

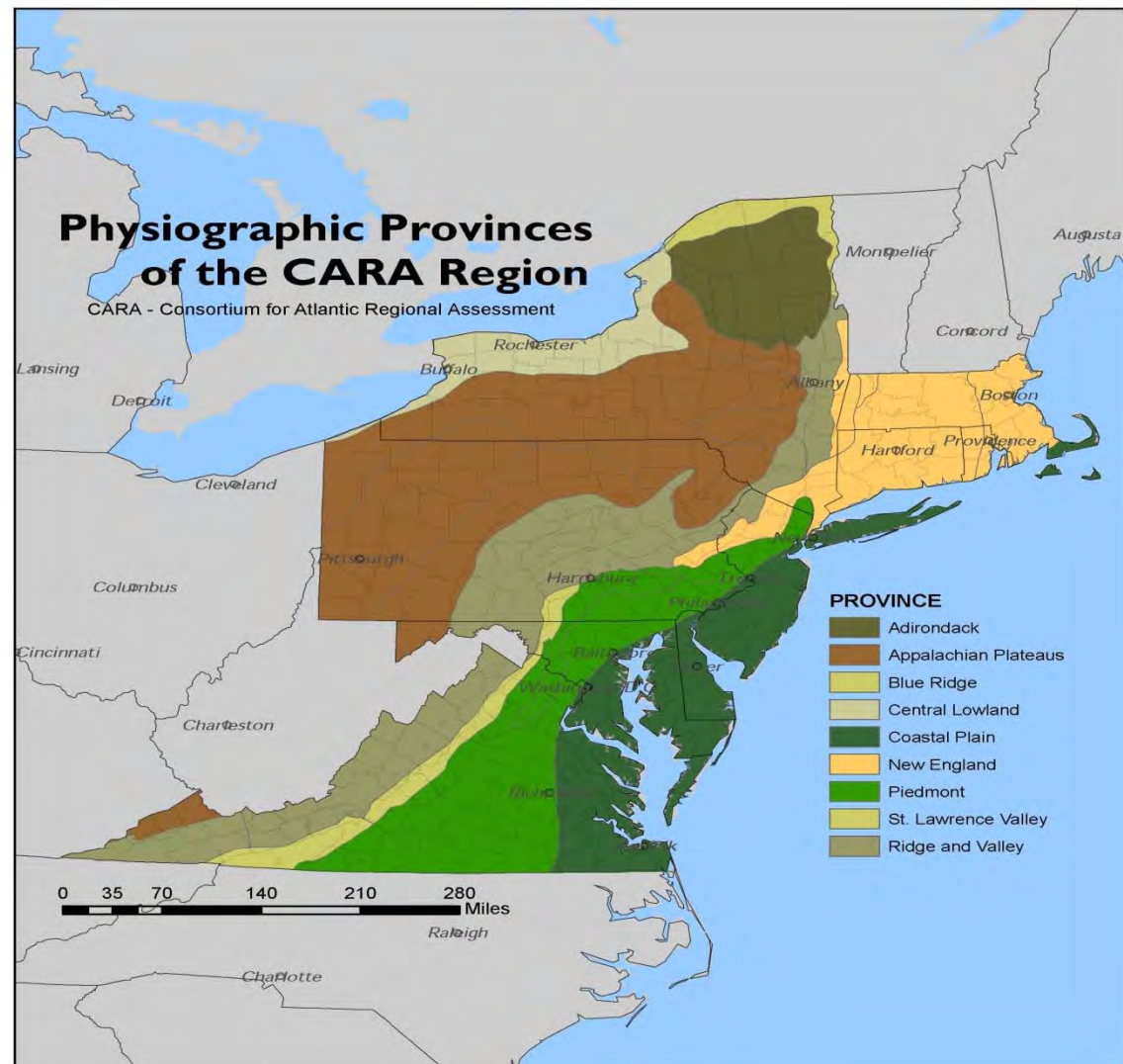
Heath Diversity in Virginia and the mid-Atlantic Region: Distribution and Representative Natural Community Types

Virginia Native Plant Society,
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Much like oaks (*Quercus* spp.) and pines (*Pinus* spp.), with which they are typically associated, ericaceous plants (Heath Family) are especially dominant in terms of total area covered and occur throughout most of the physiographic provinces in Virginia and the mid-Atlantic region.

Sixty species of heaths, including infraspecific taxa and hybrids, are known to occur naturally in Virginia, with many restricted to particular physiographic regions and habitats.



Physiographic divisions of the conterminous U.S. Fenneman, N.M., and Johnson, D.W. U.S. Geological Survey, 2002.



Photo by R.H. Simmons

June 2003 Maryland Native Plant Society field trip to explore heath diversity at the New Jersey Pine Barrens, which collectively form the Pinelands National Reserve (PNR). Bearberry (*Arctostaphylos uva-ursi*) forms nearly continuous carpets along the ground in dry to mesic, sandy-peaty soil of open areas and woodland glades.



Photo by R.H. Simmons

Southern New Jersey Mesic Pine Barrens: *Pinus (rigida, echinata)* – *Quercus coccinea* / *Ilex opaca* Woodland (USNVC: CEG006115) along Rt. 347 near the intersection with Rt. 550 near Belleplain State Forest, with nearly continuous colonies of Black Huckleberry (*Gaylussacia baccata*).



