

DRYDEN KUSER NATURAL AREA

# Cedar Swamp Trail Guide



LH

EXPLORE A UNIQUE AND CHANGING LANDSCAPE



New Jersey Department of Environmental Protection  
New Jersey Division of Parks and Forestry

## *The Dryden Kuser Natural Area*

The 850-acre Dryden Kuser Natural Area, dedicated in 1965, was the first Natural Area in the State of New Jersey. It is named for State Senator Dryden Kuser, a noted conservationist and son of Anthony and Susie Dryden Kuser, who donated the land that became High Point State Park in 1923. Dryden Kuser also served on the High Point Park Commission and lived on Park grounds for several years near the end of his life. An accomplished bird watcher, the bog was one of his favorite places at High Point.

## *The New Jersey Natural Areas System*

The goal of the New Jersey Natural Areas System is to preserve and protect lands that support endangered and threatened plants and animals, significant ecosystems, and important wildlife habitats. Today's Natural Area System, composed of over forty designated Natural Areas and totalling 30,000 acres, represents a living museum of the New Jersey's natural heritage.

# Welcome to the Cedar Swamp Trail

You are about to explore a unique and changing wetland that was created by a retreating glacier over 15,000 years ago. Walking this trail, you'll travel through dense forests and cross an open boggy area on a boardwalk. Along the way, you'll see unusual plants, and if you walk quietly, you may hear the hoot of a barred owl or catch a glimpse of a black bear hiding in the thickets.

This 1.5-mile loop trail follows an access road to the bog, then forks and circles around the perimeter. The numbered stops in this guide correspond to numbered markers along the trail. Walking the entire trail should take between one and two hours.

Common trees growing along this part of the trail include white oak, red oak, chestnut oak, pitch pine, and sassafras.

- Small shrubs, huckleberry and low-bush blueberry, cover the forest floor.
- The most common ferns are bracken ferns, which are dark green and leathery, and hay-scented ferns which are a lighter green and soft to the touch.

## 1. Upland Oaks Surround the Swamp

The trees and shrubs growing around you are typical forest plants at High Point. They thrive in the dry, thin, and rocky soils found on this mountain. This oak forest is very different from what you'll see in the bog.

## 2. Are we there yet?

Almost. This isn't the bog, it's a small, seasonal pond. Fish can't survive here because the pond dries out during the summer months. Ponds like this one are a safe place for breeding amphibians such as wood frogs and spotted salamanders because their eggs and young are eaten by fish.



Spotted Salamander



Bear to your left at the fork in the trail.

## 3. You're Standing on the Shore of an Ancient Lake

Imagine standing in this very spot with gentle waves lapping at your feet as you squint into the sun glinting off the water. Thousands of years ago a lake covering thirty acres and reaching depths of twenty feet filled this small valley. Since then, a gradual change has taken place creating the habitat you are about to explore.

## 4. *Millions of Mosses Build Bogs*

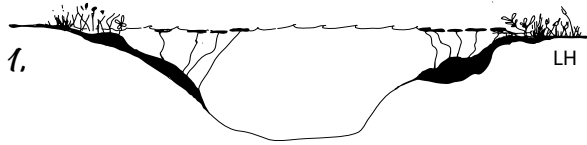
The small, light green plants that carpet the wet ground are sphagnum mosses. These mosses grow in floating mats across the surface of still lakes and ponds. As the mats thicken, other plants grow on top. When the mosses and plants die, they sink.

As moss and other decaying plants accumulate, they become a substance called peat.

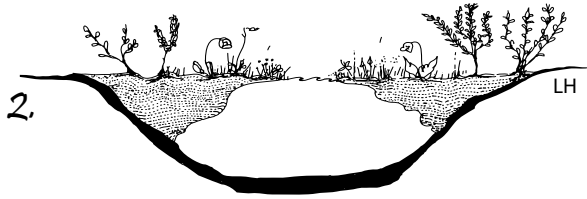
Another name for this wetland is a peatland, and sphagnum moss is sometimes called peat moss.

Peat has many uses. It is a natural fertilizer, and it improves soil's ability to absorb water.

