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Fern Valley Trail Guide



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Fern Valley Trail Guide

Fern Valley is a natural wooded area planted with ferns, wildflowers, and native trees and shrubs. It is a joint nature education project of the U.S. National Arboretum and the National Capital Area Federation of Garden Clubs, Inc.

Planting in the valley began in the spring of 1959 with a donation of 1,000 ferns. Since then thousands of native plants have been added by volunteer workers and Arboretum staff members.

Numbers and plant descriptions correspond to numbered stakes along the trail. In addition, many of the trees, ferns, wildflowers, and shrubs in Fern Valley are labeled.

We would like to thank the Curator of the Fern Valley Trail, Charles Burrell, for the fine illustrations and revisions used in this Guide.

Cover: Maidenhair fern (*Adiantum pedatum*), page 12.

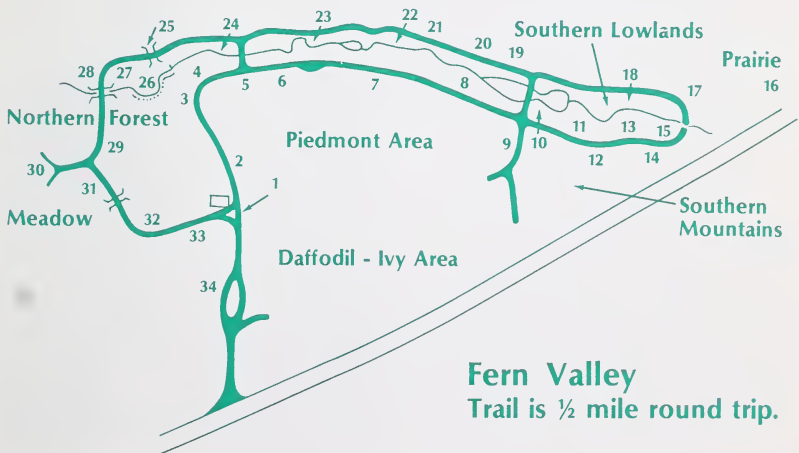
Plan Of The Valley

All of the plants you see in Fern Valley are found growing naturally in the Eastern United States. Most are native, but a few have been introduced from other countries and have become naturalized. Many of these native plants make excellent, trouble-free landscape plants.

As you enter the valley notice the evergreen trees in the area to the left. Hemlocks and white pines have been planted here along with wintergreen, partridge-berry, and other plants native to the North-eastern United States.

Plants found growing naturally in the deciduous forest of the Piedmont area are planted in midvalley. The Piedmont area is the region between the coastal plain on the east and the mountains on the west. Washington, D.C., is located on its eastern edge. In the next area of the valley you see plants of the southern mountains such as rhododendrons, azaleas, Oconee-bells, and wandflower. In the lowest part of the valley are plants native to the southern lowlands including bald cypress and sweetbay magnolia.

Please stay on the trail and do not pick flowers or other plant parts.

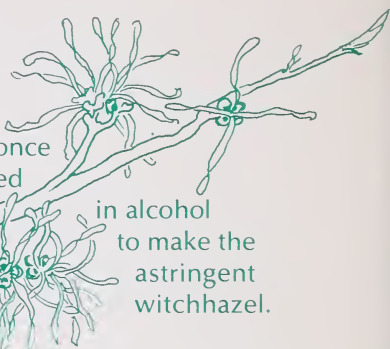


Fern Valley Trail

1 The small tree in the island bed is **Witchhazel** (*Hamamelis virginiana*). The bark of the young twigs and roots of this



plant were once distilled



in alcohol to make the astringent witchhazel.

Witchhazel

turn yellow and drop. The woody fruits, which expel their seeds with explosive force, ripen the following summer.

This is the latest flowering woody plant in our area. The yellow flowers have long, ribbon-like petals and appear in October just as the leaves

2 **Christmas Fern** (*Polystichum acrostichoides*) is one of the easiest and most attractive ferns to grow outdoors in this area. Its fronds, which remain green all winter, are often used for Christmas decoration. The leaflets toward the tip of some fronds are much reduced in size and these bear the spore-containing sori or fruit dots on the back.



Christmas Fern

3 There are several large **White Oaks** (*Quercus alba*) in this area. This is one of the most important timber trees in eastern North America. Although the acorns contain

a large amount of bitter-tasting tannin, they are edible. Indians ground the acorns, leached out the tannin with running water, and used the nutty-flavored meal for bread.

White oak has a distinctive bark pattern that is easy to identify even in winter. The ashy gray bark at eye level and below is broken into small, squarish blocks, while the upper bark is almost shaggy.

