Magnolia Bogs

National Park Service
U.S. Department of the Interior

National Capital Region
National Capital Parks - East

The antiquity of some of these little waifs and the vicissitudes they have survived entitles them to our respect, while the slender thread upon which their continued existence depends commends them to our most considerate care.

W.L. McATEE, 1918

magnolia bog plant community

Sweet Survival

Dotted with lemon scented, creamy white flowers in late spring, small sweetbay magnolia trees (*Magnolia virginiana*) flourish in the rare plant community that bears their name. Only 13 magnolia bogs are known to exist in the Atlantic Coastal Plain area, and these are threatened by habitat destruction and fragmentation. As a steward of the nation's most important natural resources, the National Park Service is working to protect these irreplaceable wetlands at Oxon Run Parkway through scientific inventory and monitoring, collaboration, and partnerships.

sweetbay magnolia blossom

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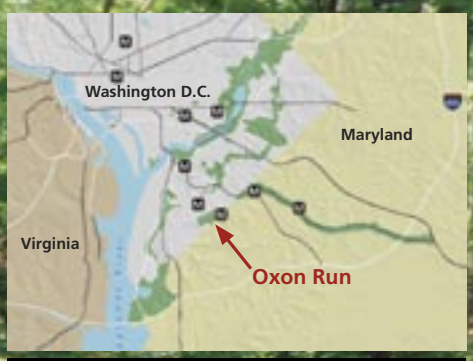

Location and Identification

One of the most significant (and least known) natural areas in Washington, D.C. exists within Oxon Run Parkway, a 126-acre forest located in National Capital Parks - East. Oxon Run (a tributary of the Potomac) contains native forested uplands and nearly 58 acres of marshy, or *palustrine*, forested wetlands. These wetlands include four rare northern magnolia bogs—the only such plant communities in the entire National Park System.

Oxon Run forested wetland

What Makes Magnolia Bogs Unique?

Acidic and mossy seeps, magnolia bogs occur only below gravel terraces of the inner mid-Atlantic Coastal Plain. Closely associated with terrace gravel forests, these wetlands usually occupy less than an acre on slopes comprised of soils deposited millions of years ago by the Potomac River. Water infiltration and leaching has left the soils acidic and free of the organic materials that characterize true peat bogs. When water percolates from the upland sands and gravels over an impervious layer of clay, downward flow is prevented, and moisture is directed out of the hillside. This *hydrogeology* creates optimal conditions for bog formation.

Naturalist W.L. McAtee described these wetlands as "magnolia bogs" in 1918 for the distinctive presence of sweetbay or swamp magnolia (*Magnolia virginiana*), as well as sphagnum moss and other bog flora. Poison sumac (*Toxicodendron vernix*), highbush blueberry (*Vaccinium corymbosum*), and bog fern (*Thelypteris simulata*) also inhabit this rare plant community.

Palustrine Wetlands Vegetation
- Sweetgum
- Red Maple
- Sycamore
- Arrowwood Viburnum
- Spicebush
- Poison Ivy

Magnolia Bog Vegetation
- Sweetbay magnolia

Upland Forest Vegetation
- Tulip Poplar
- Southern Red Oak
- American Beech
- Mountain Laurel
- Christmas Fern

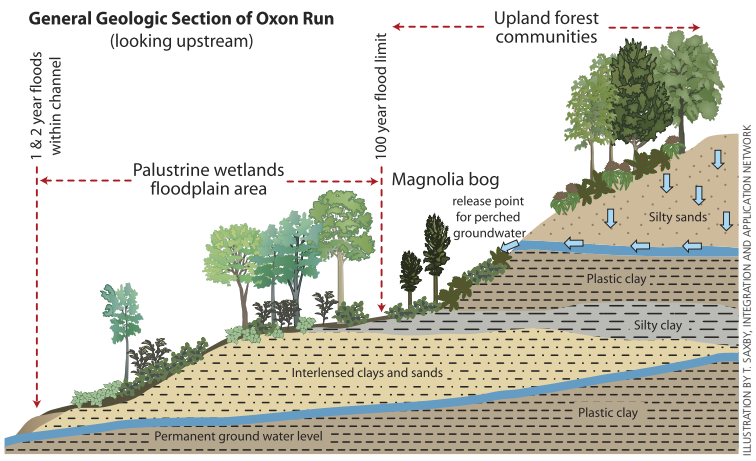

ILLUSTRATION BY T. SAXBY, INTEGRATION AND APPLICATION NETWORK

Conservation Challenges

Magnolia bogs are uncommon, but these critically rare plant communities have become more scarce because of disturbances caused by increased urbanization. Stormwater runoff, siltation, and encroaching developments impact the gravel terraces that supply water to the bogs. Runoff from a nearby parking lot cuts directly through the most prominent bog, depositing undesirable sediments and incising a channel to Oxon Run. Such erosion disrupts the bog's hydrology and delicate ecological balance by lowering the water table and depriving the system of water. In addition local stormwater drainages funnel high-velocity flows into a wet meadow of the park floodplain where diverse native species exist. Such destructive storm flows deposit large amounts of trash (aluminum cans, food containers, paper, and more), damaging the wetlands.

Other disturbances outside the park affect the subsurface aquifers on which magnolia bogs depend. Acidic water percolating through the floor of surrounding oak woodlands feeds seepages that support bog flora. Removal of area forests eliminates this supply of the gravel terrace water. Other threats include off-road vehicles, foot traffic, and competition from non-native plants.

Maintaining a Delicate Balance

When National Park Service biologist Dr. L.K. Thomas, Jr. discovered magnolia bogs in the Oxon Run watershed in the 1960s, he brought attention to much more than an interesting collection of spring-fed ferns, mosses, and shrubs. His work in the 1990s alerted park managers to numerous urban impacts which continue to threaten this rare plant community—and the rich biological diversity of this distinctive floodplain ecosystem.

Essential to the survival of magnolia bogs is a hydrologic cycle dependent on undisturbed soils, aquifer recharge zones, and forested lands. When plans arose for the extension of a rail right-of-way through park land, NPS managers collaborated with transportation officials to preserve Oxon Run Parkway's rare natural features. A deep tunnel was constructed below park lands, reducing surface impacts and maintaining critical hydrology. To address the longer-term threat of stormwater damage, park managers are working with the local community to review engineering plans for structures that reduce runoff velocities and sediments. Ideally, strategies may someday include methods for recharging upland groundwater sources so that water seeps into, rather than flows through, the boggy areas below. Hopefully, this will ensure that pure, naturally filtered water continues flow from the bogs into the surrounding watershed.

Park resource managers and scientists from the NPS National Capital Region Network Inventory and Monitoring Program continue to observe the condition of magnolia bogs at Oxon Run Parkway, integrating findings with park planning, operations, maintenance, and visitor activities. Such work results in sound technical information that assists in developing further actions for protecting rare magnolia bogs.

box turtle

mountain laurel

caterpillar on fern frond

litter in magnolia bog

Find Out More

Further information about magnolia bogs can be obtained from these references:

- NPS National Capital Parks - East, 202-690-5185, 1900 Anacostia Drive SE, Washington, D.C., 20020, or visit www.nps.gov/nace.
- Roderick Simmons and Mark Strong, "Fall-line Magnolia Bogs of the Mid-Atlantic Region," *Audubon Naturalist News*, October 2002, or visit www.mdflora.org.
- W.L. McAtee, "A Sketch of the Natural History of the District of Columbia," *Bulletin of the Biological Society of Washington, No. 1*, May, 1918.