Photo by Chris Frye

Mixed heath and Pitch Pine (*Pinus rigida*) community on gravel ridge at Elk Neck State Forest in Cecil County – Maryland's northern Eastern Shore (ES). Mountain Laurel (*Kalmia latifolia*) is prominent with other heaths.



Photo by Jason Harrison

Inland Dune Ridge Forest: *Pinus virginiana* – *Quercus falcata* – *Carya pallida* Forest (USNVC: CEG006354) at the Henson Scout Reservation along the Nanticoke River in eastern Dorchester County, Maryland. This xeric oak-pine community of the central Atlantic Coastal Plain occurs on inland sand dune ridges. Typical ericads include Black Huckleberry (*Gaylussacia baccata*), Dangleberry (*Gaylussacia frondosa*), Lowbush Blueberry (*Vaccinium pallidum*), Deerberry (*Vaccinium stamineum*), and Sheep Laurel (*Kalmia angustifolia*).



Dense colonies of ericads along old “white sand” road east of Cox Landing – the southern extension of Rt. 747 – through the recently protected, 3,143 acre South Quay Sandhills Natural Area Preserve east of the Blackwater River in City of Suffolk, Virginia. This landscape appeared much the same in the late 1990s, when Mark Strong and Rod Simmons revisited the site to update the flora, as when Harvard botanist M.L. Fernald extensively botanized the area in the 1930s and 40s. The site’s dry to mesic, upland sandhill communities support Virginia’s last remaining stands of naturally occurring Longleaf Pine (*Pinus palustris*), as well as numerous other rarities.

Rare heaths discovered by Fernald in the 1930s and 40s at what is now the South Quay Sandhills Natural Area Preserve persist at the site today:



Honeycup, Dusty Zenobia (*Zenobia pulverulenta*) (Bartr. ex Willd.) Pollard G4?,S1

A glabrous, often glaucous shrub with white, anise-scented flowers of damp, sandy-peaty depressions, thickets, and boggy areas, ranging from coastal Georgia, South Carolina, North Carolina, to the northernmost limits of its range in extreme southeastern Virginia.



Creeping Blueberry (*Vaccinium crassifolium*) Andr. G4G5,S1

A low, vining, mat-forming, evergreen shrub (lower left photo) of pocosins, pine flatwoods, and sandy-peaty depressions, ranging from coastal Georgia, South Carolina, North Carolina, to the northernmost limits of its range in extreme southeastern Virginia.



Photo by R. H. Simmons

Mark Strong (left), John Parrish (front center), and Lou Aronica (back center) surveying ericads in the fall of 1999 in a “white sand” glade of globally rare (G1,S1) Longleaf Pine / Scrub Oak Sandhill Woodland: *Pinus palustris* - (*Pinus serotina*) / *Quercus laevis* / *Gaylussacia frondosa* - *Kalmia angustifolia* - *Vaccinium tenellum* Woodland (USNVC: CEG003592) southeast of Milk Landing at the South Quay Sandhills Natural Area Preserve. Dense, intermixed colonies of Dangleberry (*Gaylussacia frondosa*), Black Huckleberry (*Gaylussacia baccata*), Dwarf Huckleberry (*Gaylussacia dumosa*), Small Black Blueberry (*Vaccinium tenellum*), Staggerbush (*Lyonia mariana*), and Sheep Laurel (*Kalmia angustifolia*) are characteristic of the drier, upland sandhill communities.



Photo by Garth Wedemire

Coast Azalea, Dwarf Azalea (*Rhododendron atlanticum*)
(Ashe) Rehder G4G5

A low shrub of dry to mesic, sandy, oak-pine-heath woods primarily of the Atlantic coastal plain, ranging from eastern Pennsylvania and Delaware south to Georgia. In Maryland, it is known only from sandy woods of the Eastern Shore (ES).

Sourwood (*Oxydendrum arboreum*) (L.) DC. G5

The region's only tree of the Ericaceae occurs in acidic, dry to mesic, upland forest slopes and openings, as well as sandy woods of the coastal plain. It ranges in eastern North America from Indiana, Ohio, and Pennsylvania south to Louisiana and Florida. It occupies an extreme range distribution in Maryland, with sole extant populations in dry to mesic, acidic forests of the Appalachian Plateau (AP) in Garrett County and historical occurrence in sandy woods of Worchester County (ES). It is absent from the Western Shore (WS), piedmont (PD), Blue Ridge (BR), and Ridge and Valley (RV) in Maryland.

In Virginia, it is common throughout the southern half of the state; less so north of Richmond; and absent from northern Virginia.



Photo by The Garden Centre Group



Photo by Ben Kimball

Sheep Laurel (*Kalmia angustifolia*) L. G4G5

Primarily a northeastern species of dry, acidic barrens and bogs that also occurs less frequently in bogs and sandy barrens of the mid-Atlantic coastal plain and rarely in the southern Appalachians.

It ranges from Nfld., Labr., Quebec, and Ontario southeastward to the northeastern coastal plain of North Carolina. It is state rare in Virginia (S2).

