

# VIRGINIA'S NATIVE PLANTS

Native plants are one of the Commonwealth's greatest natural resources with thousands of plant species native to Virginia, as well as various mosses and lichens. They also are part of our natural resource heritage in Virginia. They provide the basis for much of our habitats and ecological communities throughout our state, serve as valuable tools to understand the natural world, and have intrinsic values to be appreciated as part of an ecosystem. A diversity of native plants ensures a high diversity of other organisms that use plants communities for their food, shelter, and nesting because plants are the basis of many of our food webs.

## Overview

What is a native plant?

Put simply, a native plant is one that occurs naturally (i.e. not planted or brought by humans) in a given area. More refined definitions are provided by state, federal, and international organizations.

The non-profit organization [Wild Ones](#) describes a native plant species as... "one that occurs naturally in a particular region, ecosystem and/or habitat and was present prior to European settlement."

The National Park Service provides this [description](#): "Native species are defined as all species that have occurred or now occur as a result of natural processes on lands designated as units of the national park system. Native species in a place are evolving in concert with each other."

### [Virginia's Department of Conservation and Recreation](#)

[Recreation](#): "Native species are those that occur in the region in which they evolved. Plants evolve over geologic time in response to physical and biotic processes characteristic of a region: the climate, soils, timing of rainfall, drought, and frost; and interactions with the other species inhabiting the local community. Thus native plants possess certain traits that make them uniquely adapted to local conditions, providing a practical and ecologically valuable alternative for landscaping, conservation and restoration projects, and as livestock forage. In addition, native plants can match the finest cultivated plants in beauty, while often surpassing non-natives in ruggedness and resistance to drought, insects and disease."



Figure 1 Sumac seed head. Provides winter food for birds and mammals. Photo by Emily Ford.

## Why learn about Virginia native plants? Why teach about Virginia Native plants?



Figure 2 Prickly Pear cactus *Opuntia humifusa* by Emily Ford

The diversity of native plants in Virginia offers a rich opportunity to integrate subjects (science, English, social science, fine arts, and more) in an engaging way as native plants provide insight into cultural and historical heritage and opportunities to examine organism and ecosystem diversity in a healthy functioning system.

With the unique variety of habitats, physiographic provinces, and geology (among other factors) in Virginia comes a unique variety and diversity of native plants. Some of our plants have very specific life needs and can only grow under certain

conditions, while others can thrive in a variety of habitats and communities. For example, through evolving to capture insects on sticky hairs, the carnivorous sundew plants survive in nutrient-poor bogs where other plants would perish. American mountain ash is rarely found at elevations below 3000 feet, it is evolved to live at higher elevations with poor, rocky soil. Many environmental factors, such as geology, soil type, slope of the land, existing plants, determine what native plants survive or thrive in a particular habitat.



Figure 3 Round-leaved Sundew *Drosera rotundifolia*. Photo by Gary Fleming.

Virginia's native plants range from ubiquitous species found statewide, [Chestnut Oak (*Quercus montana*), Red Oak (*Quercus rubra*), Virginia creeper (*Parthenocissus quinquefolia*) or Common wood sorrel (*Oxalis stricta*)] to some plants that are found only in a few counties! These plants are explored later in this chapter.

Virginia Science SOL  
Strand Connections

**Earth Resources**

K.11, 1.8, 2.8, 3.10, 3.11,  
4.9, 6.5, 6.9, ES.11

Moss, or bryophytes, are abundant throughout our state. When compared with flowering plants, little is known about their preferred habitats and ecosystems functions. Efforts are currently underway in Virginia to include mosses in the Digital Atlas of Virginia Flora. <http://vaplantatlas.org/news/>. Mosses lend themselves to classroom learning well. They are easy to keep in the classroom, provide opportunities to study ecosystems on a small scale, and “cute”.

There are many ways to explore Virginia native plant species and their distribution. We can investigate geographic provinces, communities and habitat, elevation, plant shape or form, etc. Read on to learn about plants from the five physiographic regions of Virginia.

### Physiographic Regions

Virginia has five geographic regions or physiographic provinces. Each of these regions has distinctive geology with a variety of soil types, temperature ranges, precipitation amounts, and soil moisture levels. Some native plants are restricted to a certain region while others can thrive in all the regions. Some plants are adapted to live in brackish or salty water, thus will only be found in the coastal plain and would never thrive in the Appalachian plateau. Even more, rainfall and temperature can vary across a geographic region, leading to a diversity of plants in areas.

