

WOODLAND WALK

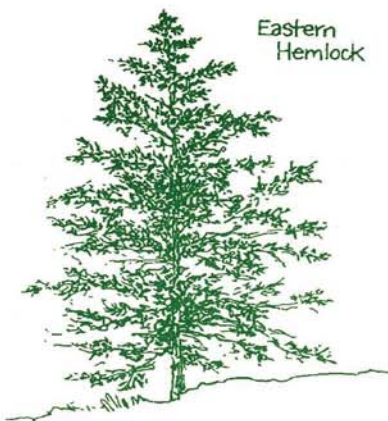
The Friends of the Horticulture Farm invites you to explore the farm's woodland and meadow habitats. The 1/3-mile loop trail begins at the footbridge, north of the Viburnum Collection (see map). Allow 30 to 45 minutes for this easy walk. The numbered stations in this guide correspond to red numbers painted on wooden posts located at key locations along the trail.

As you stroll along the trail, you will learn about plants and animals living here. They are players in an intricate web, linked by the physical environment and various natural processes such as life, death, and rebirth. Use your senses—and imagination—to experience how each tree, bird, mammal, insect, and fungi relates to the others.

1 FOREST SUCCESSION

All forest ecosystems, including this one, are constantly changing. Growth, competition, disturbance, death—and new life—are all elements of change as one community of plants and animals is naturally replaced by another. This process is called succession.

Look up at the overstory, or canopy trees. You see mature eastern white pine (*Pinus strobus*), paper birch (*Betula papyrifera*), and gray birch (*Betula populifolia*). They are pioneer species and become established on disturbed or open land. These trees produce



copious amounts of tiny seeds broadcast by the wind. The seeds grow quickly where they find favorable conditions, namely plenty of light and exposed mineral soils.

Growing in the shade of these mature trees, is an understory of eastern hemlock (*Tsuga canadensis*). As the canopy trees die, shade-tolerant species such as eastern hemlock, take their place.

2 PIPSISSEWA & PARTRIDGEBERRY

Pipsissewa (*Chimaphila umbellata*) and partridgeberry (*Mitchella repens*) are evergreen ground cover plants that often grow near each other in the deep shade of coniferous woods. Pipsissewa, named by Cree Indians, grows 6 to 12 inches tall and produces two to three tiers of shiny, fine-toothed leaves. From July through August it bears fragrant, white to light pink flowers, each with a distinctive ring of reddish anthers.

Native Americans and Civil War soldiers used pipsissewa leaf tea as a treatment for bladder



and kidney problems. Although pipsissewa does have antibacterial qualities, we now know it is toxic, and is therefore no longer used medicinally.

Partridgeberry creeps over the ground forming a mat of small, rounded evergreen leaves veined in white. In spring it has tiny white fragrant flowers in pairs. Each pair produces a single, eight-seeded fruit. Ruffed grouse, sometimes called partridge, as well as wild turkeys eat the fruit.



3 LIFE IN A DEAD BIRCH

Even in decay, this dead paper or white birch with its cracked and peeling bark teems with life. The large, oval and rectangular excavations in the tree were made by the crow-sized pileated woodpecker. This woodpecker, with its prominent red crown and crest, digs in search of wood-boring larvae and adult insects, such as carpenter ants, that live in dead or dying trees. Notice the scratch marks the woodpecker made while clinging to the tree.

Tough, hoof-shaped conks protruding from the trunk are the reproductive bodies of a wood-decaying fungus (*Fomes igniarius*). The main part of the fungus is a mass of threadlike structures, called mycelia, that extend deep within the trunk. The mycelia absorb food energy stored in the rotting tree. Then, when the fungus dies and decays, the minerals and other nutrients from the tree are released into the soil.

4 THE EDGE OF THE FOREST

Notice the growth forms of the trees that surround you. Trees in the forest compete for light by rapid vertical growth, resulting in tall, relatively straight trunks and small crowns.

In the open, trees collect more light by extending their leafy branches outward. The sugar maple (*Acer saccharum*)

and bitternut hickory (*Carya cordiformis*) saplings along the edge of the woods are extending their branches into the open field. You can identify the bitternut hickory by its compound leaves (leaves consisting of several leaflets) and sulfur yellow leaf buds.



The low-growing saplings, with their tangled branches, create a protective habitat for small mammals and birds such as the red-eyed vireo. The buds of the trees are within easy reach for browsing deer.

As you leave the woods, turn and look

back. Just to the left of the trail is a tall sugar maple with an open growth form. The broad shape indicates the tree spent much of its life growing in an open field.

Continue on the path, through the Small Tree Collection to Station 5.

5 BLACK LOCUST

The large trees with deeply furrowed bark are black locusts (*Robinia pseudoacacia*). This tree is native to much of the mid-western and eastern U.S. and has naturalized in Vermont.

