

# Araby Bog

By Roderick H. Simmons and Mark T. Strong

Flora surveys by Stanwyn G. Shetler, Roderick H. Simmons, Mark T. Strong, and Meghan D. Tice

The Araby Bog is a diverse, 6.5 acre Magnolia Bog in Charles County, Maryland with a large, open section that gives rise to a pristine perennial stream that flows into nearby Mattawoman Creek. Magnolia Bogs are acidic, fen-like seeps (Shetler 2000, Thomas 2000) associated with gravel terraces of the inner Coastal Plain near the fall line that are named for the unique assemblage of Sweetbay Magnolia (*Magnolia virginiana*), Sphagnum moss, and other bog flora (McAtee 1918, Shetler 1970). Occasionally they are referred to as “McAteean Bogs”, after W.L. McAtee who first defined them in 1918 (Shetler 2000), or “Seepage Bogs” (Fleming et al. 2001). These rare wetlands differ geologically and hydrologically from the famous, rain-fed (ombrotrophic) peat bogs of New England and northern Europe because they occur in terrace gravel deposits and are spring-fed. Their distribution generally follows the fall line in a narrow east-west band from the Laurel area, at the northern extent of their range, in Prince Georges County, Maryland, to their southern extent, near Fredericksburg in Caroline County, Virginia, and are perhaps best developed in the Washington, D.C. vicinity (Simmons and Strong 2001). Throughout their range they were never common or very large, usually occupying an area an acre or so in size (McAtee 1918). Other well known bogs near Washington that are more eastward of the fall line, like the Glen Burnie and Magothy Bogs, are not characteristic Magnolia Bogs, despite some floristic similarities, because of different geological conditions and plant assemblages (Shreve et al. 1910, Sipple 1999, Severn River Association 2000).

Magnolia Bogs are enlarged springs or seeps that usually form on a slope where a perched water table intersects the ground surface above an impervious clay lens or aquiclude. Such seepage areas are particularly associated with terrace gravel formations which hold large amounts of rainwater in the porous sand and gravel lenses. The soils of high elevation gravel terraces in the vicinity of the fall line are composed of beds of cobble (gravel), sand, silt, and clay that were deposited by the Potomac River during glacial melting millions of years ago (Weems 1995). They are weathered, very acidic (pH 4.0), and generally infertile as a result of calcium ions and other nutrients associated with rich soils leaching into stream valleys below over a long period of time (Simmons 1995). The soils of Magnolia Bogs are also very acidic, sandy, and gravelly because they are derived from terrace gravel deposits. As a result, they are not characterized by accumulated peat or organic soils as true peat bogs are, except in some supersaturated areas. Nor are they characterized by the deep, mucky soils of more commonly encountered wetlands in the region, though occasionally these soils occur in small pockets within the Magnolia Bog complex.

Extensive studies of Magnolia Bogs throughout their range reveal most, if not all, to include dense, shaded thickets of ferns, shrubs, and large magnolias, as well as open, sunny areas dominated by graminoids (grasses and grass-like plants), a diversity of herbaceous plants, and scattered shrubs (Hitchcock and Standley 1919, Simmons and Strong 2001). Sphagnum moss is a dominant groundcover in both settings because of the permanently saturated, acidic conditions throughout the bog (pH 4.2-5.0) (Simmons 1995, Long 1999). The gravel and sand substrate is frequently exposed as well, “flushed...to the surface or slightly overflowed...by a constant flow of clear, cool spring

water” (McAtee 1918). A characteristic “suite” of plant species, many of which are rare in Maryland and Virginia, comprises the flora of Magnolia Bogs and in addition to the aforementioned factors makes them unique (McAtee 1918, Hitchcock and Standley 1919, Shetler 1970, Simmons and Strong 2001, Fleming et al. 2001). Several rare dragonflies and damselflies (Fleming et al. 2001) and a rare copepod (Thomas 1991) are also associated with Magnolia Bogs.