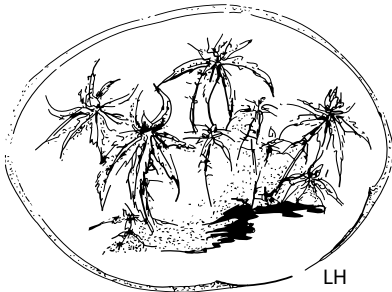
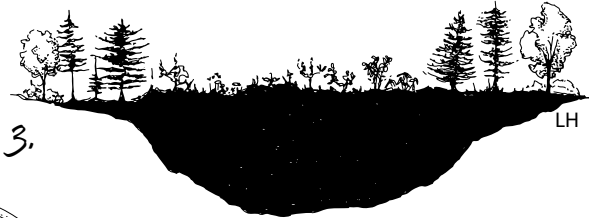
In some parts of the world, dried peat is used as fuel to heat homes.



The dead mosses and plants settle at the bottom, but do not fully decompose. They begin to accumulate and fill in the shallow edges of the lake.



Over thousands of years, the partially decayed plants fill the lake entirely. As a result, trees and shrubs now grow where water once stood twenty feet deep.



Sphagnum Moss



Sphagnum moss is like a sponge. Reach down and squeeze a bit of moss. How much water can you wring out? Some species of sphagnum can hold up to twenty-five times their weight in water.

## 5. *A Mountaintop Bog is Surprising*

The straight, tall evergreens growing so densely here are Atlantic white cedars. It's surprising to find them here because this kind of forested wetland is usually found close to sea level, not on mountains. At an elevation of 1,500 feet,

this Atlantic white cedar bog is believed to be the highest in the world.



### Swamp or Bog?

This cedar bog is commonly called a swamp, but it is a bog. While both have trees growing in them, swamps have mineral-based soils (think mud) whereas the soil in a bog is a substance called peat that forms from partially decayed mosses and other plants as they accumulate in stagnant bodies of water.



Get in touch with the tree trunks. Does all tree bark feel the same? Cedar bark can feel almost soft. Other bark might feel bumpy, rough, or smooth. What does it feel like to you?

Two carnivorous plants, sundews and pitcher plants, grow here. These plants trap and digest insects to obtain nutrients they can't get from the poor soil.

While they don't require insect prey to survive, the plants that do get extra nutrients are healthier and more fertile.

## 6. *Growing Here? It's a Challenge!*

Many plants can't grow in bogs because the soil is acidic, wet, and not very fertile. However, some plants have adaptations that help them extract nutrients and stay rooted in the wet, spongy soil. A family of plants called Heaths thrive in bogs—many are growing on this slope, including mountain laurel, rhododendron, sheep laurel, blueberry, huckleberry, and teaberry.



When you arrive at the bench, sit for a moment, close your eyes, and listen. What do you hear? The wind in the cedars and spruces? The chatter of a chickadee? The faint thrum of drumming ruffed grouse?

Large ferns are common in the bog.

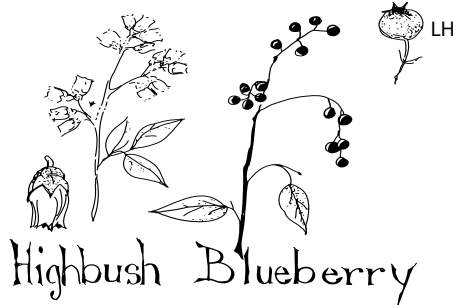
- Cinnamon fern has large fronds (leaves) that grow in circular clusters. The cinnamon-colored spore-producing stalks that grow in the spring give it its name.

- Interrupted fern resembles cinnamon fern, but spores are produced in the middle of the fronds not on stalks

- Bracken fern grows in drier areas along the trail. The leathery fronds sprout from the top of one to two foot high stalks.

## 7. Bogs Feed Birds

The small-leaved, tall shrubs lining the trail are highbush blueberries. Smaller lowbush blueberries and huckleberries are also abundant. The berries and seeds from these and other shrubs and trees are important food for deer, bear, birds, and many other animals that live in the bog.



