
Forests of Patuxent Discovery Hike

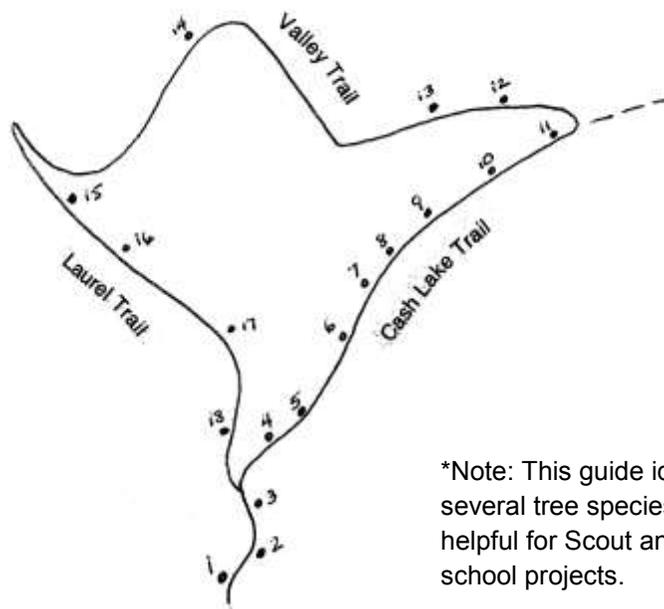
Trail Guide

This guide is brought to you by the Friends of Patuxent

Explore Patuxent Research Refuge's forest ecosystem. Learn about the forest's many layers and the interactions between plants and wildlife, each important to sustaining life and a healthy environment.

The Forests of Patuxent Discovery Hike is a 1.7 mile self-guided hike, which begins at Goose Pond Trail and leads to Cash Lake, Valley and Laurel trails. This discovery hike is marked with numbered posts corresponding to numbers in this guide.

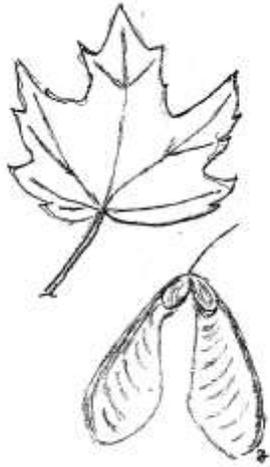
The trails were built to let people enjoy nature without disturbing the environment. Please remember to stay on the trails, as the environment comes first. As you hike, be aware of all the life that is around you; think about the interactions between plant and animal life in the forest.



*Note: This guide identifies several tree species helpful for Scout and school projects.

Patuxent Research Refuge is one of over 550 refuges in the National Wildlife Refuge System administered by the U.S. Fish & Wildlife Service. Encompassing over 150 million acres, the National Wildlife Refuge System is America's only network of federal lands and waters dedicated specifically to wildlife.

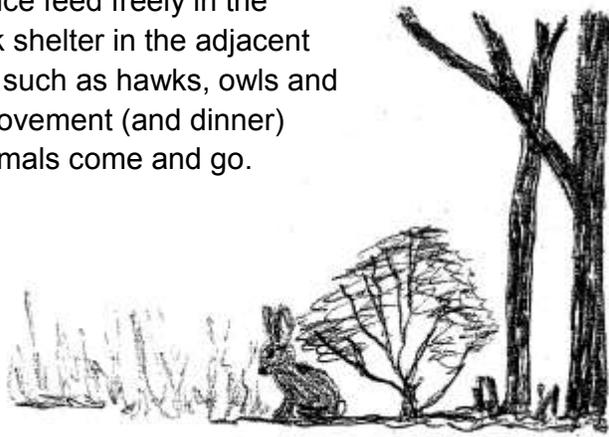
Goose Pond Trail (Forest Edge)



1. Colors and Textures.

You can see the red in the red maple tree* (*Acer rubrum*) throughout the year: red buds in winter, red flowers in spring, red leaf stems in summer and bright scarlet leaves in the fall. Notice the two red maple trees here. Do you see that one of the trees has developed unusual burls and knots on the trunk?

2. **Feeling Edgy?** Edge habitat, where forest and meadow come together, can be a place of abundance and a place of peril. Mammals such as rabbits, chipmunks and mice feed freely in the meadow and seek shelter in the adjacent woods. Predators such as hawks, owls and foxes watch for movement (and dinner) as the small mammals come and go.



