

Forest Hill Preserve – Interpretive Guide

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1. Welcome to Forest Hill Preserve (“A Learning Woods”).

Before you enter the woods, or any other natural area in New Jersey, you should learn to identify poison ivy (*Toxicodendron radicans*). This common woody vine can grow up the sides of trees and produce branches that look like tree branches. It can also grow along the ground and look like a tree seedling, and in coastal areas grows takes the form of a bushy shrub. Helpful rhymes to remember are “Leaves of three, let it be” – noting the three leaflets comprising each poison ivy leaf, and “Hairy rope, don’t be a dope” – noting the appearance of the vine as a brown, hairy rope. The leaves are also typically shiny and with a few small lobes or teeth near the leaf base, and it produces white berries in the late summer and fall. These berries are important food sources for birds, which are immune to its poison, especially during fall migration. Watch the poison ivy foliage turn a lively orange-red in the early fall, which helps attract birds to find its berries and disperse them in their travels south. Take note that all parts of the plant contain the toxin, urushiol, which can cause harsh irritation and itchiness of the skin, even after the plant is dead. If you come into contact with poison ivy, wash affected areas with soapy water.



2. The Forest Hill Preserve was formerly a tree nursery that was abandoned several decades ago and is now in the process of returning to a natural forest environment. However, remnants of its former uses are still evident in the forest. Notice the lines of planted trees planted, usually in groups of similar types. Many of the trees still have plastic shields around their base to protect them from herbivory and/or remnants of wires and stakes that were attached to help them stay upright. Common planted trees include Callery Pear (*Pyrus calleryana*), Norway Maple (*Acer platanoides*), and Weeping Cherry (*Prunus pendula*). As with many landscape plants, several of these trees are exotic and highly invasive – spreading into our natural areas and competing with native species. Other planted trees that are less problematic are the native Basswood (*Tilia americana*) and Red Oak (*Quercus rubra*) and the exotic, but non-invasive, Gingko (*Ginkgo biloba*). As you walk through the woods, see if you can identify which trees were planted, and which have grown up here on their own.



3. At this meeting of different trails, a greater amount of light reaches the forest floor, allowing for greater abundance and diversity of herbaceous plant species. Here you will find native wildflowers like Goldenrod (*Solidago*), Dogbane (*Apocynum*), and Beardtongue (*Penstemon*), as well as exotic invasives like Knapweed (*Centaurea*).



4. Here we have a small, natural light gap created by some small trees blowing down in a recent storm. Again, see the greater amount of light entering the forest compared to surrounding areas, and the increased amount of plant growth on the forest floor. These light gaps are important areas for the regeneration of trees that are less shade tolerant. Notice the Eastern red cedar (*Juniperus virginiana*), black cherry (*Prunus serotina*) and white ash (*Fraxinus americana*) saplings where the elms (*Ulmus* spp.) have fallen.



5. When a tree falls down its roots often pull up a great deal of soil, leaving a shallow depression at the base. As the tree rots, the soil will pile up, leaving a distinct feature known as “pit-mound” topography. These subtle changes in elevation can create valuable niches for a variety of species. The “pits” often fill with water, for example, creating breeding habitat for frogs and salamanders, and the increased shade and moisture can support certain mosses, wetland plants and insects, and/or other species that may only appear in these types of places in the forest. As generations of trees fall down over time, this land that was leveled by farmers will

become increasingly variable or “heterogeneous,” creating more and more ecological niches able to support a greater and greater diversity of species.



6. Larger light gaps such as this typically occur where large trees have fallen, or groups of trees were felled by storms or human activity (i.e., logging). In this particular gap, you can see the droopy canopies of the weeping cherry, taking the fullest advantage of the light along the edge, as well as a very thick cover of shrubs and lianas (woody vines). These places are great for berry picking. See the native, edible Blackberry (*Rubus allegheniensis*), Black Raspberry (*Rubus occidentalis*), and Grape (*Vitis* spp.) – but don’t eat the Virginia Creeper (*Parthenocissus quinquefolia*) or Pokeweed (*Phytolacca americana*) berries that can also be found here! As important as these light gaps are for native trees, flowers and shrubs in the forest, they are also the primary entry point for many invasive species in the forest. Many of these species also need greater amounts of light and benefit from the soil disturbance that happens when trees fall or are cut down. Note the thick growth of exotic, invasive shrubs and lianas such as Japanese Wineberry (*Rubus phoenocolasius*), Multiflora Rose (*Rosa multiflora*), and Olive (*Eleagnus*).



