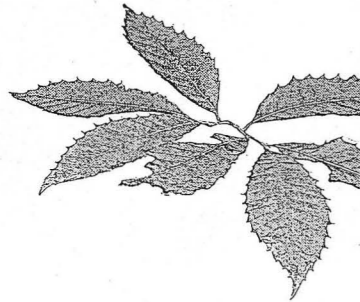


Station 1

The American Chestnut tree could once be found throughout the Appalachian Mountains from Maine to Mississippi. The tree used to be dominant in this area, and its bark and nuts were quite valuable. However, populations have been decimated by a fungal blight. The smooth bark of the young trees will begin to show rust colored vertical cracks with the onset of the blight, which does not allow them to mature enough to send out seeds. Now the survival of the species is based solely on the fact that new growth sprouts from old stumps with living roots. Scientists have long been attempting to grow blight resistant chestnuts in hopes of saving this important species.

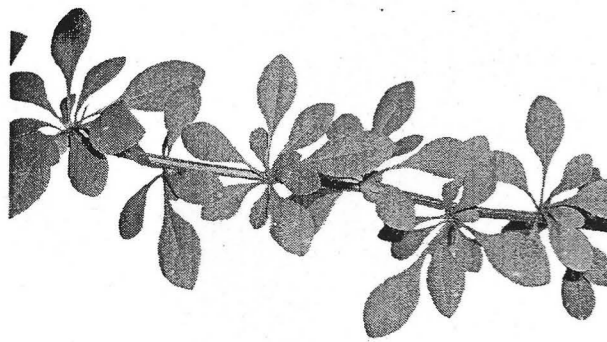
American Chestnut



Station 2

The Common Barberry is a woody shrub that was brought to this country by European settlers. It has thrived here because few animals eat it. Because of this, barberry is often found on sites that have been grazed.

The Dwarf Juniper can also be found in Hayes Woods. The Dwarf Juniper is a small shrub often possessing several erect stems and branches. The 1/2 to 3/4 inch long needle-like leaves are extremely sharp and occur in whorls of three. Juniper is also found in places that have been grazed.



Common Barberry

Station 3

This pond was created by beavers who have since abandoned it. The industrious beaver is known as a "keystone species," meaning it has a great effect on its environment. Beavers build ponds by damming streams. This changes the environment, both for good and bad. Those trees covered by the pond will die, yet the Blue Heron now has a perfect area for its nests. Frogs and other amphibians thrive in the pond's moist environment.

These are common reptiles/amphibians:

Green Frog- green body, brown spotted legs

Bull Frog- large, dull green

Pickerel Frog- tan, undersides of the hind legs are bright orange-yellow

Wood Frog- brown, prominent black "mask"

Spotted Turtle- dotted with yellow or orange spots

Painted Turtle- green carapace with yellow stripes

Northern Water Snake- gray, black cross stripes

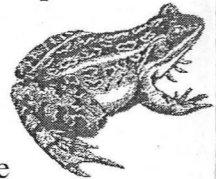
Eastern Ribbon Snake-redish brown, dorsal stripes

Station 4

The geology of the Hayes Woods property can be traced to glaciers, huge ice mountains moving along the earth's surface. The ridges on the property, including the one you are standing on, are known as **eskers** and were caused by huge rivers that once ran through cracks in the glacier. As the rivers flowed, they deposited soils and built a mound on their bottom. When the ice melted and all the water evaporated or flowed away, the hills created at the river's bottom were left.

Kettle holes are another geological feature of Hayes Woods. Kettle holes are formed when huge blocks of ice break off from the glacier and soils are deposited around them. When they melt they leave huge depressions.

Other features on the property include **kames**, **kame terraces**, and a glacial **moraine**



Station 5

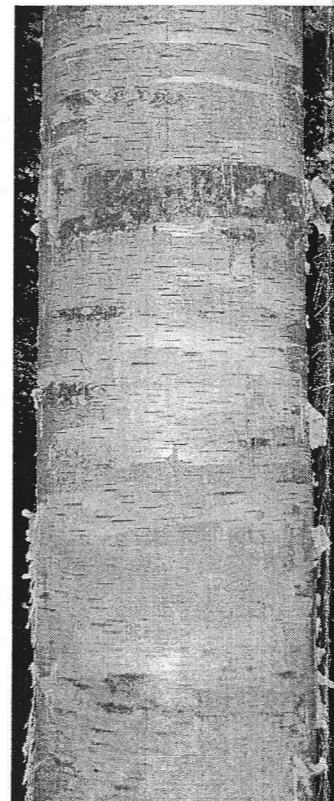
The Lady's Slipper is the best known North American species of orchid. It can also be referred to as the Moccasin Flower. They blossom in a variety of colors, and may grow for up to 10 years before producing a single showy flower, which hangs from the slender stem. Partly because of this, they are a protected species and must not be picked or disturbed.



