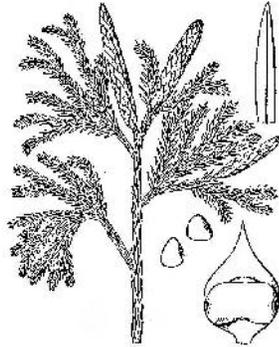


## Post 11

### Clubmoss - No, not that kind of club

Throughout this forest you may have seen what you thought were baby pine trees along the trail. These are actually primitive plants called clubmoss. The two species found here prefer slightly open woods with acidic soils. Both plants are in the genus *Lycopodium*, which in Latin means “wolf foot”, probably referring to the claw-shaped roots of all of the plants in the genus. *Lycopodium complanatum*, known as tree clubmoss or ground pine, looks glossy in appearance. The other similar ground plant, *Lycopodium obscurum*, commonly called princess pine, is dull green and smaller than the ground pine.



## Post 12

### Geology - Rock and roll

The land under your feet used to be buried under tons of glacial ice. 10-20,000 years ago, glaciers retreated and dumped loads of unsorted rocks and eroded sediment known as glacial till, resulting in the thin rocky soil present in the Dyken Pond system. The glacier also deposited larger rocks and boulders, which farmers turned into rock walls surrounding their fields. If you examine the large boulders nearby, you'll find veins of quartz. The bedrock beneath the soil is comprised of a type of sandstone called greywacke, shale, slate, and several other types of rock. Weathering of these materials adds to the soil, altering its chemical composition, further influencing the types of plants that grow here.

Written by: Amanda McCreary, 2017

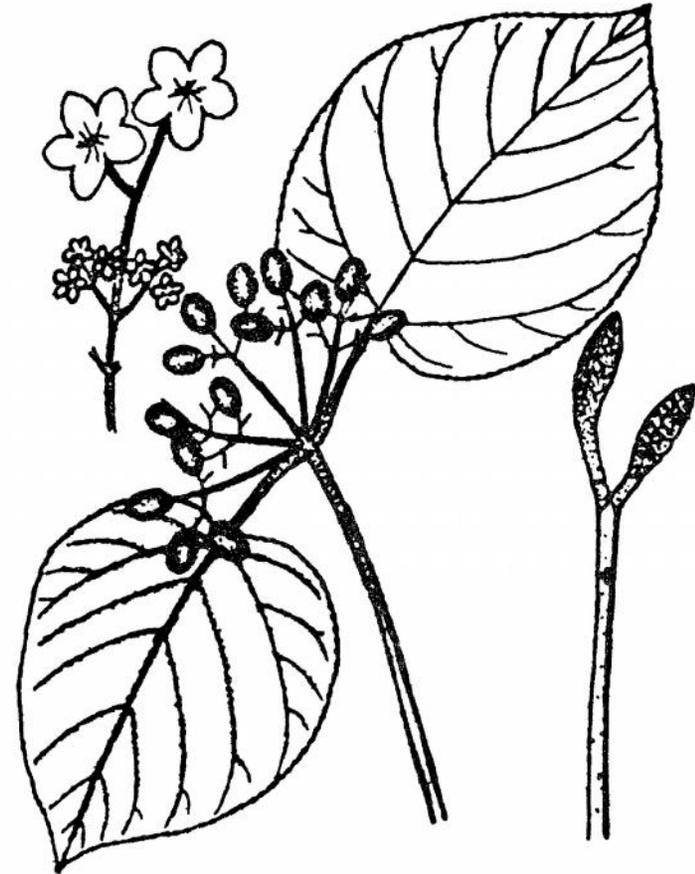
Hemlock and clubmoss illustrations by:

Britton, N.L., and A. Brown. 1913. An illustrated flora of the northern United States, Canada and the British Possessions. 3 vols. Charles Scribner's Sons, New York. Vol. 1: 45.



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## Dyken Pond Environmental Education Center



## Witchhobble Wander Plant Ecology

## Welcome

The Witchhobble Wander is a one mile loop through a Hemlock-Northern hardwood forest. Dyken Pond's location on the Rensselaer plateau, at an elevation of 1622 feet above sea level, gives it distinctly northern elements – trees, plants, and animals which are not found in the lower-lying Capital District. Make sure to watch your step and keep your eyes open. Not everything in the forest is mentioned in this booklet, and you might catch something unique.