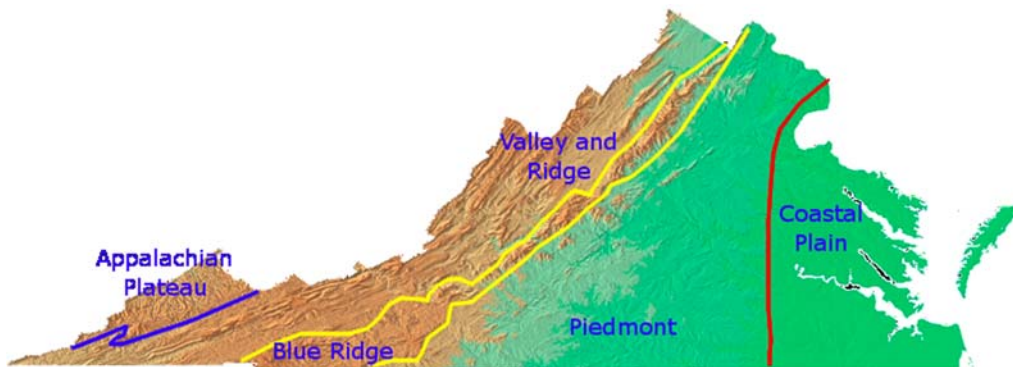


Figure 4 <http://www.virginiaplaces.org/regions/physio.html>

### Appalachian Plateau

Our westernmost region, the Appalachian plateau, is composed of steep mountains and low valleys. The elevation of most of the area is above 1200 m (or 4000 feet). The geology consists of sedimentary rocks, including coal. The majority of this area is forested (80%) with oak and oak-hickory dominating the forests. In the Allegheny section of the plateau, Highland County is home to many species endemic to just the county [Drooping woodreed (*Cinna latifolia*) and Bog Goldenrod (*Solidago uliginosa*)]. The Cumberland section of the plateau holds more acidic soil and thus, acidic forests of oak and heath plants. Chestnut oaks, mountain laurels, and various blueberry species dominate these forests.

#### Endemic-

- restricted to a locality or region
- (of a plant or animal) native or restricted to a certain country or area

## Valley and Ridge

The Valley and Ridge province covers about 25% of Virginia's land area with 60% of the region in forest. The forests are dominated by a mixture of oak species [Chestnut oak (*Quercus montana*), Scarlet oak (*Q. coccinea*), black oak (*Q. velutina*), white oak (*Q. alba*)] with a smattering of fire tolerant pines. An interesting section of this region is the shale barrens with less fertile soil, creating plants that are evolved for this nutrient poor soil. The Salt marsh bulrush (*Bolboschoenus robustus*), common on the coastal plain, is found in only one county in this region and is able to survive in this area due to basins that were flooded by groundwater from Mississippian salt deposits.

A shale barren is an open community (no shade) found on steep south or southwest facing slopes. The habitat is dry, with poor vegetation and bare rock.



Figure 5 Great spangled fritillary on Butterfly weed. Photo by Emily Ford.

## Blue Ridge

The Blue Ridge province covers about 11% of the state with roughly 75% of the region forested. The deciduous hardwood forests of this region are dominated by red and white oaks. In the southern section of this province, yellow buckeye (*Aesculus flava*), Fraser magnolia (*Magnolia fraseri*), and spruce (*Picea* spp.) species join the community. In the northern section, the oaks are accompanied by yellow birch (*Betula allegheniensis*) and northern red oak (*Q. rubra*).

## Piedmont

The Piedmont region covers the majority of Virginia. The deciduous hardwood forests (60% of the province) also include some loblolly (*Pinus taeda*) and other pines. With a high human population density, this area has been severely altered by humans. In areas that have been

allowed to return to forest (successional forests), common native plants include Virginia pine (*Pinus virginiana*) and tulip poplar (*Liriodendron tulipifera*). In more mature forests, white oaks, hickories, and maples dominate.

When compared to other regions of Virginia, the Piedmont has lower diversity due to its lack of variation in topography (as in more western region) and wetland habitats (as in the Coastal Plain to the east). This region is home to a few rare species such as the Piedmont fameflower (*Phemeranthus piedmonanus*) and Piedmont quillwort (*Isoetes piedmontana*) which has only been found in one county (Powhatan) with only one population!