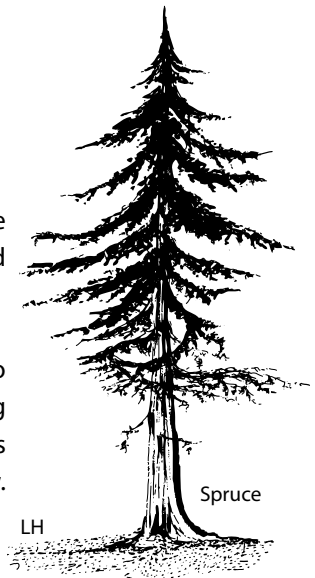
Highbush Blueberry



Blueberries ripen in mid-summer, turning a dark, dusky blue. If they're ripe, taste one. The cultivated blueberries you buy were developed from this species. (It's okay to taste a few, but not too many—we want to leave the bears and other animals plenty of wild food to eat!)

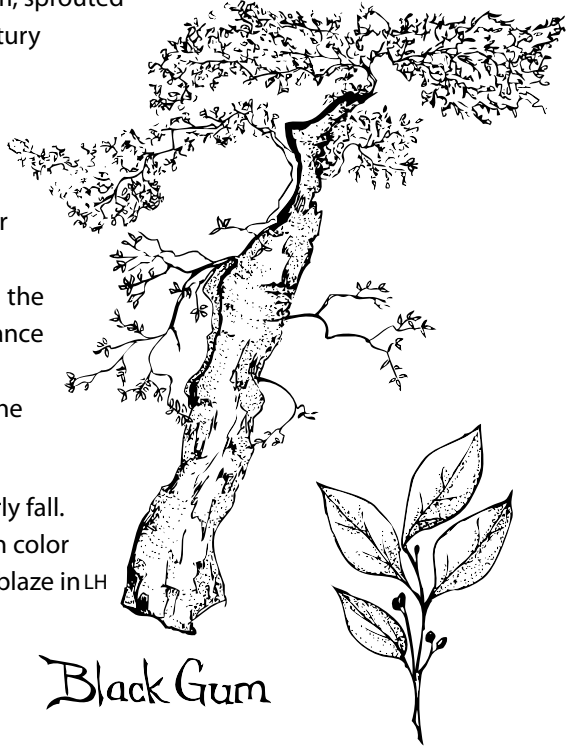
## 8. Northern Plants Keep Cool

This medium-sized, dark evergreen tree is a spruce. This type of evergreen is common in the bog, but not elsewhere in New Jersey. Spruces typically grow in New England and Canada. Other plants growing here are also typical of northern climates, including calla lily, bunchberry, and striped maple. Pollen records show that 10,000 years ago spruces were abundant around the bog. Today's remaining spruces and other northern plants may be remnants of this time when the climate here was much cooler than it is now.



## 9. This Wetland: Not as Wet as It Was

This large, stocky tree, a black gum, sprouted at the edge of the bog over a century ago. Black gums now grow throughout the bog, but most aren't as big or as old as this one—a sign that the bog is becoming drier. Black gums prefer damp, not wet, soils. It was once too wet for black gums to grow in the center of the bog, but the abundance of younger gums growing there now, show that this is no longer the case.



Black Gum

Black gums are easy to spot in early fall. They're often the first trees to turn color and their brilliant crimson leaves blaze in LH



At the bench, the Shawangunk Ridge Trail branches off to the left. Stay to the right to continue on the Cedar Swamp Trail

## 10. A Darker Forest Means Different Plants

This shady grove is dominated by Eastern hemlocks. The numbers of hemlocks in the bog are increasing while Atlantic white cedar numbers are decreasing. Why? Because bogs naturally grow drier and shadier as they age. Hemlocks prefer drier soils and can grow in the dense shade created by the cedar trees. The cedars themselves need more sunlight and wetter ground. Eventually hemlocks and other trees will replace the cedars entirely.



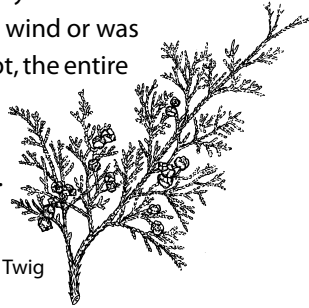
Hemlock



Can you see how sunlight and shade influence plants? Notice the differences between the number and types of plants growing in the deep shade versus those growing in sunnier spots.