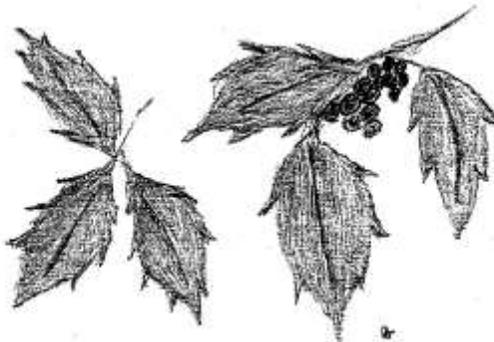
3. **Prickly Protection.** The prickly, woody vine you see here is common greenbrier (*Smilax rotundifolia*). This plant has shiny green leaves and thorns. It produces small yellowish



-green flowers from early May to late June, and dark blue-black fruits in late summer that persist through the winter. Greenbrier thickets provide protection for small mammals and birds. Do you see any animals hiding here?

Cash Lake Trail (Lake Edge and Bottomland Forest)

4. **Mr. and Mrs. Holly.** The American holly* (*Ilex opaca*) is an easily recognized tree due to its characteristic dark green, glossy and spiny evergreen leaves. This tree is dioecious (pronounced dahy-ee-shuhs), meaning that both a male and female plant are needed for fruit production. Bright red berries appear on the female tree from late fall to spring, but only when a male is nearby. How many female and male trees do you see here?



5. Hold onto Your Hat! Wind can have a powerful effect on the forest as evidenced by these fallen trees. Pine trees like these are relatively short-lived and are susceptible to disease and wind damage. But, as in life, dead trees continue to provide habitat for wildlife. Look for standing pitch pines* (*Pinus rigida*) nearby.

6. Internal Heat System. Seen seasonally in this gully, skunk cabbage (*Symplocarpus foetidus*) is a unique broad-leaved plant that generates its own heat and has one of the first flowers to bloom from February to March. The plant's heat can melt the snow around it. Observers may view bare patches of ground dotting an early spring blanket of snow as the young blooms beneath melt the surrounding ice crystals. By mid-summer, most of the leaves have disappeared. This plant lives up to its name, as it gives off an unpleasant aroma which attracts pollinating insects.



7. Food for the Wild. The American beech* (*Fagus grandifolia*) is one tree that is easy to identify because of its characteristic smooth, pale gray bark. The American beech tree produces triangular shaped nuts, with two to three nuts enclosed in a woody bur covered with short, weak spines. It



takes about one year for the nuts to completely mature. When the beech tree is about 50 years old, it will begin producing large crops of nuts every few years. This process of producing large crops is known as masting. The beech nut is an important food source for animals such as squirrels, raccoons, chipmunks and turkeys.

8. Dead Wood, New Life. Hard to believe, but a tree can actually provide more habitat for wildlife when it is dead than when it is alive. Standing dead trees, or snags, are used by birds, small mammals and other wildlife for nests, foraging, food storage and roosting. Snags enhance natural areas by attracting wildlife species that may not otherwise be found there. Look at the snags in this area. Do you see any visible holes where an animal might live or hide?

9. Strike One. When looking at a tree struck by lightning you can see evidence of the power of electricity. When lightning strikes a tree, the sap and water within the tree expands, forcing the wood to expand and causing the bark and sometimes the wood to explode. Strikes can blow tree trunks apart, sending large branches flying, splitting the trunk in two and reducing large parts of the tree to splinters. Once the bark is removed, the tree is less tolerant of dry spells, freezing winters, disease and parasitic infestation.

10. Busy as a Beaver. A lumberjack and carpenter in one, the American beaver (*Castor canadensis*) can build a sturdy lodge out of sticks, mud and stone. They use their small, agile front feet to weave each twig carefully into place. Beavers line the walls with mud for warmth and protection. They keep air circulating by building a vent at the top of the lodge. The lodge floor is above water level but it has an underwater entrance hidden from predators, and deep enough to avoid freezing in cold weather. These clever animals prepare for winter by stashing an underwater food supply of branches nearby.



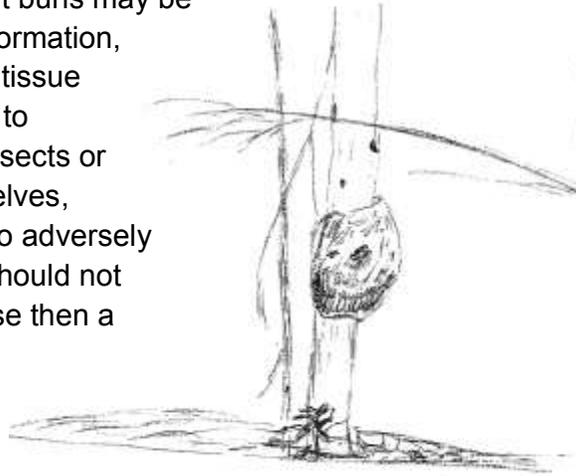
11. Fishing without a Pole. Ospreys or “fish hawks” (*Pandion haliaetus*) like to build their nests in tall trees or structures near or over water. The platform you see was built to encourage nesting on Cash Lake. Ospreys are



excellent fishers, who hunt by diving to the water's surface from heights of 30 to 100 feet. Ospreys have gripping pads on their feet that help them pluck fish out of the water with their curved claws and carry them great distances. While in flight, ospreys will orient the fish headfirst to ease wind resistance.