Growing on forested slopes slightly above the bogs, in the permanently moist soil (capillary fringe) that surrounds the feeder-seeps, are often lush carpets of Ground Pine (*Lycopodium obscurum*), ferns, scattered ericads (shrubs in the Heath Family), and other characteristic plants of acidic seeps. These areas are usually extensive and are typically associated with Magnolia Bogs (Simmons and Strong 2001). Constant groundwater outflow that passes through these seeps and accumulates in the bogs then continues on as small perennial streams (Hitchcock and Standley 1919, Simmons and Strong 2001), sometimes forming acidic Seepage Swamps (Fleming et al. 2001). Such a condition exists at the Araby site. Magnolia Bogs are therefore important components of the intricate hydrological cycle of terrace gravel communities, which also include upland Oak-Chestnut-Heath Forest, acidic seeps, perennial streams, and Seepage Swamps.

Magnolia Bogs have become increasingly rare and surviving ones degraded throughout their range because of extensive development of the gravel terraces that surround the bogs, which destroys or severely depletes their water supply (Rosenstock 2001). Most of the famous ones near Washington surveyed by the Smithsonian Institution and others nearly a century ago, like the Powder Mill Bogs, Holmead Swamp, and Terra Cotta Bog, have been destroyed. Some, like the Suitland Bog and the Oxon Run Bogs, have survived, although the Suitland Bog is greatly disturbed and faces further damage by encroaching development. The Little Paint Branch Bogs (small remnants of the once-extensive Powder Mill Bogs) exist under power lines and are therefore degraded by invasive exotic plants and utility maintenance, especially herbicides and utility vehicles. Siltation has damaged the bogs at the Beltsville Agricultural Research Center and channelized stormwater runoff from a housing development placed too near has mostly destroyed the Franconia Bog in Springfield, Virginia, Fairfax County’s largest and best remaining Magnolia Bog. Urbanization, stormwater runoff, siltation, utility maintenance, and invasive exotic plants have degraded most of the remaining bogs. In contrast, the Araby Bog is unique among known Magnolia Bogs because of its pristine, undisturbed condition. Unfortunately, it is currently threatened by the proposed Falcon Ridge and Hunters Brooke development projects because of the extensive clearing, re-grading, and construction planned for the land surrounding the bog, especially the groundwater recharge areas.

Peatlands, pocosins, fens, and bogs throughout the Coastal Plain are extremely rare as a result of habitat disturbance, fire suppression, and fragmentation (Fleming et al. 2001). Similarly, Magnolia Bogs of the mid-Atlantic region are globally-rare natural communities (Morse 2000, Shetler 2000, Thomas 2000, Simmons and Strong 2001) with dwindling prospects for future survival. Unless adequate protection is uniformly given to these sites, most of them will disappear in the decades to come. To ensure some degree of conservation and stewardship, as well as recognition of their being highly-rare natural communities, it is strongly recommended that all Magnolia Bogs, regardless of rare species content, be designated a “Wetlands of Special State Concern” or similar status.

The following is a list of characteristic Magnolia Bog species (McAtee 1918, Hitchcock and Standley 1919, Shetler 1970, Simmons and Strong 2001, Fleming et al. 2001) that occur in the Araby Bog. Species actively tracked by the Maryland Natural Heritage Program (noted below) have a state rank of S1 (highly state rare) or S2 (state rare) and sometimes a state status of E (endangered) or T (threatened). A watchlist species has a state rank of S3 and is rare to uncommon, but is not actively tracked. A species that was historically known from Maryland with the expectation that it may be rediscovered has a rank of SH. A species that is believed to be extirpated in Maryland with little or no chance of rediscovery has a rank of SX.