Carolina Laurel (*Kalmia carolina*) Small G4

A shrub of sphagnum swamps and bogs, pocosins, pine flatwoods, and mountain bogs and fens ranging from the extreme southern Blue Ridge and extreme southeastern coastal plain of Virginia to Tennessee, North Carolina, South Carolina, and Georgia. It typically occurs "in peatier and less sandy habitats than *Kalmia angustifolia*" (VBA 2014).

This species may be distinguished from *Kalmia angustifolia* by its non-glandular calyces and bracts and leaves that are densely puberulent beneath.

It is state rare in Virginia (S2).



Photo by Will Cook



John Parrish (left) and Mark Strong (right) in the fall of 1999 at the edge of a non-riverine “blackwater swamp” with Atlantic White Cedar (*Chamaecyparis thyoides*), Switch Cane (*Arundinaria tecta*), and Swamp Bay (*Persea palustris*) east of Cherry Grove at the South Quay Sandhills Natural Area Preserve. Shining Fetterbush (*Lyonia lucida*) and Coastal Dog-hobble (*Leucothoe axillaris*) are characteristic ericaceous, evergreen shrubs of peaty thickets and edges of such communities.



Photo by Will Cook

Shining Fetterbush (*Lyonia lucida*) (Lam.) K. Koch
G5

A glossy, evergreen shrub of damp pine flatwoods, pocosins, swamps, and bogs of the southeastern coastal plain, ranging from Louisiana to Florida (also Cuba) northeast to extreme southeastern Virginia.

Coastal Dog-hobble (*Leucothoe axillaris*) (Lam.)
D. Don G5

A glossy, evergreen shrub of peaty, non-riverine swamps, pocosins, and occasionally damp, acidic forests of the southeastern coastal plain, ranging from Louisiana to Florida northeast to extreme southeastern Virginia.



Photo by Kenneth Lawless



Farkleberry (*Vaccinium arboreum*) Marshall G5

A fragrant, glossy, leathery-leaved, mostly evergreen, large shrub or small tree of dry, usually acidic, sandy or rocky woodlands, ranging from Texas north to Kansas, eastward to Indiana, and eastward from southeastern Virginia to Florida (does not occur in Ohio or West Virginia).

V. arboreum is uncommon and local in Illinois, Indiana, Kansas, Kentucky, and Virginia (FNA 2009).

Elliott's Blueberry, Mayberry (*Vaccinium elliotii*)
Chapman G5

A relatively small-leaved (3 cm long or less), lustrous, medium-sized shrub of bottomland forests, hummocks, and mesic forest slopes. It is primarily a species of the coastal plain and ranges from southeastern Virginia to Florida and west to southeastern Texas and Arkansas (disjunct in Tennessee).

In contrast to Uttal (1987), *V. elliotii* is considered by FNA (2009) to be a morphological variant of *V. corymbosum* and not "distinct throughout its putative range."





Photo by R.H. Simmons

Pristine, sandy Oak-Pine-Heath Forest on knoll at Sawmill Creek Park above Sawmill Creek near the eastern end of Dorsey Road in Glen Burnie, Anne Arundel County, Maryland. Dangleberry (*Gaylussacia frondosa*) is co-dominant with a diversity of ericads, including New Jersey Blueberry (*Vaccinium caesariense*), Highbush Blueberry (*Vaccinium corymbosum*), Deerberry (*Vaccinium stamineum*), Sheep Laurel (*Kalmia angustifolia*), Fetterbush (*Eubotrys racemosus*), Black Huckleberry (*Gaylussacia baccata*), Eastern Teaberry (*Gaultheria procumbens*), Trailing Arbutus (*Epigaea repens*), and others.



Bill Sipple (far left) and MNPS field trip participants amidst extensive **Leatherleaf (*Chamaedaphne calyculata*)** (L.) Moench colony at Angel's Bog along the southwest edge of Fresh Pond, Anne Arundel County in October 1999. Leatherleaf is a low, colony-forming shrub of peatlands, ranging from subarctic and boreal Alaska and Canada, Nfld., and Labr. south to Georgia (does not occur in Virginia and West Virginia). Boreal, relict peatland ponds in northern Anne Arundel County are the only stations in Maryland for Leatherleaf. It was historically known from similar communities in Delaware, but not from Maryland's Eastern Shore, and is considered extirpated on the Delmarva. It is highly rare in Maryland (G5,S1).



Photo by M. First

Stands of mature Pitch Pine (*Pinus rigida*) along the south shore of the upper Magothy River in northeastern Anne Arundel County. The Box Huckleberry station was located on a wooded slope a short distance from the back of the house in the photo.



Photo by Will Cook, carolinanature.com

Maryland's last known station for **Box Huckleberry** (*Gaylussacia brachycera*) (Michx.) Gray was a small, dwindling population on a north-facing, sandy hillside in Oak-Pine-Heath Forest along the headwaters of the Magothy River near Lake Waterford Park in Anne Arundel County (G3,SH?).

Box huckleberry is a dwarf, evergreen shrub that forms extensive, self-sterile colonies. Its natural range is essentially the mid-Atlantic region, occurring in Pennsylvania, Delaware, Maryland, West Virginia, Virginia (S1), Kentucky, North Carolina, and Tennessee. It occurs in all physiographic provinces throughout its range, though is known only from the coastal plain of Delaware and Maryland (see ¹Pooler et al. 2006).