In late spring extremely fragrant flowers resembling pea blossoms appear in drooping clusters. Bees love the flowers and produce a delicious honey from the nectar.

The black locust is in the pea, or legume, family and shares the characteristic long seed pods, compound leaves, and the ability to take nitrogen gas from the air and convert it

into a form that can be used by plants. This additional supply of nourishment enables the locust to survive in sandy, nutrient-poor soil.

The hard and durable black locust wood was once prized for shipbuilding. Recently, researchers have discovered how to extract a wood-protecting fungicide from the tree.

Cross the brook and service road, and then reenter the woods.

6 THE BLOWOUT

To this point on the trail, you have been exploring plant communities. Now, for a moment, try to imagine this site without vegetation—concentrate on the shapes and contours of the land.

As you will notice, you are standing on a small knoll. Just ahead on the left side of the trail is a low, flat depression. We speculate that the knoll is actually a sand dune, created

from sand blown out of the depression beyond. Sandy soils are common at the Horticulture Farm. The sand was deposited 10,000 to 12,000 years ago when the area was a river delta. At that time Lake Champlain was an inland arm of the Atlantic Ocean and covered this area. The land was much lower then, having been depressed by the weight of the glacier that had covered New England.

7 MEADOW LIFE

The meadow before you is home to a myriad of small animals, particularly insects and spiders. These animals are widespread in Vermont but cannot survive in forests. Meadows in the Burlington area have been increasingly displaced by urbanization, making this meadow reserve important to the survival of local species.

Apart from the annoying blackfly and mosquito, most of the insects are not readily noticeable. Butterflies, however, stand out because of their size and color. In summer, look for the monarch butterfly as she lays her eggs on the leaves of milkweed plants. The eggs hatch into smooth

caterpillars, which eat the leaves and grow to about 2 inches long. They have black, white, and yellow stripes, and two black horns at each end.

Another meadow insect with visible signs of activity is the golden gallfly. In May, this fly lays eggs in the upper stems of goldenrods, and by the end of the season inch-wide round galls surround the feeding larvae. Birds such as the downy woodpecker, peck away at the galls and dine on the larvae inside.

8 STREAM-SIDE WILLOW

To your right at the stream's edge is a spreading willow (*Salix* species). Willows are identified by their flexible branches, long narrow leaves, and a single caplike scale that protects each oval leaf bud. Both male and female flowers lack petals. They are borne in compact, drooping clusters called catkins, interestingly, on separate trees. One willow tree bears only female flowers, while another bears

only male.

Willows are very attractive to a number of insects including bees, the mourning cloak butterfly, and tiny shining willow beetles. The willow leaf is used by the viceroy butterfly caterpillar as a protective covering.

Cross the stream and turn right.

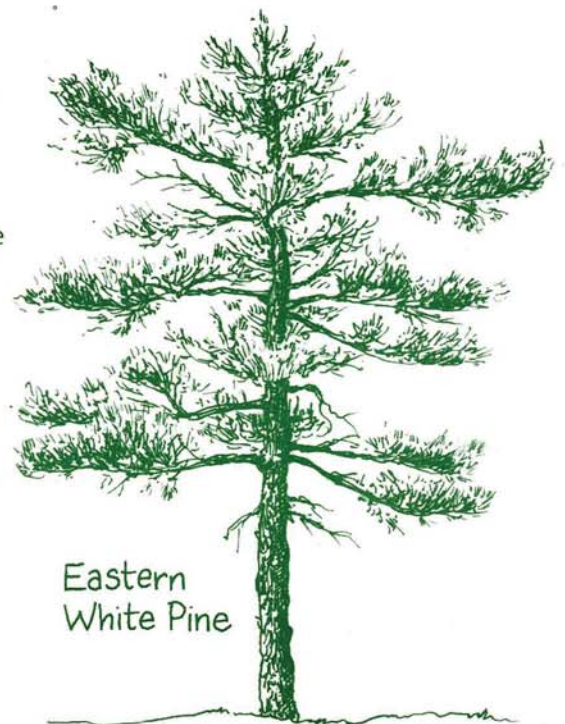
9 EASTERN WHITE PINE CORRIDOR

At this final station, notice how the path meanders through a corridor of eastern white pines. They are easily identified by their pliable needles in bundles of five. The branches on young trees grow upward, while on older trees they are horizontal. From a distance, the trees have a soft, feathery look.

The pines begin flowering around age 20 years. In May and June, yellow cone-like pollen-bearing blossoms appear on new shoots of the lower branches. At the same time, small pink cone-bearing flowers develop high in the crown. The wind-pollinated seed cones mature for two years before releasing their seeds.