### Follow the dark blue trail markers

*Many of the plants along this trail are protected by New York State. Under penalty of law, they may not be gathered from public lands.*

## Trailhead

### Witchhobble - Watch your step

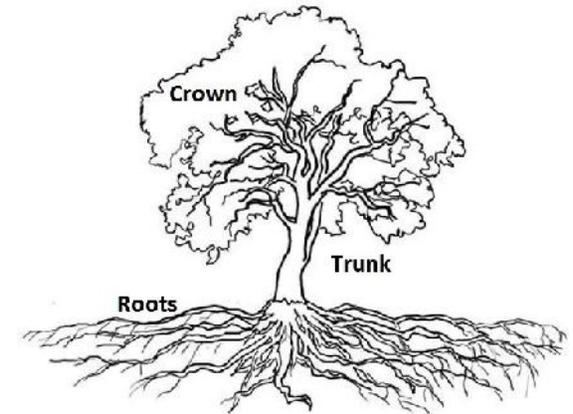
The shrub behind the trailhead sign is witchhobble (*Viburnum lantanoides*). This shrub produces many shoots, and can root at points where buds touch the ground. It has a reputation for tripping the unwary, giving it a variety of names including hobblebush, tanglefoot, and triptoe. Fragrant white flowers bloom in the spring, followed by red berries in the fall, when leaves turn a dark red.



## Post 9

### Tree structure - From the ground up

Along your hike you may have tripped over one of the many gnarled roots crisscrossing the trail. Some plants have a large central root called a taproot that reaches deep into the ground to collect water and nutrients. Others have shallow spreading roots and gather water and nutrients near the surface. These roots hold onto soil and give it structure, playing a role in reducing erosion. In areas where vegetation is clear cut, rainfall can wash away the topsoil, severely reducing the land's ability to support a diverse and healthy ecosystem.



## Post 10

### Tree structure - Reach for the sky

You may be surprised to learn that a tree trunk is composed mostly of dead cells that provide support. The cambium is a thin layer of living cells just under the bark that allows the exchange of water, nutrients, and energy between the roots and the leaves. As the tree grows and expands, it produces a new layer of living cells, adding the old layer to the woody core. This layer also produces a layer of protective bark. The white birch is also known as paper birch. You should never manually remove the bark, as this can damage and even kill the tree.

Feel free to keep this guide, or return it after your hike.

## Post 7

### Lichens - *Two for one*

The light-green, flakey plant growing on many rocks and trees is called a lichen, and is actually a partnership between two organisms: a fungus and an alga. The alga makes food through photosynthesis, and the fungus provides water and anchorage. This relationship, where both partners benefit, is called symbiosis. Working together in perfect harmony, this odd couple can gain footholds on bare rocks and other surfaces. The two organisms together can live in more extreme conditions than either one can tolerate on its own. However, they are sensitive to air pollution and are a good indicator of air quality.

## Post 8

### Wildflowers and sunlight - *Stop and smell the flowers*

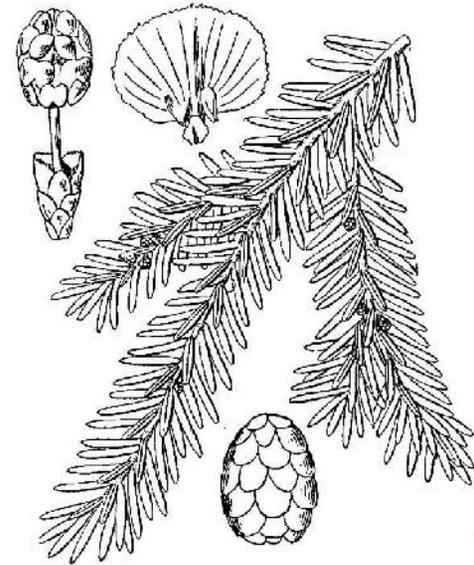
Unless you walk this trail in early spring, you'll notice there are few, if any, wildflowers. The dense shade of the hemlocks prohibits wildflowers from growing here. For a short time every year, after the snow melts in late March and before the hardwood trees leaf out in early May, the forest floor is flooded with sunlight. Conditions then are right for flowering plants to bloom before hardwood leaves shade the understory. Look for trout lilies, painted trilliums, pink lady slippers, goldthread, wood-sorrel, and more. As you leave Dyken Pond today notice how many more wildflowers grow by the roadside where they can take full advantage of the abundant sunlight.