¹Pooler, M.R., R.L. Dix, and R.J. Griesbach. 2006. Genetic diversity among accessions of the endangered box huckleberry (*Gaylussacia brachycera*) based on AFLP markers. Journal of the Torrey Botanical Society 133(3), pp. 439-448.



Photo by James Henderson

Sweet Pinesap, Pygmy-pipes (*Monotropsis odorata*)

Schwein. ex Elliott G3,S3

A very small (often hidden in leaf litter and duff), very fragrant, mycotrophic plant of dry to mesic, Oak-Pine-Heath forests, ranging from Virginia and Delaware south to Alabama and Florida. In Maryland, it is state endangered (S1,E) and mainly known from sandy woods of the upper Severn Run area in northeastern Anne Arundel County (WS).

Pipsissewa (*Chimaphila umbellata*) (L.) W.P.C. Barton
G5

A small, evergreen plant of acidic, dry to mesic, coniferous forests and Oak-Pine-Heath forests, ranging from boreal Canada, Nfld., and Labr. south to North Carolina (in the eastern U.S.). It occurs in all physiographic provinces in Maryland, though may be declining in some areas as a result of forest maturation and deer over-browsing.

The similar and familiar **Spotted Wintergreen (*Chimaphila maculata*) (L.) Pursh**, with maculate (spotted or blotched) leaves, occupies similar habitats and range (though extends south to Florida in the U.S. and into Mexico and Central America).



Photo by R.H. Simmons



Photo by R.H. Simmons

Extensive upland pine barrens of Maryland's Western Shore: *Pinus rigida* – *Quercus coccinea* – *Quercus falcata* / (*Quercus marilandica*) / *Gaylussacia frondosa* Woodland (USNVC: CEGLO06329) at the "Central Farm" of the Beltsville Agricultural Research Center (BARC) in northern Prince George's County. Global/State Ranks: G1/S1.



Photo by R.H. Simmons

Lowland pine barrens of the Western Shore at the “Central Farm” of the Beltsville Agricultural Research Center (BARC) in northern Prince George’s County with extensive, co-dominant colonies of Dangleberry (*Gaylussacia frondosa*). Global/State Ranks: G1/S1.



Photo by R.H. Simmons

Pitch Pine – Red Maple Saturated Forest: *Pinus rigida* – *Nyssa sylvatica* / *Clethra alnifolia* – *Eubotrys racemosus* Forest (USNVC: CEGL006926) in lowland pine barrens of the Western Shore at the “East Farm” of the Beltsville Agricultural Research Center (BARC) in northern Prince George’s County.



Photo by R.H. Simmons

Coastal Plain / Outer Piedmont Acidic Seepage Swamp: *Acer rubrum* – *Nyssa sylvatica* – *Magnolia virginiana* / *Viburnum nudum* / *Osmundastrum cinnamomeum* – *Woodwardia areolata* Forest (USNVC: CEG006238). Extensive examples of this community type occur in sandy lowlands throughout the “Central Farm” and “East Farm” of the Beltsville Agricultural Research Center (BARC) in northern Prince George’s County, as well as northern Anne Arundel County, Maryland’s Western Shore, and northern Virginia.



Photo by R.H. Simmons

Pristine example of old-age Central Appalachian / Inner Piedmont Low-Elevation Chestnut Oak Forest: *Quercus montana* - (*Quercus coccinea*, *Quercus rubra*) / *Kalmia latifolia* / *Vaccinium pallidum* Forest (USNVC: CEGLO06299) atop high gravel terrace of the fall line (zone) in the City of Alexandria, Virginia. Lowbush Blueberry (*Vaccinium pallidum*) and Black Huckleberry (*Gaylussacia baccata*) are co-dominant at this site.



Pink-flowered form of Trailing Arbutus (*Epigaea repens*) in old-age section of gravelly Oak-Heath Forest at the INOVA Alexandria Hospital Scenic Easement in the City of Alexandria, Virginia. At the fall line and inner coastal plain, Trailing Arbutus typically grows on steep, mossy, somewhat windswept, north-facing forested slopes and banks.



Large Dangleberry (*Gaylussacia frondosa*) colony in diverse section of Oak-Heath Forest on sandy slope above the Winkler Bog complex in the City of Alexandria, Virginia. The western extent of sandy-gravelly, coastal plain soils of the Potomac Formation along the fall line (zone) is generally the western extent of Dangleberry, except for rare occurrences in the piedmont and mountains to the south.



Photo by R.H. Simmons

Staggerbush (*Lyonia mariana*) (L.) D. Don G5

A medium-sized shrub of acidic, dry to mesic, Oak-Pine-Heath forests, ranging from New York and Connecticut south to Texas and Florida (disjunct in some central and deep south states). A plant of the coastal plain in Maryland and Virginia, it is rare in the piedmont and absent from the mountains.