Lady's Slipper

Station 6

Birch trees are very common in this part of New England. The two main species in this area are the Black Birch and the Paper Birch. The Black Birch is distinguished from the Paper by its longer leaves and the dark color of the bark on older trees. In both species, the bark becomes increasingly plate-like as the tree ages.



Paper Birch

Station 7

This station points out a "light gap" in the forest canopy. A light gap is a small, well defined area that has somehow become clear of large trees, allowing sunlight to hit the forest floor. This allows many young trees, particularly light-loving ones, to spring up.

Station 8

Hemlocks are a dominant species of tree in this area. The Hemlock is an evergreen that reaches 50-80 feet in height, and has dark-green needles, 1/2 inch (or less) long.

The Hemlock is threatened by a parasitic insect called the Woolly Adelgid, which was introduced from China. The Adelgid sucks the sap from young twigs, stunting new growth. With no new growth, the tree can die within a few years. Loss of the Hemlock would have devastating consequences on the area ecology. Deer, for example, depend on the sheltered Hemlock groves for access to the ground in winter.

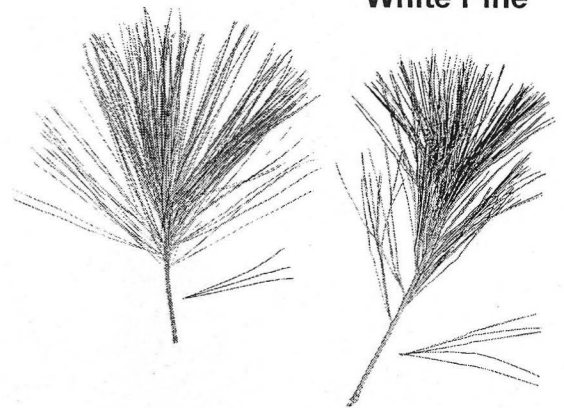


Station 9

Two of the most common types of coniferous trees found in Massachusetts are the White Pine and the Red Pine. You will notice there is a large White Pine to the left side of the trail and a Red Pine to the right. The White Pine is best noted for having five needles to a bunch, whereas the Red Pine has three. The Red Pine or Norway Pine is distinguished from the White Pine because the bark has a slight reddish tint. In the past, Red Pines were often used in reforestation projects.

Red Pine

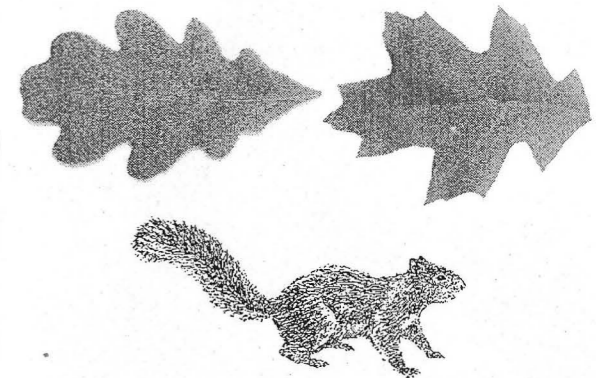
White Pine



Station 10

Surrounding Station 10 are several species of Oak tree. Identifying specific types of oak is difficult, as Oaks interbreed. Two different types of Oak may cross-pollinate, producing a hybrid offspring. Thus there are many possible combinations of Oak types.

Types of Oak found in Massachusetts include the White Oak, Northern Red Oak, Black Oak, and Scarlet Oak



Station 11

The pond is home to the larvae and/or adults of many insects, including: Dragonflies, Mayflies, Mosquitoes, Black Flies, Waterstriders, and dozens of others. Small ponds and pools are important breeding grounds for almost all flying insects.

As you gaze across the pond you may notice several bird species:

Herons

Great Blue Heron- (up to 4ft tall) gray-blue in color, and white about the head.

Green Heron- (16"-22") deep green, with a brown neck.

American Bittern- (23") stalky brown with white stripes on its underside

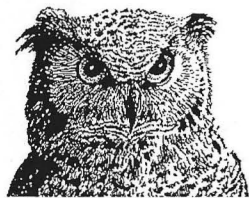
Woodpeckers

Hairy W.- (9 1/2") white underside and black with white speckled wings. Bill length is equal to or greater than the length of the head. Males have a red patch on their heads.

Downy W.- (6 1/2") smaller than the Hairy. Bill is shorter than the length of head. Males have a red patch on their heads.

Ducks

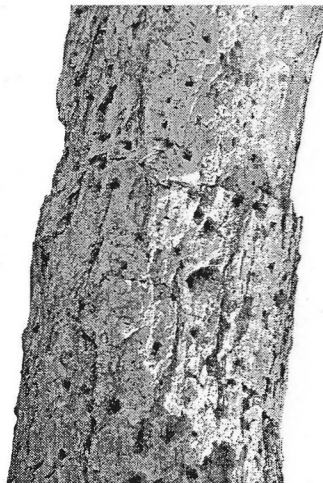
Mallard- (23") male has a green head, while the females heads are a light brown



An unidentified large Owl has been spotted in Hayes Woods

Station 12

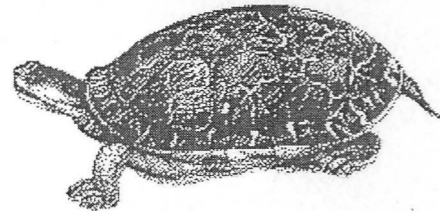
This dead tree has many visible holes in its bark and wood. This is the work of wood boring insects, which have infested the tree and begun the process of decomposition. This generally only happens after the dead tree has fallen.