*Alnus serrulata* (Ait.) Willd. Common Alder  
*Amelanchier canadensis* (L.) Medic. Serviceberry  
*Aronia arbutifolia* (L.) Pers. Red Chokeberry  
*Calamagrostis coarctata* (Torr.) Eaton Reed Bentgrass  
*Carex albolutescens* Schwein. Greenish-white Sedge  
*Carex crinita* Lam. Fringed Sedge  
*Carex debilis* Michx. White Edge Sedge  
*Carex folliculata* L. Long Sedge  
*Carex intumescens* Rudge Swollen Sedge, Bladder Sedge  
*Carex leptalea* Wahlenb. Bristly-stalked Sedge  
*Carex lurida* Wahlenb. Sallow Sedge  
*Carex seorsa* Howe Weak Stellate Sedge  
*Carex stricta* Lam. Tussock Sedge  
*Carex styloflexa* Buckl. Bent Sedge (S3)  
*Carex venusta* Dewey var. *minor* Boeckl. Dark-green Sedge (S2)  
*Chelone glabra* L. White Turtlehead, Balmony  
*Chionanthus virginicus* L. Fringe Tree  
*Dioscorea villosa* L. Wild Yam  
*Eleocharis tortilis* (Link) J.A. Schultes Twisted Spikerush (S3) [Plate 7]  
*Gaylussacia frondosa* (L.) T. & G. Blue Huckleberry, Dangleberry, Blue Tangle  
*Glyceria striata* (Lam.) Hitchc. Fowl Mannagrass  
*Gratiola virginiana* L. Virginia Hedge-hyssop  
*Hypericum canadense* L. Canadian St. John's Wort  
*Ilex laevigata* (Pursh) Gray Smooth Winterberry  
*Ilex verticillata* (L.) Gray Winterberry  
*Juncus acuminatus* Michx. Tapertip Rush  
*Juncus canadensis* J. Gay ex Laharpe Canada Rush  
*Juncus scirpoides* Lam. Scirpus-like Rush  
*Juncus subcaudatus* (Engelm.) Coville & Blake Woodland Rush  
*Kalmia angustifolia* L. Sheep Laurel (S3)  
*Leersia virginica* Willd. Whitegrass  
*Leucothoe racemosa* (L.) Gray Fetterbush  
*Lilium superbum* L. Turk's Cap Lily  
*Lyonia ligustrina* (L.) DC. Maleberry  
*Magnolia virginiana* L. Sweetbay Magnolia [Plate 11]  
*Maianthemum canadense* Desf. Canada Mayflower  
*Osmunda cinnamomea* L. Cinnamon Fern

*Osmunda regalis* L. Royal Fern  
*Oxypolis rigidior* (L.) C. & R. Cowbane, Water Dropwort  
*Platanthera clavellata* (Michx.) Luer Green Wood Orchid [Plate 15]  
*Rhexia virginica* L. Virginia Meadow Beauty [Plate 9]  
*Rhododendron viscosum* (L.) Torr. Swamp Azalea  
*Rhynchospora capitellata* (Michx.) Vahl. Brownish Beakrush  
*Rhynchospora capitellata* (Michx.) Vahl. forma *controversa* (S.F. Blake) Gale Brownish Beakrush  
*Rhynchospora gracilentata* Gray Slender Beakrush  
*Rubus hispidus* L. Bristly Dewberry  
*Scirpus polyphyllus* Vahl. Leafy Bulrush  
*Smilax pseudochina* L. Halberd-leaved Greenbrier (S2) [Plate 14]  
*Sphagnum imbricatum* Peat Moss, Bog Moss  
*Sphagnum recurvum* P. Beauv. Recurved Sphagnum Moss  
*Thelypteris palustris* Schott Marsh Fern  
*Toxicodendron vernix* (L.) Kuntze Poison Sumac [Plate 12]  
*Vaccinium atrococcum* (Gray) Heller Black Highbush Blueberry  
*Vaccinium corymbosum* L. Highbush Blueberry  
*Viburnum nudum* L. Possum-haw [Plate 13]  
*Viola primulifolia* L. Primrose-leaved Violet  
*Woodwardia areolata* (L.) Moore Netted Chain Fern  
*Woodwardia virginica* (L.) Sm. Virginia Chain Fern  
*Xyris torta* Sm. Twisted Yellow-eyed Grass [Plate 8]

The following species are also characteristic of Magnolia Bogs (McAtee 1918, Hitchcock and Standley 1919, Shetler 1970, Simmons and Strong 2001, Fleming et al. 2001). They may occur in the seed banks at Araby Bog and other remaining sites. Species with an asterisk were historically noted at several sites, but have not been recently observed in any Magnolia Bogs.