Maleberry (*Lyonia ligustrina*) (L.) DC. var. *ligustrina* G5

A medium to tall (to 4 m), upright shrub of seepage swamps, bogs, depression ponds and swamps, dry to mesic Oak-Heath Forest, acidic coves, and heath balds, ranging from Maine south to Alabama and Georgia. Like Black Highbush Blueberry (*Vaccinium fuscatum*), Deerberry (*Vaccinium stamineum*), and Pinxterbloom Azalea (*Rhododendron periclymenoides*), it is widespread throughout Maryland and Virginia and grows in soils that are less acidic and infertile, such as those of the Triassic Basin in the piedmont (PD).

Southern Maleberry (*Lyonia ligustrina*) (L.) DC. var. *foliosiflora* (Michx.) Fern., distinguished by its conspicuously bracteate inflorescences, occurs in the coastal plain of extreme southeastern Virginia.



© 2002 Janet Novak



Photo by R.H. Simmons

The aptly-named “Fern Belt” at the northeastern edge of the former Winkler Botanical Preserve in the City of Alexandria, Virginia as it appeared in the early 1990s. This pristine wetlands was regionally famous as one of the best remaining examples of the globally-rare Fall Line Magnolia Bog community: *Nyssa sylvatica* - *Magnolia virginiana* - (*Pinus rigida*) / *Rhododendron viscosum* - *Toxicodendron vernix* / *Smilax pseudochina* Woodland (USNVC: CEGLO06219). A large colony of the earlier-blooming, low, pink-flowered, glaucous-leaved variety of **Swamp Azalea (*Rhododendron viscosum*) (L.) Torr. var. ?** occurs in a large seepage to the northeast of this site; also historically throughout similar communities in Arlington County, Virginia; D.C.; and Maryland’s Western Shore.



Mark Strong at the Suitland Bog in Prince George's County, near the Bog Huckleberry (*Gaylussacia bigeloviana*) site.

Bog Huckleberry (*Gaylussacia bigeloviana*) (Fern.) Sorrie & Weakley G?



A low shrub that superficially resembles Black Huckleberry (*Gaylussacia baccata*) and known only in Maryland and vicinity from sphagnum edges of acidic seepages in D.C., Prince George's County, Anne Arundel County, and Worcester County, with the only known extant stations at Suitland Bog and the Delmarva. Its primarily northeastern range extends from Quebec, Nfld., Labr., and Nova Scotia south to South Carolina, including Washington, D.C. and Maryland, although it is apparently unknown in Virginia.

The very similar **Dwarf Huckleberry (*Gaylussacia dumosa*)** (Andrews) Gray is primarily a plant of sandy soils of the coastal plain, with rare occurrences in the inner piedmont and mountains. As currently circumscribed, it ranges from West Virginia and Virginia south through the southeastern states to Louisiana and Florida. A 1960 Eduards Baltars specimen from Baltimore County represents the only known occurrence of this taxon in Maryland.

The larger corolla (and maybe fruit) size of *G. bigeloviana* (6.5-7.5 mm) vs. smaller corolla size of *G. dumosa* (3-5 mm) and generally larger size of *G. bigeloviana* (6-10 dm tall) vs. 1-3 dm tall in *G. dumosa* are the main distinguishing characteristics.



Photo by R.H. Simmons.

Pristine stand of Central Appalachian / Inner Piedmont Low-Elevation Chestnut Oak Forest: *Quercus montana* - (*Quercus coccinea*, *Quercus rubra*) / *Kalmia latifolia* / *Vaccinium pallidum* Forest (USNVC: CEGLO06299), with co-dominant colonies of Mountain Laurel, on rugged, north-facing slope of Laurel Formation bedrock above Rock Creek at Rock Creek Park, Washington, D.C.

Shinleaf (*Pyrola* spp.) range and distribution



Steep, north-facing slope of Laurel Formation bedrock at the upper Northwest Branch Gorge, Montgomery County, Maryland. Round-leaved *Pyrola* (*Pyrola americana*) occurs here with a diversity of ericads.

Round-leaved *Pyrola* (*Pyrola americana*) Sweet G5

Dry to mesic, coniferous or deciduous forest, typically mixed oak forest in our area, ranging from boreal Canada, Nfld., and Labr. south to Tennessee and North Carolina.

Waxflower Shinleaf (*Pyrola elliptica*) Nutt. G5,S2

Dry, upland forests, ranging from boreal Canada, Nfld., and Labr. south to North Carolina.



Green-flowered Wintergreen (*Pyrola chlorantha*) Sweet [syn. *Pyrola virens* Schweigg & Korte] G5,SH

Dry to mesic forests, ranging from subarctic and boreal Canada south to Virginia (in the eastern U.S.).

One-sided Shinleaf (*Orthilia secunda*) (L.) House [syn. *Pyrola secunda* L.] G5,SH

Dry to mesic, coniferous and mixed forest, ranging from Arctic, Greenland, boreal Canada, Nfld., and Labr. south to Virginia (in the eastern U.S.). Typically associated with *Pinus virginiana* in Virginia (Flora of Virginia).



Fall colors of Pinxterbloom Azalea (*Rhododendron periclymenoides*) (gold; far left) and Black Highbush Blueberry (*Vaccinium fuscatum*) (red; far right) with Mountain Laurel (*Kalmia latifolia*) along a tributary of Accotink Creek in the piedmont of Fairfax County, Virginia.