7. Here we have the largest clearing in the forest. Note the presence of the large snag (standing dead tree), which provides perch sites for predators, foraging habit for woodpeckers, and nest sites for cavity nesters. Many of the trees on the edges of the clearing show signs of damage in their upper branches, likely from the greater wind

exposure resulting from the size of the clearing and the natural slope of the terrain. Again, note the thick shrub cover and the prominence of invasive species present.



8. The edge of the forest is an excellent place to observe the rich diversity of natural ecosystems compared to many human-made environments. See how much less species diversity and complexity exists in the farm field compared to the adjacent forest environment. Also notice the hotter, drier and windier conditions in the open environment compared to the forest interior. These conditions have important effects on the forest as well – notice the many trees that have blown down inside the forest, falling away from the winds that came from the open fields. See how the greater amount of light and disturbance increases the growth of plants and of invasive species. Along this forest edge you can also find the largest and oldest trees in the forest, many of which were planted or grew along the borders of two different farm fields. You can see these trees on the 1932 aerial photographs of the property, indicating that they were here even before the nursery was planted.



9. In this area you can clearly see the process of forest succession in action. At some point this part of the farm field or nursery was abandoned and the open area was colonized by Eastern Red Cedar trees (*Juniperus virginiana*), which can only grow well in full sunlight. Eventually, other, taller species of trees grew up and over them, however, and the cedars experienced too much shade and died. This next stage of forest development, with Black Cherry (*Prunus serotina*), White Ash (*Fraxinus americana*) occupying the canopy, will eventually be replaced by other trees that are able to grow up in the shade beneath these trees, such as maple, beech and others. The passing of the cedars, in turn, will make room for other species of understory shrubs and trees that thrive in the shade beneath the forest canopy, such as Viburnum (*Viburnum*), Dogwoods (*Cornus*), Blueberries (*Vaccinium*), Witch Hazel (*Hamamelis virginiana*) and Ironwood (*Carpinus caroliniana*).

10. See how changes in the terrain lead to changes in hydrological conditions. Note the small, ephemeral stream that drains water from the top of the hill and leads to wetter conditions as the ground levels out again and the clay soil prevents the water from easily draining away. Here you will find plants that are adapted to wetter conditions, such as the Pin Oak (*Quercus palustris*) and a variety of fern species, such as Sensitive Fern (*Onoclea sensibilis*), Christmas Fern (*Polystichum acrostichoides*), and Wood Ferns (*Dryopteris*). The seeds of the exotic, invasive Japanese Stiltgrass (*Microstegium vimineum*) are also dispersed by water, and note how extensively it has covered the floor of the forest.



11. Here the cedars and other trees have fallen, leaving logs on the forest floor. Fall trees and logs also provide important habitat for a wide variety of wildlife, including salamanders, fungi, small mammals and decomposers. As the trees and woody debris rot, their nutrients break down and return to the forest floor, helping to fertilize the other plants that are now growing there. What do you think would happen to the diversity of plants and animals in the forest over time, if these logs were continually removed for firewood or other purposes?



12. Watch where you step! All around you there are holes in the forest – can you tell what caused them? Is this the kind of natural “pit-mound” topography we observed where trees fall down? The answer is no – see how the “mound” is lacking from these pits, indicating that these were trees dug out of the ground while the nursery was still in business. Observe the characteristics of these human-made pits – do they support the same diversity of conditions and species that the natural pit-mounds?

13. This grove of exotic, invasive Norway maple trees (*Acer platanoides*) is the focus of a restoration and education project by Raritan Valley Community College. See how few plants grow underneath the deep shade of the Norway Maples, and how few other species are present in this part of the forest. The students from the College collect sap and make maple syrup from these trees each winter to raise money for student conservation internships and teach the community about maple syrup production and invasive species. By over-tapping the trees (5-10 taps per tree) they are also attempting to weaken the trees by depleting their nutrient reserves, thus allowing for greater regeneration of native tree species over time.



14. Know your trees? There are at least 23 species of trees in the Forest Hill Preserve. Along the trail you will find signs that identify the tree. Have your smart phone with a QR reader? Snap the QR code on the sign to find out more about the tree.

Forest Hill Preserve is under administration of Readington Township, Open Space Advisory Board. Funding for the improvement of the woods, including benches, interpretive signs, tree labels, deer enclosure and trail cleanup was made possible by a PSEG Foundation/Sustainable Jersey Small Grant. Completed in 2016.

For information contact the Township Office 908-534-4051.