*Arethusa bulbosa* L.\* Swamp Pink (SH)  
*Asclepias rubra* L. Red Milkweed (S1)  
*Bartonia paniculata* (Michx.) Muhl. ssp. *paniculata* Screwstem (S3)  
*Bartonia virginica* (L.) B.S.P. Yellow Bartonia  
*Calopogon tuberosus* (L.) B.S.P.\* Grass Pink (S1)  
*Carex bullata* Schkuhr ex Willd. Button Sedge (S3)  
*Carex collinsii* Nutt. Collins' Sedge  
*Drosera intermedia* Hayne Spatulate-leaved Sundew  
*Drosera rotundifolia* L. var. *rotundifolia* Round-leaved Sundew (S3)  
*Eriocaulon decangulare* L. Ten-angled Pipewort (S2)  
*Eriophorum virginicum* L. Tawny Cottongrass (S3)  
*Fuirena squarrosa* Michx. Recurved Umbrella-grass  
*Juncus debilis* Gray Weak Rush  
*Juncus longii* Fern. Long's Rush (S1)  
*Lycopodiella appressa* (Chapm.) Cranfill Bog Clubmoss [Plate 4]  
*Lycopodiella caroliniana* (L.) Pichi Sermolli\* Slender Clubmoss (S1)  
*Lyonia mariana* L. Staggerbush  
*Platanthera blephariglottis* (Willd.) Lindl.\* White Fringed Orchid (S2)

*Platanthera ciliaris* (L.) Lindl.\* Yellow Fringed Orchid (S2)  
*Platanthera cristata* (Michx.) Lindl.\* Crested Yellow Orchid (S2)  
*Pogonia ophioglossoides* (L.) Ker-Gawl. Rose Pogonia (S3)  
*Polygala cruciata* L. Cross-leaved Milkwort (S2)  
*Polygala curtissii* Gray Curtiss' Milkwort  
*Polygala lutea* L.\* Orange Milkwort  
*Rhynchospora alba* (L.) Vahl White Beakrush (S3)  
*Rhynchospora cephalantha* Gray Capitulate Beakrush (S1)  
*Rhynchospora microcephala* (Britt.) Britt. ex Small Small-headed Beakrush (S2, S3)  
*Sagittaria latifolia* Willd. var. *pubescens* (Muhl. ex Nutt.) J.G. Sm. Pubescent Arrowhead  
*Scleria muehlenbergii* Steud. Reticulated Nutrush (S2)  
*Solidago latissimifolia* P. Mill. Elliott's Goldenrod (S3)  
*Solidago uliginosa* Nutt. Bog Goldenrod (S3)  
*Spiranthes cernua* (L.) L.C. Rich. Nodding Ladies'-tresses  
*Thelypteris simulata* (Davenp.) Nieuwl. Bog Fern (S2)  
*Tofieldia racemosa* (Walt.) B.S.P.\* Coastal False Asphodel (SX)  
*Utricularia subulata* L. Zigzag Bladderwort (S3)  
*Xyris difformis* Chapm. var. *difformis* Bog Yellow-eyed Grass

The following species occurring at Araby are characteristic of acidic seeps [Plate 17] that cover the permanently moist areas (capillary fringe) surrounding the groundwater outflow sources that feed the bog.