Photo by R.H. Simmons

Upland Depression Swamp at Travilah Serpentine Barrens in Montgomery County, Maryland with co-dominant stands of Black Highbush Blueberry (*Vaccinium fuscatum*) and Fetterbush (*Eubotrys racemosus*). Fetterbush is increasingly rare to absent throughout the inner piedmont and mountains.



Deerberry (*Vaccinium stamineum*) L. is a fragrant, medium-sized shrub of dry to mesic forests with an often twisting-sprawling growth habit. Like *V. arboreum*, the fruits are considered inedible by humans. It is common throughout Maryland and Virginia and is broadly-ranging (G5) from Mexico north to Kansas, eastward to Massachusetts, and south to Florida (disjunct in Ontario). It has been “subject to an inordinate amount of splitting” (FNA 2009; also see Uttal 1987).

Highbush Blueberry (*Vaccinium* spp.) range and distribution



Highbush Blueberry (*Vaccinium corymbosum*) L. G5

A tall shrub with narrowly to broadly elliptic leaves (2-3 cm wide) and white-pubescent on midrib of leaf under surface. It characteristically occurs in acidic seepage wetlands, swamps, bogs, coastal flatwoods, depression ponds, and damp, acidic forests, ranging from Nova Scotia westward to Michigan and south to Tennessee and South Carolina. Flora of North America (FNA 2009) includes *V. caesariense*, *V. formosum*, and *V. fuscum* within *V. corymbosum*. In Maryland, *V. corymbosum* mainly occurs in damp, boggy, and sphagnum seepage wetlands and flatwoods of the coastal plain and outer piedmont (see ¹Uttal 1987). Tetraploid.

¹Uttal, L.J. 1987. The genus *Vaccinium* L. (Ericaceae) in Virginia. *Castanea* 52: pp. 231-255.

Black Highbush Blueberry (*Vaccinium fuscum*) Aiton G5

A tall shrub with gray-green pubescent leaves and black fruit. It grows in similar habitats as *V. corymbosum*, but has a broader range in Maryland and perhaps a higher tolerance for drier, less acidic soils. It ranges from southern Ontario and Maine south to Texas and Florida and is the dominant highbush blueberry of the piedmont in Maryland and northern Virginia. Two "races" occur in Virginia: a diploid with narrowly-elliptic leaves and a tetraploid with larger, broadly elliptic leaves (Uttal 1987).

New Jersey Blueberry (*Vaccinium caesariense*) Mack. G4?,SU

A tall shrub with glabrous, narrowly elliptic leaves to 2 cm wide that are strongly glaucous on the underside. A plant of the Atlantic coastal plain, ranging from Maine (westward to central New York) and south predominately along the coastal plain to northern Florida. Apparently rare in Virginia (Uttal 1987). Diploid.

Southern Blueberry (*Vaccinium formosum*) Andrews G5

A tall shrub with glabrous leaves (2.5-4.5 cm wide) that are broadest below the middle and often glaucous on the underside. A plant of the Atlantic coastal plain, ranging from New Jersey south to Alabama and northern Florida. Tetraploid.

Vaccinium x marianum Wats. GU,SU

V. formosum "hybridizes and forms a continuum (*V. x marianum*) with *V. fuscum*, without wiping out the parents." (Uttal 1987). "Generally keys to *V. corymbosum*" (VBA 2014).



Blue Ridge Physiographic Province: view southeastward across the piedmont from Sharp Top Mountain at Peaks of Otter, Bedford County, Virginia.



Bearberry (*Arctostaphylos uva-ursi*), Mountain Laurel (*Kalmia latifolia*), and Wavy Hairgrass (*Deschampsia flexuosa*) in an acidic woodland opening at Miller's Head, Page County, Virginia.

Bearberry (*Arctostaphylos uva-ursi*) (L.) Spreng. G5,S1



A dwarf, creeping, evergreen shrub that somewhat resembles Box Huckleberry (*Gaylussacia brachycera*). It is found in acidic, sandy or rocky soils and ranges from subarctic and boreal Canada, Greenland, Nfld., and Labr. south to Virginia (in the eastern U.S.).

In Virginia, Bearberry is known only from Miller's Head, Shenandoah National Park, Page County in the Northern Blue Ridge on exposed, high-elevation granitic outcrops (VBA 2014). Maryland's sole station for this plant is "exposed shale along ridgeline above Sideling Hill Creek" in Allegany County, where it was discovered in 1998 (²Knapp 2011).

¹Virginia Botanical Associates (VBA). 2014. Digital Atlas of the Virginia Flora (<http://www.vaplantatlas.org>).

²Knapp, W.M., R.F.C. Naczi, W.D. Longbottom, C.A. Davis, W.A. McAvoy, C.T. Frye, J.W. Harrison, and P. Stango, III. 2011. Floristic discoveries in Delaware, Maryland, and Virginia. *Phytoneuron* 64: pp. 1–26.



Mountain Dog-hobble (*Leucothoe fontanesiana*) (Steud.) Sleumer G5,S1S2

A glossy, evergreen shrub of acidic cove forests, ravines, and stream banks, ranging from the mountains of Georgia and Alabama, South Carolina, North Carolina, and Tennessee to southwestern Virginia. It is often associated with Great Laurel (*Rhododendron maximum*).