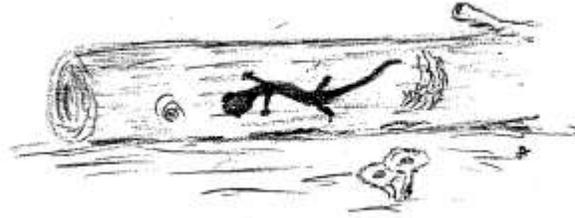
Valley Trail (Upland Forest)

12. Eye of the Beholder. The first thing you may notice about this American beech* (*Fagus grandifolia*) tree is its abnormal growth, or burl. While most people may consider a burl unsightly, burl wood is prized by wood workers. The wavy or swirled grain patterns make a unique piece for a table top. Many speculate that burls may be the result of a gall formation, which is a tumor or tissue growth in response to attack by fungus, insects or bacteria. By themselves, burls do not seem to adversely affect trees. They should not be removed because then a large section of the tree would become susceptible to disease.



13. Bats: Are They Here? Not all bats live in caves; some live in forests. They seek out sheltered places to sleep (upside down) during the day, mate, raise young, shield themselves from inclement weather, and hide from predators. The split wood and partially removed bark from lightning struck trees make great bat habitat. Bats can make their homes behind bark, in hollow trees and under leaves and branches. Can you find any crevices that might hide bats?

14. Life Under Cover. During a heavy storm, trees fall down and branches scatter. Bark beetles and fungi will feed under the rotting bark and soften the wood. Other insects will bore into the wood leaving pathways for bacteria and fungi to spread. Due to the warm, moist and safe environment the decaying wood becomes a year-round home for hundreds of animals including spiders, salamanders and worms. Decomposing wood returns minerals and organic matter to the forest floor to support new plant life.



Laurel Trail (Woodland)

15. The Ground We Walk On. Soil is a diversified product. Soil comes in different textures and shades. It is made up of four key components: mineral particles (mainly from rock), air spaces, water and organic matter. In areas of heavy traffic, soils compress, losing their air spaces. Soil is home to a critical plant part: roots. If the soil is too compacted plants will not be able to establish themselves. One reason visitors are asked to stay on the trails is to minimize the impacts to soils and other habitats.

16. Laurel, Maryland. Mountain laurel* (*Kalmia latifolia*) is an evergreen tree or shrub growing in the understory. In spring it has fragrant, cup-shaped pink to white flowers. Laurel Trail is named for the mountain laurels that thrive here. Where do you suppose Laurel, Maryland got its name?

17. Hitchikers in the Woods. Allegheny chinquapin* (*Castanea pumila*) is a spreading shrub or small tree reaching a height of 20 feet under ideal growing conditions. Seeds from trees can be dispersed in many ways. Burs, such as those produced by the Chinquapin, cling to animal fur and are



carried to other locations. Wind, water and animals carry the seeds to new spots. Small animals disperse them by collecting and burying seeds for food storage; sometimes they forget about them, and the seeds will start to grow. The dispersal of seeds is important in keeping a forest thriving and diverse.

18. Past, Present, Future. As the years pass, forest ecosystems change. Through a natural process called succession, new plants and trees replace those that die. The flora of Patuxent has been recorded to help researchers monitor changes. A survey of the land was done in the 1940's to determine what type of vegetation was on the refuge. Researchers used grid markers to plot out areas and inventory the plants. Current researchers can now compare what it was like decades ago. Have new species moved in while others have gone? What are the reasons for change? How can biologists better manage the land for wildlife in the future?

The trail section where you have been walking is dedicated to Dr. Chandler S. Robbins who began his career at Patuxent in 1945 and has dedicated over 60 years of his life to the study of migratory birds and their habitats.

We hope you've enjoyed this walk in the forests of the Patuxent Research Refuge. Maps of other trails, as well as information about plants and animals that can be found on the refuge, are available at the National Wildlife Visitor Center. Please stop by the front desk for more information.

Illustrations by Rod Burley, Friends of Patuxent

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