4 The low-growing plant with heart-shaped leaves is **Wild Ginger** (*Asarum canadense*). This species is not ever-green; however, its relative, heartleaf (*Asarum virginicum*), growing nearby is. In spring or early summer look closely at the base of the leaves and you may see the curious, jug-shaped, reddish-brown flowers. Tiny fungus gnats are attracted to these flowers because their odor and inner shape mimic the mushroom on which the insects normally lay their eggs. The gnats pollinate the flowers when they perform their mating dance inside them.



The pungent rootstock of wild ginger tastes very similar to commercial ginger.

5 The rocky slope here and across the paths is constructed to resemble a **Talus Slope**, a sloping pile of rock debris often found at the base of cliffs. The slope provides a habitat for trilliums, wood ferns, and hepaticas that thrive in the shade and loose humus of rock crevices.

6 These green-stemmed shrubs are called **Strawberry Bush** (*Euonymus americanus*). They have small greenish-yellow flowers in summer, ripening into showy fruits in the fall. These warty pink fruits with crimson seeds give the plant another common name, hearts-a-bustin'.



Relax for a while on the bench and observe the birds, squirrels, and chipmunks that live in Fern Valley. In the spring, many wildflowers bloom here before the deciduous trees leaf out and shade them.

Many spring wildflowers including bloodroot (*Sanguinaria canadensis*), trillium (*Trillium spp.*), spring beauty (*Claytonia virginica*), and dutchman's breeches (*Dicentra cucullaria*) have seeds that are spread by ants. These seeds have a fleshy wing the ants eat, especially in the early spring when few other foods are available. Ants carry the seeds toward their nests, eat the wing, and leave the seed to grow.

7 Here an **American Chestnut** (*Castanea dentata*) continues to send up short-lived sprouts. The chestnut was once an abundant and economically important forest tree found throughout much of the Eastern United States until it was destroyed by the chestnut blight. The blight was first observed in New York in 1904 and quickly spread throughout the eastern deciduous forest. Chestnut blight is a fungus that kills only the aboveground portions of the tree, leaving the roots unaffected. Now, although sprouts continue to grow from the roots of old trees, they are soon killed by the blight.

8 The small tree with smooth gray bark is **American Hornbeam** (*Carpinus caroliniana*). It is also called "ironwood" or "musclewood" because the wood is very dense and hard and the trunk resembles a muscled arm. Hornbeam is usually found in moist soil along streams.

9 The path to the right passes through a group of native **Rhododendrons** and **Azaleas** and up to the road. This area is planted to resemble a plant association found in the southern Appalachians. The rhododendrons here include mountain rosebay (*Rhododendron catawbiense*) with pinkish-purple flowers, and *Rhododendron minus* with pink or white flowers. The azaleas include the very rare pink-shell azalea (*Rhododendron vaseyi*), and the pinxter-bloom azalea (*Rhododendron nudiflorum*), which flowers before it leaves out.

10 The tree on the corner by the pond is a **River Birch** (*Betula nigra*). It has beautiful, peeling, pinkish bark, but is generally a short-lived tree. River birch usually grows in wet soils along streams and in bottomlands. The sap of this and other birches is used to make "birch beer."

11 **Spice Bush** (*Lindera benzoin*) is another plant commonly found in wet soils. Its small yellow flowers appear early in the spring, before the leaves unfold. The whole plant contains an aromatic oil resembling citronella, and the twigs and bark can be steeped to make a fragrant tea. The berries have been used as a substitute for allspice, and also provide an early summer food for birds.





Oconee Bells

12 **Oconee-Bells** (*Shortia galacifolia*) has an interesting history as one of America's lost

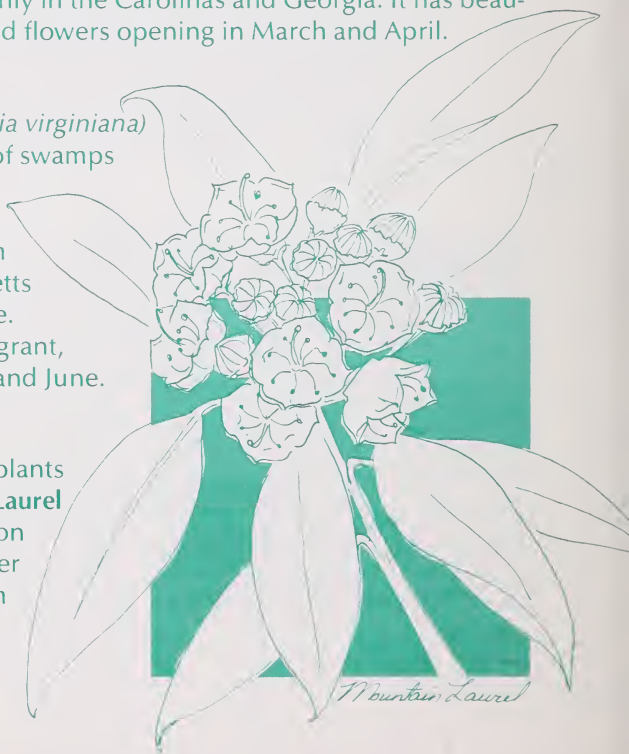
plants. It was collected in the early 1800's by the French botanist Andre Micheaux, and placed in his herbarium. Asa Gray, a noted American botanist, later found the specimen in