The eastern white pine is the largest pine east of the Rocky Mountains. Early lumbermen reported trees with trunks six feet in diameter and crowns reaching 250 feet high. Some trees of virgin forests lived from 250 to 300 years. Today, most pines are harvested commercially for lumber when 60 to 80 years old, with trunks measuring 16 to 24 inches in diameter and crowns 80 to 100 feet tall.

We hope you have enjoyed your woodland walk. When you visit other sites in the Champlain Valley, or elsewhere in Vermont, look for clues as to how the plants and animals you see relate to each other and their environment. Compare the relationships to those you have observed along the trail today.

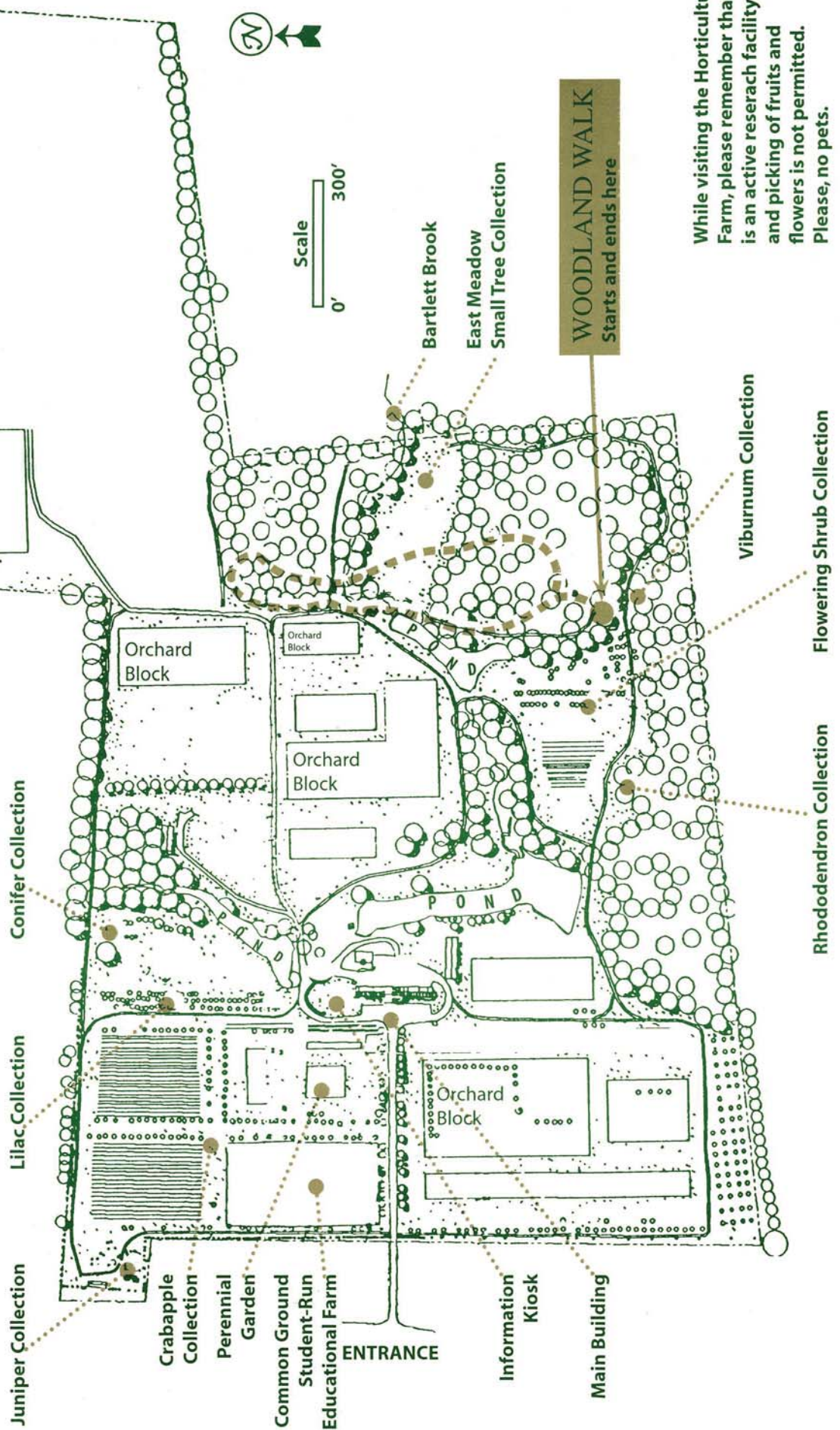


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SOUTH BURLINGTON, VERMONT

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While visiting the Horticulture Farm, please remember that it is an active research facility and picking of fruits and flowers is not permitted. Please, no pets.