Station 13

Here you will notice that the trail comes within view of Pepperell Road and the developed property across the street. By remaining undeveloped, Hayes Woods forms a biological "stepping stone" that species can use to move between surrounding conservation areas. It provides a link between Kemp Woods (New England Forestry Foundation) and the Johnston Conservation Area (Groton Conservation Commission). This is part of a larger chain of properties leading from the Squannacook River Wildlife Management Area to a string of conservation areas along the Nashua River. This makes conserving Hayes Woods incredibly important, as the linking of properties is essential to maintaining genetic diversity in area animal populations.

The town of Groton, in general, is an area of staggering diversity. It is on the border of two major biomes, the Eastern Deciduous Forest and the Northern Coniferous Forest. In Groton we find species that exist exclusively north of us sharing habitats with species that live exclusively south.



Station 14

Station 14 concerns a very large, very old White Pine tree. This tree is an example of a "lone wolf" tree. It was here before any of the other trees. Its many low, dead branches indicate that it once received a lot of sunlight, without other trees to block it.



Station 15

Several species of fern can be found along this section of trail. Ferns are common in New England and can be found in low, wooded, swampy areas such as this.

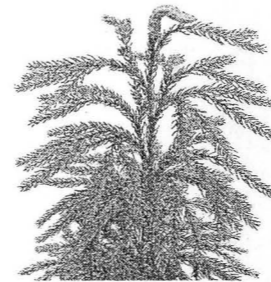
On this property one might encounter the Hay-scented fern, Lady Fern, Sensitive Fern, Cinnamon Fern, Bracken Fern, Interrupted Fern, Christmas Fern, and various Evergreen Woods ferns.



Station 16

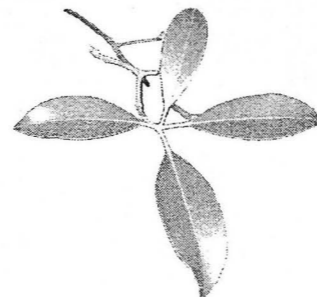
Princess Pine can be found along most of the trail. Princess Pine is a member of the club moss group. Club Mosses are now small but that was not always the case. During the Carboniferous period, 360 to 285 million years ago, Club Mosses could reach 100 ft. in height. The history of these plants is important because they formed most of the world's coal and oil deposits.

The Princess Pine is less than a foot in height and grows best in moist hard wood forests and usually grows in clusters.



Also prevalent along this part of the trail is the Mountain Laurel, which is a native shrub that grows throughout the eastern United States. It is a signature plant on Hayes Woods. In the springtime the hillsides are literally covered in their light pink bowl shaped flowers.

Mountain Laurel



Acknowledgments

Joseph and Elsa Hayes made a gift of this 46-acre parcel to the Groton Conservation Trust in 1994. We are all indebted to them for sharing this beautiful place with us.

Many individuals, groups, and businesses donated their time, expertise, materials, and financial resources to the successful completion of this project. Among those who have contributed are:

- The Groton Conservation Trust
- Michael Veit, David Black, & Bob Pine
- Bev Rodrigues
- Moore's Lumber in Ayer
- Moison Ace Hardware
- Groton House of Pizza
- Main Street Café
- Johnson's Drive-In
- The Rainbow Cafe
- The scouts and adults of BSA Troop 1 West Groton

Without their help, this nature trail would not have been possible.

Groton Conservation Trust

The Groton Conservation Trust is a 501(c)(3) organization whose mission is to:

- Acquire and preserve lands with significant conservation value through means such as donation, purchase, easement, restriction, and limited development;
- Maintain these lands in a manner that is consistent with good conservation practice and the wishes of our land donors and, where appropriate, provide public access for passive recreational activities;
- Initiate and support public education efforts that enhance awareness of conservation and environmental issues.

Contact the Trust Offices at:

Groton Conservation Trust

P.O. Box 395

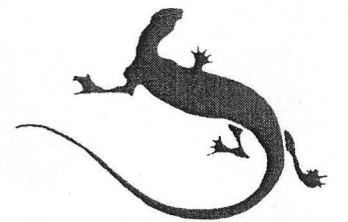
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The Hayes Woods Nature Trail



Groton Conservation Trust

Prepared By:
Brad Taylor, Troop 1 West Groton
as an
Eagle Scout Service Project
November 2002

Hayes Woods Loop Trail Map

Trail Length:
1.24 mi (2.0 km)