A Southern Appalachian endemic (Weakley 2012).

Mountain Andromeda (*Pieris floribunda*) (Pursh) Benth. & Hook. f. G4

An evergreen shrub of mid-to-high elevation, dry, rocky, acidic forests and heath balds, ranging from the mountains of Georgia, North Carolina, Tennessee, and West Virginia to the "greater central region of the Virginia mountains; absent from both the extreme southwest and northwest Virginia" (VBA 2014). A Southern Appalachian endemic (Weakley 2012).

The population in rocky, coniferous forest at Rock Lodge in western Maryland (Garrett County) is possibly natural and, if so, would be a state record and the northernmost known station in its natural range.



¹Weakley, A.S. 2012. Flora of the Southern and Mid-Atlantic States.
http://www.herbarium.unc.edu/FloraArchives/WeakleyFlora_2012-Nov.pdf



The Southern Blue Ridge in Virginia: view across Thomas Knob to Mount Rogers, Grayson County.

Diversity of high elevation *Vaccinium* species



Photo by Gary P. Fleming

Southern Mountain Cranberry (*Vaccinium erythrocarpum*)
Michx. G5

A red-berried shrub (usually) of mid-to-high elevation spruce and spruce-fir forests, oak forests, rocky heath balds, and bogs, ranging from the mountains of Georgia, North Carolina, Tennessee, and West Virginia to southwestern Virginia.

Mountain Highbush Blueberry (*Vaccinium simulatum*) Small
[= *V. constablaei* Gray – misapplied] G5

A purple-black, shiny-fruited shrub of mid-to-high elevation spruce and spruce-fir forests, oak forests, and heath balds, ranging from the mountains of Georgia and Alabama, North Carolina, Tennessee, and Kentucky to southwestern Virginia.

Vaccinium simulatum, like *V. erythrocarpum*, is a Southern and Central Appalachian endemic (Weakley 2012).



Photo by Gary P. Fleming



Photo by R.H. Simmons

Extensive thickets of Highbush Blueberry (*Vaccinium corymbosum*) along the Blue Ridge Parkway north of Balsam Gap in western North Carolina. *Vaccinium corymbosum* (sensu stricto) is apparently the dominant highbush blueberry of high elevation heath balds and thickets in the Southern Blue Ridge (see Uttal 1987; Weakley 2012; Flora of Virginia 2012; and Digital Atlas of the Virginia Flora 2014).

Deciduous Azalea (*Rhododendron* spp.) diversity, range, and distribution in western Maryland and Virginia



Flame Azalea (*Rhododendron calendulaceum*) (Michx.) Torr. at Dolly Sods, West Virginia. An allotetraploid species of mainly high-elevation mixed deciduous forests, heath balds, and stream banks, ranging from Ohio and Pennsylvania south to Tennessee and Georgia. It is restricted to the Appalachian Plateau in Maryland with a global rank of G5. In Virginia, it is “common in the southern half of the mountains, north to Highland and Amherst counties” (VBA 2014).

Smooth Azalea (*Rhododendron arborescens*) (Pursh) Torr. G4G5,S2

A plant of rocky stream banks, rocky seeps, rocky woodland, and heath balds, ranging from Pennsylvania south to Alabama and Georgia. In Virginia, it usually occurs “within or just above the zone of frequent flood-scouring” (VBA 2014), such as along the Potomac River in Fairfax County. Its easternmost extent in Maryland is the Potomac Gorge area of Montgomery County, where it is rare or historical, and is relatively uncommon throughout the uplands of western Maryland.





Photo by Deep Creek Cellars

Roseshell (*Rhododendron prinophyllum*) (Small) Millais is “strongly disjunct” in its distribution from New Hampshire and Massachusetts south to Missouri, Oklahoma, Texas, Alabama, and North Carolina (FNA 2009). It occurs mainly in the mountains of Maryland and Virginia in dry to mesic, rocky woods, along stream banks, seepage swamps, and bogs.



Photo by Don Hyatt

Cumberland Azalea (*Rhododendron cumberlandense*) E.L. Braun is a Southern Appalachian endemic of heath balds and mixed deciduous forests, ranging “primarily west of the Blue Ridge” (concentrated on the Cumberland Plateau) from the mountains of Alabama, Georgia, South Carolina, North Carolina, Tennessee, and Kentucky to extreme southwestern Virginia (Weakley 2012). It is a “Watchlist” plant in Virginia with global and state ranks of G4?,S3.



Photo by Gary P. Fleming

Rosebay or Great Laurel (*Rhododendron maximum*) L. is a large, evergreen shrub of rocky stream banks, north-facing mesic woodland, high elevation acidic coves and seepage swamps, and heath balds, ranging in distribution from Maine south to Alabama and Georgia. It is a dominant plant of the Appalachians and in Maryland and Virginia is common in the Ridge and Valley and Appalachian Plateau. Its easternmost extent in Maryland and northern Virginia is more or less the fall line area of Montgomery County, Maryland; Rock Creek Park in Washington, D.C.; and rugged bluffs near the Potomac River in Arlington and Fairfax counties.