Virginia SOL Science Connections

**Living Systems**

2.5, 3.5, 3.6, 4.5, 5.5, 6.7, LS.2, LS.3, LS.4, , LS.6, LS.7, LS.8, LS.9, LS.10, LS.11, LS.12, ES.9, ES.10, BIO.3, BIO.4, BIO.5, BIO.6, BIO.8

Coastal Plain

Virginia SOL History and Social Science Connections

**Geography and Culture**

K.7, 1.6, 2.7, 3.7, VS.2, USI.3c

This region covers 21% of the state, only 15% of which is forested. Loblolly pine (*Pinus taeda*) is the dominant species in these forests today with the outer coastal plain containing pine or pine/hardwood forest. In the bottomland swamps along rivers, bald cypress (*Taxodium distichum*) and species of tupelo (*Nyssa spp.*) are the dominant plants.

It is difficult to determine what the dominant plant species were in the coastal plain's upland forests as human use has altered the region significantly. The Coastal Plain also has the largest amount of wetlands from freshwater habitats to brackish areas and salt marshes. Many of the plant species are well adapted for the marshy environments.

**Only in Virginia!**

In Virginia, we have some unique and irreplaceable species.

Virginia Round leaf Birch, *Betula lenta var. uber*, is a small tree with a wild population found only in ONE county in Virginia (Smyth). There is some disagreement among scientists if it is a variety of a species or a species in its own right.

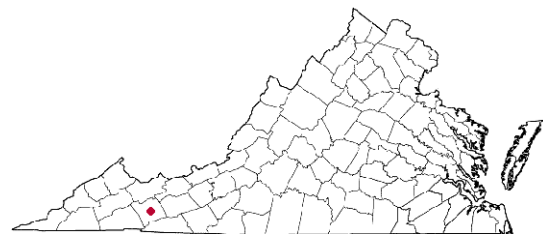


Figure 6 Map of *Betula lenta var. uber* from Digital Atlas of the Virginia Flora

The Mattaponi Quillwort, or *Isoetes mattaponica*, is endemic to just four counties in the coastal plain region in shallow, intertidal zones. Quillworts are a type of vascular plant that reproduce with spores, have long narrow leaves, and are adapted for wetland areas.

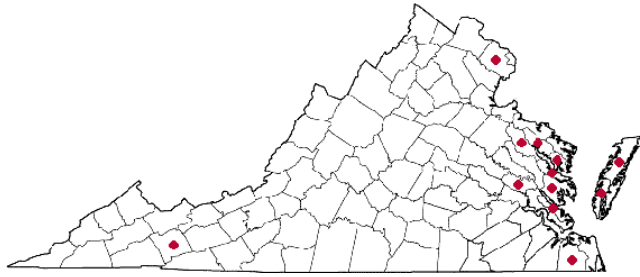


Figure 7 Map of *Juncus gerardii* from Digital Atlas of the Virginia Flora

Saltmarsh Rush, *Juncus gerardii*, is a species that is found in coastal areas, but then in a rare, inland marsh in the Valley and Ridge province. This plant evolved to live in brackish (slightly salty) water. Why is it found on the coast and then in one county in the Valley and Ridge? Due to salt deposits left in this mountains from the Mississippian subperiod of the

Carboniferous period!

[Peter's Mountain Mallow](#) (*Iliamna corei*), state and federal endangered, is found on one mountain in Giles County! Efforts to conserve and protect this species have been made through the purchase of the Narrows Preserve by the Nature Conservancy of Virginia, a non-profit organization, and with the assistance of scientists and conservationists who study current populations and restore habitat critical to this plant's survival.

### Plant Outliers

Due to where Virginia is situated on the east coast of North America, several species of plants are at the northern edge of their range. The Carolina laurel (*Kalmia carolina*), closely related to mountain laurel, is found in a couple of counties in the Valley and Ridge and then, a few on the Coastal Plain. Further south, this species is more common as it is optimally adapted for a warmer climate. For more information about more rare and unique Virginia native plants as well as student activities focused on the subject, visit [Blandy Farm Education web page](#) and [DCR natural heritage](#).



Figure 8 Buttonbush *Cephalanthus occidentalis*.  
Photo by Emily Ford.

## Conserving Natives

In recent years, there has been much research focused on native plants and their influence on healthy functioning ecosystems. Interest in planting natives has increased in Virginia and around the country. Why natives? Native plants are often better suited for an area than non-



natives; they are adapted for the different habitats and regions, and require less watering and care once established in a garden or wild area. As part of an ecosystem, native plants are essential food resources to native organisms such as small flies, larger bumblebees, butterflies and moths, to the consumers of these creatures and on to the next trophic level. For example, the native redbud tree (*Cercis canadensis*), blooms in early spring, provides nectar and pollen to native bees and other pollinators. Squirrels, bobwhite quail and songbirds eat the seeds during the summer.