## Post 1

### Hemlock - *Who's the boss?*

The dominant tree along most of this trail is Eastern hemlock (*Tsuga canadensis*). Hemlock is the most important living thing in this forest because it influences the lives of every other organism here. If you look to the left of the trail you'll see that almost all the sunlight is intercepted by the evergreen hemlock, creating dense shade on the forest floor. Light limitation is the most significant way the hemlock affects living conditions in the forest. The hemlock needles you see covering the ground are also quite acidic and affect what is able to grow here.



## Post 2

### Light and shade - *Don't forget your sunscreen*

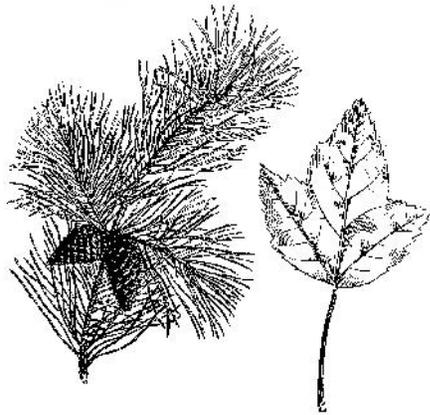
To the right of the trail you'll see what looks like a corridor, free of trees, allowing most of the sunlight to reach ground level. Note the variety of plants that grow in this strip, compared to the few that grow under the trees. This corridor is intentionally kept clear of trees to provide access to utility lines. Many sun-loving plants take advantage of utility lines and roadsides, relying on regular disturbance like mowing to keep the canopy open and prevent other plants from shading them out. A similar process occurs in the forest when a tree falls. A sunny patch is opened and populated with opportunistic plants. Over time, succession occurs, and the clearing fills in until it's occupied by full-grown trees again.

Feel free to keep this guide, or return it after your hike.

### Post 3

#### Leaves and needles – *Just leaf me out of it*

Here you'll see a few species of broadleaf trees. Look for white birch (*Betula papyrifera*), yellow birch (*Betula alleghaniensis*), and black cherry (*Prunus serotina*). Most broadleaf trees are deciduous, meaning they drop their leaves all at once in preparation for winter, when they enter a dormant period until they sprout again in spring. This allows an increased amount of sunlight to reach the ground, which prompts a burst of wildflower activity in the spring before deciduous trees leaf out. Hemlock and most other coniferous trees (think pine and fir trees) are evergreen, meaning they retain their needles throughout the year, and continuously drop small amounts of needles. Light levels remain fairly constant under these trees year round.



**Be sure to bear left at the fork ahead and follow the dark blue trail markers**

### Post 4

#### Understory - *What lies beneath?*

A forest isn't just a collection of trees. Below the trees you have the understory, the smaller plants that grow under the branches of their larger cousins. Here you'll find a collection of shrubs, wildflowers, moss and ferns. The inhabitants of the understory are influenced by the composition of soil, amount of light and rainfall, and even the wildlife living within the forest. These in turn are influenced by the overstory of trees, illustrating that a forest is an interconnected system of organisms all reliant upon each other.

### Post 5

#### Fungi - *The fun guys*

Here you'll see a pile of partially decomposed trees, and you might wonder why we haven't done any housekeeping. Dead and decaying organic matter, like a fallen tree, is an important part of any forest's energy cycle. Look closely and you'll see fungi growing on the fallen trees, in the ground, and even on the trunks of live trees. Unlike green plants, fungi do not absorb sunlight to perform photosynthesis for food production. Fungi are decomposers, absorbing energy from dead organic material, breaking down nutrients locked in solid form and recycling them into a form available for the use of other organisms.



### Post 6

#### Lake Dam - *Controlling the river flow*

Dyken Pond is the primary headwater of the Poestenkill Creek, and it looks a bit different today than it did 150 years ago, when it was 2 small ponds surrounded by wetlands. In 1902, an earthen dam was built to provide hydropower to the mills in Troy, combining the ponds into the current lake of about 180 acres. If you look across the lake you can see the dam which gives Dyken Pond its present shape.

Beavers are considered a keystone species. They alter the surrounding habitat by building dams and flooding the area surrounding their lodges to protect them from predators. Look around for signs of beaver activity. They leave stumps chewed to a point when they collect timber for their construction efforts.