## 11. Before the Cedar Trees Grew...

As you walk along the boardwalk, take a closer look at the cedars. They have flattened scale-like needles with a rounded shape, and are a dull, blue-green color. By studying pollen records, scientists have learned that cedars have been growing here for only 300 years or so. Before the first cedar seed blew in on the wind or was dropped by a bird and took root, the entire bog might have looked more like this open sunny area than the dense forest you see today.



Atlantic White Cedar Twig

There were once two other cedar bogs in High Point. The trees were harvested in the 1800s and during the 1930s the Civilian Conservation Corps built lakes where the bogs had been.

Atlantic white cedar wood is very valuable because it resists decay. It has been used to make shingles, fence posts, water ducts, siding, telephone poles, and even organ pipes.



Please walk with care and stay on the boardwalk.

Why is the water brown?

The dark color of the water comes from tannic acid found in hemlocks, oaks, and cedars, and humic acid that comes from the peat. These chemicals are what make the peat and the water acidic. The color doesn't mean the water is dirty—tannins and humic acids actually have some antibacterial qualities.

## 12. Sunlight Makes a Difference

Plants that can't grow anywhere else in the shady bog flourish in this wet, sunny spot. Late spring through early fall you can see the long, blade-like leaves of the blue-flag iris and the heart-shaped leaves of aquatic wild calla here. Both flowers usually bloom in June. The iris has showy purple flowers and the calla is white. Later in the season, clusters of the calla's bright red berries are also visible resting in the dense moss.

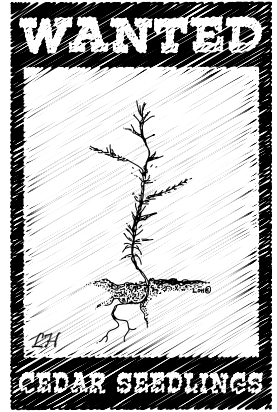


Wild Calla



### 13. Chewed Cedars: a Sign of Change

Can you find any cedar seedlings? There aren't many. The gradual disappearance of the cedars is part of a natural process, but hungry deer may be speeding it up. This bog shelters a large herd of deer in the winter and young cedar trees are one of their favorite foods. Many seedlings are eaten before they have a chance to grow.

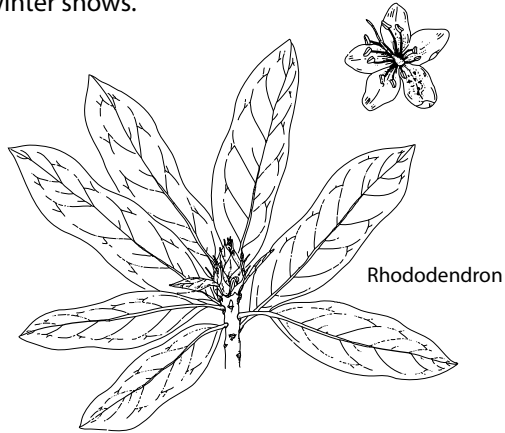


Three small species of evergreen plants commonly grow here.

- Goldthread is a creeping plant that has shiny leaves with rounded teeth. It has small white flowers that bloom on two inch stalks in May.
- Partridgeberry has tiny, white-veined leaves that grow along the stem. Look for white, trumpet-shaped flowers in spring and red berries in fall.
- Teaberry's shiny, oval leaves are an inch long, and when broken smell like wintergreen. Teaberry also sports small white flowers in spring and red berries in the fall and winter.

### 14. Dense Thickets Shelter Wildlife

Great rhododendrons grow in dense thickets along the trail. These tall shrubs cover more than half the surface of the bog. The large, leathery leaves remain all year long and shelter deer, hibernating black bears, and many other birds and animals during winter snows.



The trail comes to a "T" at the bench. To continue the loop, please turn right.



Can you find any signs of the animals that live here? Look for footprints in damp soil. Bear and coyotes often leave droppings (scat) on the trail. Deer make trails through the bog. Can you find where they travel?

## 15. *High Point's Oldest Trees Grow Here*

You won't see many other trees in the park as large as these towering black birches and red oak. In the 1800s most trees along this ridge were cut down for firewood, charcoal, and timber. Because this bog was fairly remote, trees were not harvested here. As a result, many of the trees growing around the bog are older and larger than those found elsewhere in the park.