## Want to explore and share Native Plants?

To engage students in investigating and exploring native plants:

- ◇ Consider using native plants in a garden area at school, if one is available.
- ◇ If not available, inquire with your school about including native plants in landscaping or visit a nearby park.
- ◇ Go Big... Create a native school garden! Many volunteer organizations (such as Virginia Native Plant Society, Virginia Master Naturalists, or Master Gardeners) may be able to offer their expertise and assistance.
- ◇ Virginia's Department of Game and Inland Fishers Habitats for Wildlife  
<https://www.dgif.virginia.gov/wildlife/habitat/>
- ◇ Building native plant habitats is a great way to engage students in interdisciplinary learning! Funding through grants is available, and some curriculum ideas can be found in resources.
  - Schoolyard Garden Grants List of various organizations  
<http://www.americainbloom.org/resources/grant-opportunities.aspx>
  - Chesapeake Bay Trust  
<http://www.cbtrust.org/site/c.miJPKXPCJnH/b.5457271/k.C58E/Grants.htm>
  - National Garden Clubs <http://www.gardenclub.org/awards/wildflower-awardgrants.aspx>
  - Some 'big box' stores offer small grants for schoolyard projects (Lowe's, Target, etc.)

## Teaching Resources

Activities and resources to use in your teaching can be found at this web page <http://www.blandy.virginia.edu/education/vanativeplants> and below.

Chapter on Native Plants in the Virginia Natural Resources Education Guide

[Butterfluff](#)- A kinesthetic activity for learning about native and invasive plants

[Chesapeake Bay Trust activities](#) developed in partnership with Clarke County Public Schools integrating native school gardens in the classroom and outdoors.

[TREE Fund Project](#) with Clarke County Public Schools

[Conservation Challenge](#)

Schoolyard Botany- Lessons and activities developed by Barbara Adcock, STEM coach at Powhatan county schools and awardee of the Presidential Award for Excellence in Mathematics and Science Teaching.

<a href="#">Art and Science Teacher Resource</a>	<a href="#">Creating a Dicot Key</a>
<a href="#">Creating a Nature Journal</a>	<a href="#">Journaling like a Botanist</a>
<a href="#">Creating Herbarium From Recyclables</a>	<a href="#">Preserving Plant Specimens</a>
<a href="#">Plant Uses Part One</a>	<a href="#">Plant Uses Part Two</a>
<a href="#">Changing Habitat</a>	<a href="#">Using a Dichotomous Key</a>
<a href="#">Soil Mapping</a>	<a href="#">Coastal Plains and Mountain Disjunct Plants</a>
<a href="#">Plant Vocabulary</a>	<a href="#">Suggested Activities for an Outdoor Classroom</a>

Have a resource of your own that you'd like to share? Contact Emily Ford at 540-837-1758 ext. 290 and [emilyford@virginia.edu](mailto:emilyford@virginia.edu)

## Organizations and other helpful Resources

The [Virginia Native Plant Society](#), including chapters local to your area

[Department of Conservation and Recreation](#)

[Flora of Virginia Project](#)

Native Plant Nurseries <http://vnps.org/conservation/plant-nurseries/>

For more information on Native plants,

[Grasslands Native Plants](#) (PDF),

[Riparian Native Plants](#) (PDF)



## References

- \* *The Flora of Virginia* Weakley, A.S., J.C. Ludwig, and J.F. Townshend. 2012. Bland Crowder, ed. Foundation of the Flora of Virginia Project Inc., Richmond. Fort Worth: Botanical Research Institute.
- \* Digital Atlas of the Virginia Flora [Digital Atlas of the Virginia Flora](#) for maps and other information on Virginia native plants.
- \* This article found here, discusses and adds depth to our definition of native plants. [Why Natives? from VNPS.org](#)
- \* Virginia's DCR Native plant definition <http://www.dcr.virginia.gov/natural-heritage>
- \* Peters Mountain Mallow <http://www.dcr.virginia.gov/natural-heritage/document/fsicorei.pdf>
- \* Piedmont Native Plants: A guide for landscapes and gardens [www.albermarle.org/nativeplants](http://www.albermarle.org/nativeplants)
- \* National Park Service definitions of native, exotic, and invasive organisms <https://www.nps.gov/policy/mp/chapter4.htm>
- \* National non-profit organization focusing on native wildflowers in yards. [Wild Ones](#)