Photo by R.H. Simmons

Southern Appalachian Catawba Rhododendron Heath Bald: *Rhododendron catawbiense* Shrubland (USNVC: CEG003818) with **Catawba Rhododendron (*Rhododendron catawbiense*)** Michx. along Wilburn Ridge at Grayson Highlands State Park, Grayson County, Virginia. *Rhododendron catawbiense* occupies high elevation rocky slopes and ridges, heath balds, acidic coves, and bogs, ranging in distribution from the mountains of Alabama, Georgia, South Carolina, North Carolina, Tennessee, Kentucky, and West Virginia to the central and southern mountains of Virginia. A Southern Appalachian endemic (Weakley 2012).



Photo by R.H. Simmons

High elevation, sandstone outcrop barren at Panther Knob in Pendleton County, West Virginia with “Lion’s Head” outcrop in distance (back center of photo). **Early Lowbush Blueberry (*Vaccinium angustifolium*)** Aiton is a low, colony-forming shrub of dry, high-elevation forests and sandy open areas, barrens, and boulder fields and outcrops, as well as seepage swamps and bogs, “especially under spruce” (VBA 2014). It ranges from boreal Canada, Nfld., and Labr. south to Tennessee and North Carolina. In Maryland, it occurs primarily in the Ridge and Valley and Appalachian Plateau provinces.



High elevation, sandstone outcrop barren atop Panther Knob in Pendleton County, West Virginia with Table Mountain Pine (*Pinus pungens*), Black Huckleberry (*Gaylussacia baccata*), **Velvetleaf Blueberry or Sourtop (*Vaccinium myrtilloides*)** Michx., and Mountain Laurel (*Kalmia latifolia*). Velvetleaf Blueberry is a dwarf, colonial shrub of high-elevation outcrops and forest, boreal glades, and bogs, with densely white-pubescent (velvety) twigs and leaves. It ranges from boreal Canada, Nfld., and Labr. south to Virginia (G5,S1S2) and is a "Watch List" species in Maryland (S3), where it is known only from Garrett County (AP).



Photo by R.H. Simmons

High elevation, sandstone outcrop barren atop Panther Knob in Pendleton County, West Virginia with dense colonies of Black Huckleberry (*Gaulthieria baccata*) in foreground and Minniebush (*Menziesia pilosa*) growing in exposed rock crevices along the edge of the ridge and cliffs and boulder slopes (middle center and right).

Minniebush (*Menziesia pilosa*) (Michx.) Juss.
G4G5

A medium-sized shrub of heath balds, rocky summits and boulder slopes, dry to mesic, acidic forests, and sphagnum bogs and seepage swamps, ranging from southern Pennsylvania to Georgia.

It is a central and southern Appalachian endemic, occurring mainly at high elevations, and is a conservation concern throughout much of its range (FNA 2009).

In Maryland, it is known from the Ridge and Valley and Appalachian Plateau.



Photo by R.H. Simmons



Cranesville Sub-Arctic Swamp on the West Virginia border in Garrett County, Maryland on the Appalachian Plateau (AP).

Boreal ericads of high elevation bogs and acidic seepage wetlands in Garrett County with a primarily northern range and distribution



Dense, semi-floating mat of Small Cranberry (small leaves with whitish undersides), glossy-leaved Eastern Teaberry (*Gaultheria procumbens*), and red color phase of *Sphagnum* moss at Cranesville Swamp, Garrett County - a high elevation, boreal relict, seepage wetland.

Creeping Snowberry (*Gaultheria hispidula*) (L.) Muhl. ex Bigelow G5,S1

A small, evergreen, vining-creeping shrub of high-elevation coniferous forests and sphagnum seepage wetlands and bogs, ranging from boreal Canada, Nfld., and Labr. south to Maryland and West Virginia. It is not known from Virginia.

Small Cranberry (*Vaccinium oxycoccos*) L. G5,S2

A vining, evergreen shrub known in Maryland from sphagnum, high elevation bogs, mountain pond edges, and acidic seepage wetlands in Garrett County (not known to occur in Virginia). This tetraploid species may be distinguished from diploid *Vaccinium macrocarpon* by its smaller size; leaves that are strongly revolute and whitish on the undersides; and the situation of pedicellar bracts below the middle of the pedicel (see ¹Uttal 1987).

Large Cranberry (*Vaccinium macrocarpon*) Ait. G4,S2

A vining, evergreen shrub known primarily in Maryland from sphagnum, high elevation bogs, mountain pond edges, and acidic seepage wetlands in Garrett County (AP) and ice age relictual, sphagnum seepage bogs in Anne Arundel County (WS). The Wicomico County occurrence (ES) is likely extirpated. The large clone southeast of the boardwalk at Suitland Bog in Prince George's County (WS) is considered to have been introduced in the early-to-mid 20th century.

In Virginia, it is "rare and scattered in the mountains and outer coastal plain" (VBA 2014) in sphagnum seepage wetlands, bogs, and pocosins.

¹Uttal, L.J. 1987. The genus *Vaccinium* L. (Ericaceae) in Virginia. *Castanea* 52: pp. 231-255.



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Photo by Gary P. Fleming