Measure the size of trees by wrapping your arms around the trunk. Can you reach all the way around? Do your arms overlap? Compare the sizes of some of the trees along the trail. Which one is the biggest?



## *Thank You!*

For walking the Cedar Swamp Trail in High Point State Park's Dryden Kuser Natural Area. We hope you enjoyed your visit to this unique and changing landscape.



You will soon complete the loop portion of this trail. Bear to your left up the hill and follow the access road back out to the trail entrance.

### Want to know more?

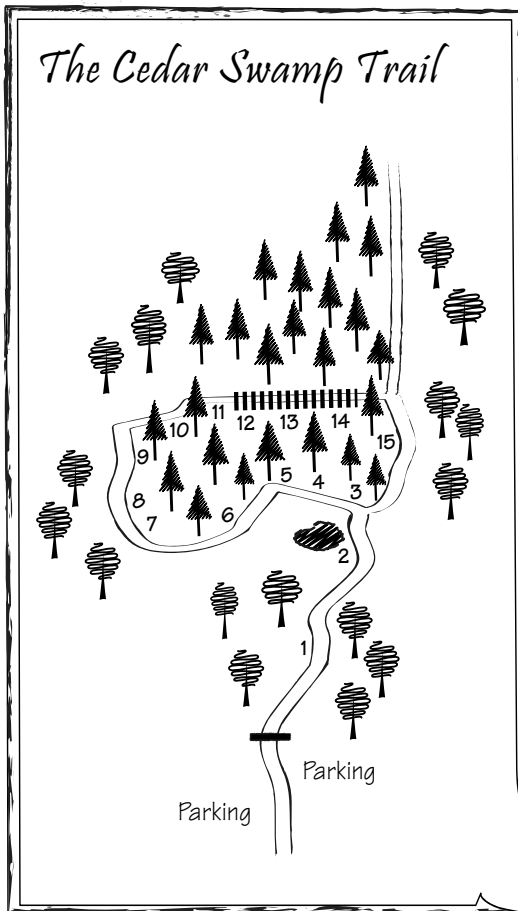
Bogs of the Northeast by Charles W. Johnson, University Press of New England, Hanover, NH. 1985

Vegetation of New Jersey by Beryl Robichaud & Murray F. Buell. Rutgers University Press, New Brunswick, NJ. 1983

Original Illustrations by Lisa Hirkaler marked "LH"

Illustrations by Rachel A. Figley marked "RF" used with permission from Shrubs and Vines of New Jersey and the Mid-Atlantic States by Christopher T. Martine available through the NJ Forest Service, 370 East Veterans Highway, Jackson, NJ 08527 (732) 928-0029.

This guide is based on an original text by Karl Anderson and Marge Barret, 1992



Look



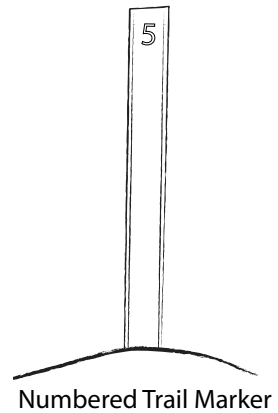
Try



Listen



Travel



## Be a Nature Detective!

As you walk along the trail, try to find:

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> A bird call                     | <input type="checkbox"/> A small cone                              | <input type="checkbox"/> A tree that is very tall                        |
| <input type="checkbox"/> A woodpecker hole               | <input type="checkbox"/> Something that feels soft                 | <input type="checkbox"/> A tree that is very wide                        |
| <input type="checkbox"/> A leaf that smells sweet        | <input type="checkbox"/> Something that feels hard                 | <input type="checkbox"/> A plant that is very small                      |
| <input type="checkbox"/> A berry that is good in muffins | <input type="checkbox"/> Something that squishes                   | <input type="checkbox"/> Something that matches the color of your shirt. |
| <input type="checkbox"/> An animal track                 | <input type="checkbox"/> Five different leaves                     | <input type="checkbox"/> An insect                                       |
| <input type="checkbox"/> A nest                          | <input type="checkbox"/> A seed from an oak tree (a.k.a. an acorn) | <input type="checkbox"/> Something that smells like mint                 |
| <input type="checkbox"/> A big cone                      |  |  |