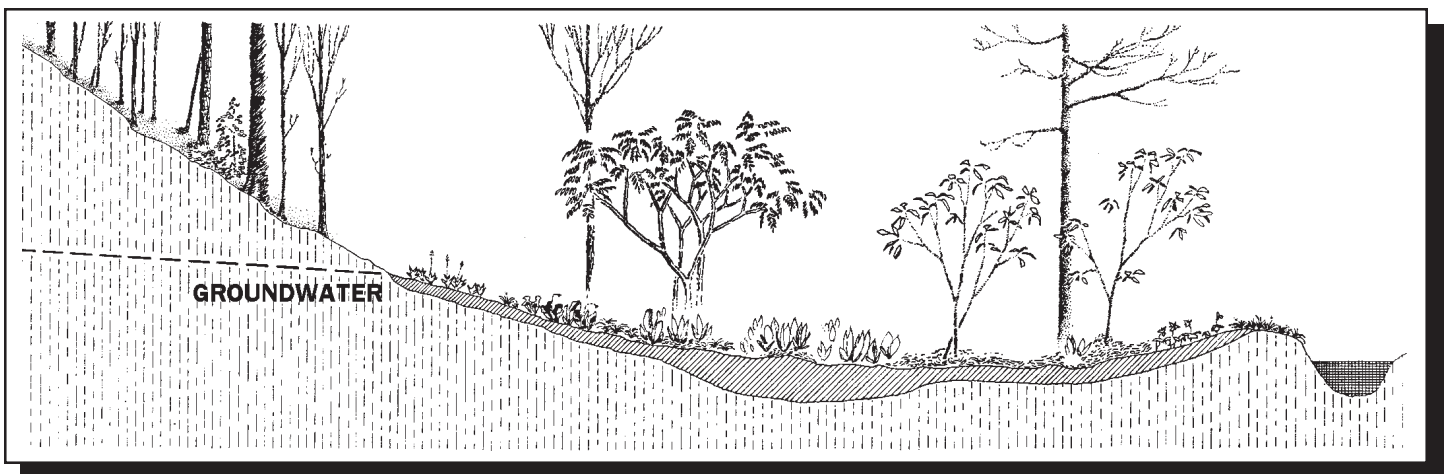
common in Virginia when landscapes were frequently burned and competing woody vegetation kept in check. A consequence of successful fire suppression has been the reduction of open seepage wetlands, to the point that 30 rare plant species are found today only in mowed rights-of-way.

### Distribution

Seepage wetlands are most frequent on the Coastal Plain because the deep, sandy and porous soils contain abundant near-surface groundwater. Such wetlands are much less common in the Piedmont because soils there tend to be clayey and less porous. Piedmont examples seem frequent only in districts underlain by granite or similar bedrock.

### Flora and Fauna

Many rare plant species grow only in groundwater seepage wetlands.



*Groundwater seepage community*



Department of Conservation & Recreation  
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

For more information, contact  
Department of Conservation and Recreation  
203 Governor Street, Richmond, VA 23219  
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Among these are swamp pink, Cuthbert turtlehead, Virginia least trillium, purple pitcher-plant, golden colicroot, white-fringe orchis, Texas tickseed, New Jersey rush, Barratt's sedge, ciliate meadowbeauty, short-leaf sneezeweed and large-flowered camass. Chimney-building crayfish, spotted turtle, eastern mud turtle, eastern mud salamander, four-toed salamander and northern dusky salamander are characteristic animals. Less conspicuous are two rare dragonflies which have the wonderfully appropriate names, *sphagnum sprite* and *seepage dancer*. Unusual and poorly known amphipods and isopods (small shrimp-like organisms) often occur in the seepage rivulets and small pools. Finally, even the water-filled leaf of the pitcher plant supports a community of tiny specialized aquatic insects.

### Values

Intact seepage wetlands and their underlying aquifer help maintain water quality in adjacent streams. Wetlands overall provide many valuable ecosystem functions to society at virtually no cost. Seepage wetlands are particularly valuable as natural heritage resource sites because they contain many rare and beautiful species. These open bog-like habitats may also serve as superlative outdoor classrooms where students can observe such novelties as carnivorous plants and learn many other fascinating natural history facts.

### Conservation

Protection of seepage wetlands and their component flora and fauna involves attention at two scales: the landscape scale and the individual species scale. Wetlands do not exist in isolation from activities on the surrounding landscape. Consequently, sufficient "buffer" land surrounding the wetland can help mitigate potentially damaging off-site impacts. Landowners who follow *best management practices* will help reduce adverse impacts on sensitive habitats. Certain rare species may need special conservation attention. Often the only way to protect and perpetuate a species population at a site is to conduct active vegetation management that reduces taller woody species and maximizes the competitive abilities of the sensitive species of concern. Where herbicides have been used in the past, alternatives should be promoted, and sensitive wetland areas should be clearly identified on the ground with appropriate signs or flagging.

Disruptions to the natural hydrologic regime threaten these wetlands. For example, improperly installed culverts could flood or drain the wetlands. Also, damming of streams to create ponds or reservoirs has destroyed habitat. Large-scale sand and gravel mining near these wetlands might alter the groundwater recharge capabilities of the land, reducing seepage water

in the wetland. Aquatic organisms might be especially vulnerable to water quality degradation caused by septic tank or landfill leachate. Along railroad and utility line rights-of-way, use of herbicides poses a threat to sensitive plants. Off-road vehicle impacts can damage sensitive species and create unsightly, long-lasting ruts which detract from the wetland's aesthetic values. Another threat is from forestry practices which involve herbiciding or conversion of the natural vegetation to plantations. Sought-after pitcher plants and turtles may be vulnerable to collecting. Lastly, some desirable species may be out-competed by taller woody vegetation. In these cases, vegetation management practices such as regular mowing or burning need to be continued.

To learn more about Virginia's rare plant and animal species and rich biological communities write to the following: *Plant and Insect Species* - Virginia Department of Agriculture and Consumer Services, Office of Plant Protection, P.O. Box 1163, Richmond, Virginia 23209; *Animal Species* - Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, Virginia 23230; *Plants, Animals, or Biological Communities* - Virginia Department of Conservation and Recreation, Division of Natural Heritage, Main Street Station, 1500 East Main Street, Suite 312, Richmond, Virginia 23219.



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