Micheaux's herbarium and recognized it as a new genus. For 40 years Gray searched unsuccessfully in the North Carolina mountains to locate the plant. It was rediscovered in 1878 in the southern Appalachians and sent to Gray for identification. *Shortia* is a rare plant found only in the Carolinas and Georgia. It has beautiful, white, bell-shaped flowers opening in March and April.

13 **Sweetbay** (*Magnolia virginiana*)

is a small tree typical of swamps and wet areas in the Southeastern United States. It is native from Florida to Massachusetts and west to Tennessee. Sweetbay has very fragrant, white flowers in May and June.

14 There are several plants of shrubby **Mountain Laurel** (*Kalmia latifolia*) here on the hillside. They prefer an acid soil and bloom profusely in open locations in May.



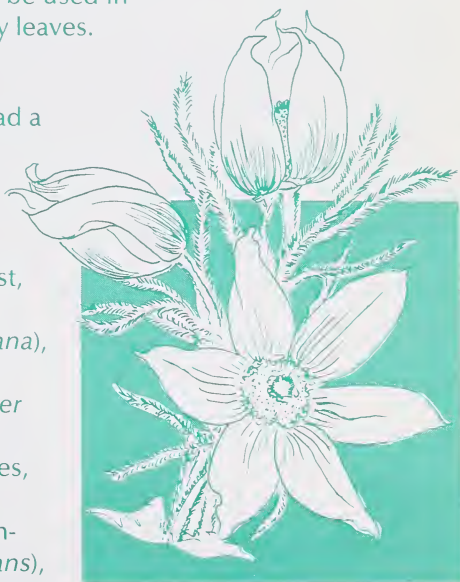
Mountain Laurel

The stamens of fresh flowers are caught in niches in the sides of the flower. When a bee lands on the flower, the stamens are released and snap into the center depositing the pollen on various parts of the bee's body. Some of the pollen sticks and is transferred to other flowers the bee visits, cross-pollinating them.

All parts of this plant are poisonous, including the nectar and honey made from it.

15 Here are **Bayberry** shrubs (*Myrica cerifera*) native to the coastal plain from New Jersey to Florida. Early settlers made candles from the berries' waxy coatings. It takes 1 peck (one-fourth bushel) of berries to produce a pound of wax. All parts of the plant are aromatic, and the leaves can be used in cooking as a substitute for bay leaves.

16 If you walk down the road a short way you will come to a southeast-facing slope on the left. This has been planted with **Prairie Plants** that are native to the Midwest, such as pasqueflower (*Anemone patens* var. *wolfgangiana*), coneflowers (*Echinacea* spp. and *Ratibida* spp.), aster (*Aster* spp.), and beardtongue (*Penstemon* spp.). The grasses, especially the big bluestem (*Andropogon gerardii*) and Indiangrass (*Sorghastrum nutans*), are dominant species in this plant community.



Pasqueflower

The area must be burned or mowed annually, in the early spring, to reduce weeds and kill tree seedlings that would otherwise take over.