*Gaylussacia frondosa* (L.) T. & G. Blue Huckleberry, Dangleberry, Blue Tangle  
*Isotria verticillata* (Willd.) Raf. Whorled Pogonia  
*Leucothoe racemosa* (L.) Gray Fetterbush  
*Lycopodium obscurum* L. Ground Pine, Tree Clubmoss  
*Lyonia ligustrina* (L.) DC. Maleberry  
*Medeola virginiana* L. Indian Cucumber Root  
*Osmunda cinnamomea* L. Cinnamon Fern  
*Osmunda regalis* L. Royal Fern  
*Symplocarpus foetidus* (L.) Nutt. Skunk Cabbage  
*Thelypteris noveboracensis* (L.) Nieuwl. New York Fern  
*Uvularia sessilifolia* L. Wild Oats, Sessile Bellwort  
*Vaccinium atrococtum* (Gray) Heller Black Highbush Blueberry

## Acknowledgements

We thank the Friends of Mount Aventine and the Maryland Native Plant Society for helping to fund this report.

We greatly appreciate the generous help from Meghan Tice for typing, formatting, and editing this report and checking scientific nomenclature and common names; and from Jim Long for reviewing and editing.

Special thanks are also extended to the following individuals and organizations for their invaluable assistance: Pat and John Stamper and members of SAMMS, the Maryland Native Plant Society, the Friends of Mount Aventine, Jim Long and the Friends of Mattawoman Creek, Stan Shetler, Jim Rosenstock, L.K. Thomas, Jr., Dave Linthicum, Ed Terrell, Kathy McCarthy, Judy Cole, Paul Peterson and members of the Botanical Society of Washington, Alex Winter, Bonnie Bick, Richard Klein, Lou Aronica, Sharon Geil, Bob DeGroot and MAGIC, John Parrish, Marc Imlay, Larry Morse, Gary Fleming, Chris Frye, Bill Sipple, Chesapeake Bay Foundation, and Brent Steury.

## Literature Cited

Fernald, M.L. 1950. Gray's manual of botany. 8th edition. American Book Company, New York.

Fleming, G.P., P.P. Coulling, D.P. Walton, K.M. McCoy, and M.R. Parrish. 2001. The natural communities of Virginia: classification of ecological community groups. Natural Heritage Technical Report 01-1. Virginia Dept. of Conservation and Recreation, Division of Natural Heritage, Richmond, VA. Unpublished report.

Hitchcock, A.S. and P.C. Standley. 1919. Flora of the District of Columbia and vicinity. Contr. U.S. Natl. Herb. 21.

Long, J.P. 1999. Meter reading of pH at Araby Bog. Personal communication.

McAtee, W.L. 1918. A sketch of the natural history of the District of Columbia. Bull. Biol. Soc. Washington No.1.

Morse, L.E. 2000. North American Botanist, Association for Biodiversity Information. Personal communication.

NatureServe: An online encyclopedia of life [web application]. 2001. Version 1.3. Arlington, Virginia, USA: Association for Biodiversity Information. Available: <http://www.natureserve.org/>.

Rosenstock, J.A. 2001. Statement on Araby Bog by James A. Rosenstock to the Charles County Planning Board.

Severn River Association. 2000. Anne Arundel County legislative initiative for bog preservation. Unpublished report.

Shetler, S.G. 1970. The Suitland Bog. *Atlantic Naturalist* 25:65-68.

Shetler, S.G. 2000. List of plants recorded in or near Araby Bog. Unpublished report.

Shreve, F., M.A. Chrysler, F.H. Blodgett, and F.W. Besley. 1910. *The plant life of Maryland*. The Johns Hopkins Press, Baltimore, MD.

Simmons, R.H. 1995. A survey of terrace gravel communities in the Washington, D.C. area. Unpublished.

Simmons, R.H. and M.T. Strong 2001. Last remaining terrace gravel bogs and their flora in the Washington, D.C. vicinity. Unpublished.

Sipple, W.S. 1999. *Days afield: exploring wetlands in the Chesapeake Bay region*. Gateway Press, Inc., Baltimore, MD.

Thomas, L.K., Jr. 1991. Natural national significance of Oxon Run Magnolia Bogs. Report and memorandum.

Thomas, L.K., Jr. 2000. The Araby Bog. Unpublished report.

USDA, NRCS. 2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Weems, R.E. 1995. U.S. Geological Survey. Personal communication.

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