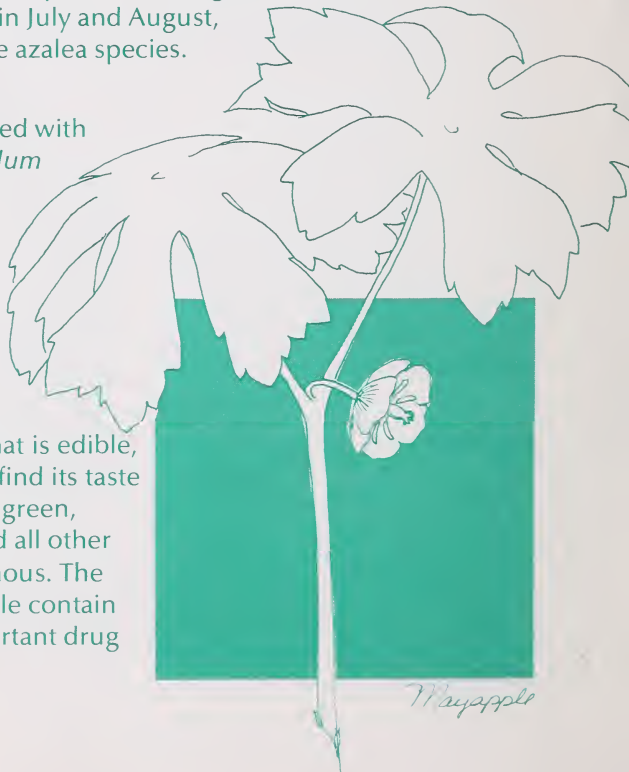
17 Returning to the path, you will see **Bald Cypress** trees (*Taxodium distichum*). A few of these trees have begun to develop the distinctive cypress knees, knobby extensions of the roots that grow out of the water or wet soil to allow the exchange of air between roots and atmosphere.

Even though bald cypress is in the pine family, it is not evergreen; its leaves turn yellow and drop every fall. Very large trees in the South are reported to be 1,200 years old.

18 These evergreen shrubs are **Star Anise** (*Illicium floridanum*), which grows in swamps from Florida to Louisiana. They have red, star-shaped, nodding flowers that smell like decaying fish, although their leaves are pleasantly aromatic.

19 The **Plumleaf Azalea** (*Rhododendron prunifolium*) is a rare azalea native only to the coastal plains of Georgia and Alabama. It has beautiful red flowers in July and August, the latest of any native azalea species.

20 This area is carpeted with **Mayapples** (*Podophyllum peltatum*) during the spring and summer months. The white flower, borne beneath the paired, umbrella-shaped leaves matures into a yellow lemon-shaped fruit that is edible, although few people find its taste appealing. While still green, however, the fruit and all other plant parts are poisonous. The rootstocks of mayapple contain podophyllin, an important drug in cancer treatment.



21 **Arrowwood** (*Viburnum dentatum*) has clusters of white flowers in the spring and blue fruit in late summer. Indians used its stems for arrow shafts because they were straight and even.

22 **American Holly** (*Ilex opaca*) is dioecious, which means it has staminate (male) and pistillate (female) flowers on different plants. Only the pistillate flowers develop into berries. American holly leaves can be used for brewing a tea, but do not contain caffeine like some of the other holly species.



23 The very straight-trunked trees in this area are **Tuliptrees** (*Liriodendron tulipifera*). They belong to the magnolia family and in May produce large, greenish-yellow, tulip-like flowers with orange markings. They are also called yellow poplar, and are a valuable timber tree, growing to a height of 200 feet.

24 **American Beech** (*Fagus grandifolia*) is the tree with the distinctive smooth gray bark. Beechnuts, enclosed in a spiny bur, fall with the first frost. They are edible and have sweet, small meats.

In the summer and fall, you may see **Beechdrops** (*Epifagus virginiana*) beneath the trees. Beechdrops are small brownish plants with purple and white flowers that are parasitic on beech roots.

25 To the right of the bridge is a natural **Spring** which forms a small pool. Water also seeps from the hill on either side of the bridge and many plants needing a wet soil are located here, including marsh fern (*Thelypteris palustris*), marsh-marigolds (*Caltha palustris*), and turtleheads (*Chelone spp.*).

The higher ground above the spring provides cool, moist soil for maidenhair fern (*Adiantum pedatum*) and oak fern (*Gymnocarpium dryopteris*). The large shrub just below the spring is winterberry (*Ilex verticillata*). It has attractive red berries throughout the winter that are a favorite food of mockingbirds.



26 The **Limestone Wall**

on the far side of the stream was built as a habitat for ferns and other plants needing a "sweet" or slightly alkaline soil. In the niches between rocks you may see maidenhair spleenwort (*Asplenium trichomanes*), wall rue (*Asplenium ruta-muraria*), the rare hart's tongue fern (*Phyllitis scolopendrium*), bulblet fern (*Cystopteris bulbifera*), which can produce new plants from small bulblets on the leaves, and walking fern (*Asplenium rhizophyllum*), which sprouts new plants at the tip of each long, pointed leaf. On limestone outcroppings walking ferns can form mats that completely cover the rocks.

Walking Fern

27 The **American Yew** (*Taxus canadensis*) also prefers a limestone soil. The fleshy red fruits of yew are actually edible, but the seed inside is very poisonous. This is another dioecious plant that produces fruit only on pistillate (female) plants.

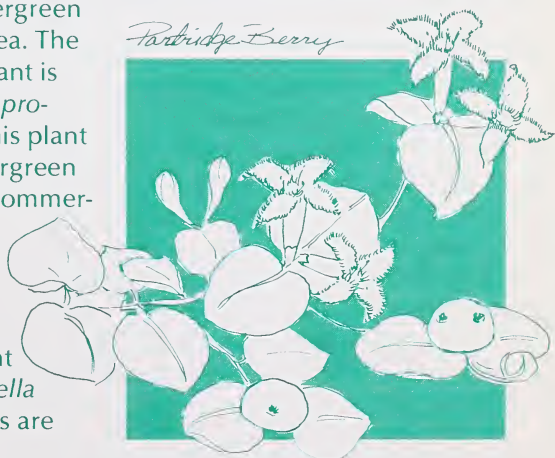
28 These graceful conifers are **Canadian Hemlocks** (*Tsuga canadensis*). They are common in northeastern forests and may live to be 500 years old. Tips of young branches were brewed for tea by the Iroquois Indians and the inner bark has been eaten in times of winter famine. Seeds from the tiny cones of hemlock are eaten by chickadees.

Hemlock trees are not related to poison hemlock (*Conium maculatum*), which is in the parsley family and looks similar to Queen Anne's Lace.

The large-leaved, evergreen shrubs here are **Rosebay** (*Rhododendron maximum*), which grows farther north than any evergreen rhododendron, its range extending into Maine. It has white or pinkish flowers in summer and will bloom even in the shade. Its hard, close-grained heartwood is used for tool handles and its roots are sometimes used for tobacco pipes.

29 There are several evergreen ground covers in this area. The larger leaved, upright plant is **Wintergreen** (*Gaultheria procumbens*). All parts of this plant have the aromatic wintergreen flavor, but the oil used commercially is actually obtained from black birch (*Betula lenta*).

The small, creeping plant is **Partridge-Berry** (*Mitchella repens*). Its white flowers are



paired and joined at the base. The two flowers ripen into a single, red, two-parted berry. The berries are edible and make a delicious jelly.

30 Here is an opening into the **Meadow** area where you will see plants found growing in local fields and roadsides. Many of these are native but some are introductions from Eurasia that have become naturalized. The meadow is mowed every year to keep out trees and shrubs which would naturally invade the area. We mow in very early spring so the plants are standing in the winter in order to provide winter cover and food for wildlife.

31 **Scrub Pine** (*Pinus virginiana*) is one of the trees that would invade the meadow if unmowed. The trees come up quickly in abandoned fields and roadsides, then die out as other trees grow larger, shading them and competing for soil moisture and nutrients.

32 **White Pine** (*Pinus strobus*) is a more graceful tree and is often grown as a landscape plant. It is also a valuable timber tree. White pine nuts or seeds are edible, although they are not nearly so large as the pinyon nuts available commercially. The inner bark also provided emergency food for the Indians and early settlers. They would dry the bark, grind it, and use it in a kind of bread.

33 This large tree is the **Black Cherry** (*Prunus serotina*). It has white flowers in drooping clusters, followed by black fruit which can be made into jelly. The wilted leaves contain cyanide and often kill cattle when browsed from cut or fallen limbs.

34 As you walk back through the entrance area, notice the many **Wildflowers** growing here that need a more open, sunny location. There are many interesting shrubs planted here including the **Fragrant Sumac** (*Rhus aromatica*), a nonpoisonous relative of poison ivy. Fragrant sumac has small yellow flowers that appear before the leaves, and later fuzzy red berries that have a very strong lemony flavor. The leaves have a pleasant smell when crushed.

Chokeberry (*Aronia arbutifolia*), planted near the road, has white flowers in spring and red berries that hang on the plant most of the winter. The berries have a puckery taste, but are edible and make a delicious jelly. Squirrels seem to enjoy the berries in winter.

Around the corner to the right in the meadow area are two very rare trees. The **Franklin Tree** (*Franklinia alatamaha*) was discovered by John Bartram in 1765 growing near the Altamaha River in Georgia. It has not been found in the wild since 1803 and all the plants growing in gardens today probably came from stock originally collected by Bartram. Franklin tree has beautiful, large, white, camellia-like flowers, and was named for Benjamin Franklin.

Also in this area are several **Round-Leaved Birch** (*Betula uber*). This is an endangered species; only a few plants are now known to exist naturally in Smythe County, Virginia.

To learn more about native plants, visit Fern Valley frequently and at different seasons. You will find wildflowers in bloom from early spring to fall, and in summer the ferns are at their best. Notice many details about the plants—the vegetation with which they are associated, their growth habit, leaf form, flowers, and fruit. Seeing these things will help you to recognize and remember these plants.

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