

Winnakee Nature Preserve

Educational Arboretum



A Guided Walk Through a Historic Hudson Valley Forest

The Winnakee Nature Preserve Educational Arboretum was funded in part by the Barnabas McHenry Award from Open Space Institute

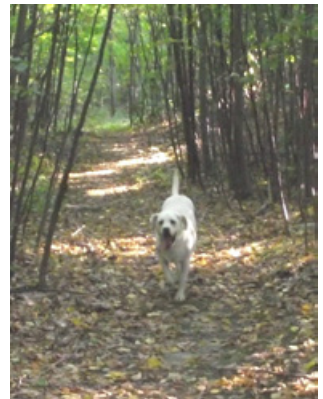
In honor of Barney McHenry’s contributions and accomplishments, the Open Space Institute has established and administers an award to celebrate his leadership and foster future leaders in the Hudson



River Valley. The annual award is used to provide financial support to promising young leaders and exemplary projects that make significant contributions to environmental protection, historic preservation, and the arts in the Hudson River Valley. This

prestigious award was granted to Marist College student Erin Hoagland in 2012, sponsored by Winnakee Land Trust.

Additional support was provided by the National Park Service and the Hyde Park Trails Committee, with funding from the Seth Lyon Trails Fund. Seth Lyon was a member of the Hyde Park Trails Committee, an avid recreational hiker, and an environmental educator.





Welcome to the

Winnakee Nature Preserve Educational Arboretum

The Winnakee Educational Arboretum was established with several purposes in mind: to educate visitors about the trees in a Hudson Valley forest, whether they are important indigenous species, threatened valuable habitat, or damaging invasive species; to inform visitors about the historic role this particular forest played in President Franklin D. Roosevelt's environmental education; and to bring people into this woodland to closely examine and appreciate its diversity and beauty.

Winnakee Nature Preserve conserves part of the estate of Colonel Archibald Rogers, a neighbor and close friend of the Roosevelt family. The historic culverts, canals, and



trails within are artifacts of Rogers' 19th-century innovations in forest management. Some of the trees on the tour date from this period, while others are recent introductions. This arboretum is an opportunity to slow down and notice details that speak to us about the ever-changing world of the forest.

The tour is approximately 1.1 miles long, with rolling hills and sections of moderately steep and rocky terrain. A **key of icons** on each page indicates the particular characteristics of a tree or feature. A **glossary of terms** is included at the back of this guidebook. A **teacher's guide** for this tour is available from Winnakee Land Trust, info@winnakeeland.org or 845-876-4213.

Arboretum Stops

- | | |
|-----------------------|-------------------------|
| 1. Eastern Redbud | 19. Basswood |
| 2. American Sycamore | 20. Canals |
| 3. Trees for Tribes | 21. Pignut Hickory |
| 4. Black Cherry | 22. Hogback |
| 5. Tree of Heaven | 23. Northern Red Oak |
| 6. Pin Oak | 24. Eastern Black Oak |
| 7. Historic White Oak | 25. White Oak |
| 8. Japanese Barberry | 26. Witch Hazel |
| 9. White Ash | 27. Sugar Maple |
| 10. Spicebush | 28. Red Maple |
| 11. Tulip Tree | 29. Black Locust |
| 12. American Hornbeam | 30. Chestnut Oak |
| 13. Norway Maple | 31. Eastern White Pine |
| 14. Black Birch | 32. American Beech |
| 15. Shagbark Hickory | 33. Logging |
| 16. Norway Spruce | 34. Black Birch Thicket |
| 17. Eastern Hemlock | 35. Mockernut Hickory |
| 18. Carriage Roads | 36. Eastern Hophornbeam |

Trails

P Parking

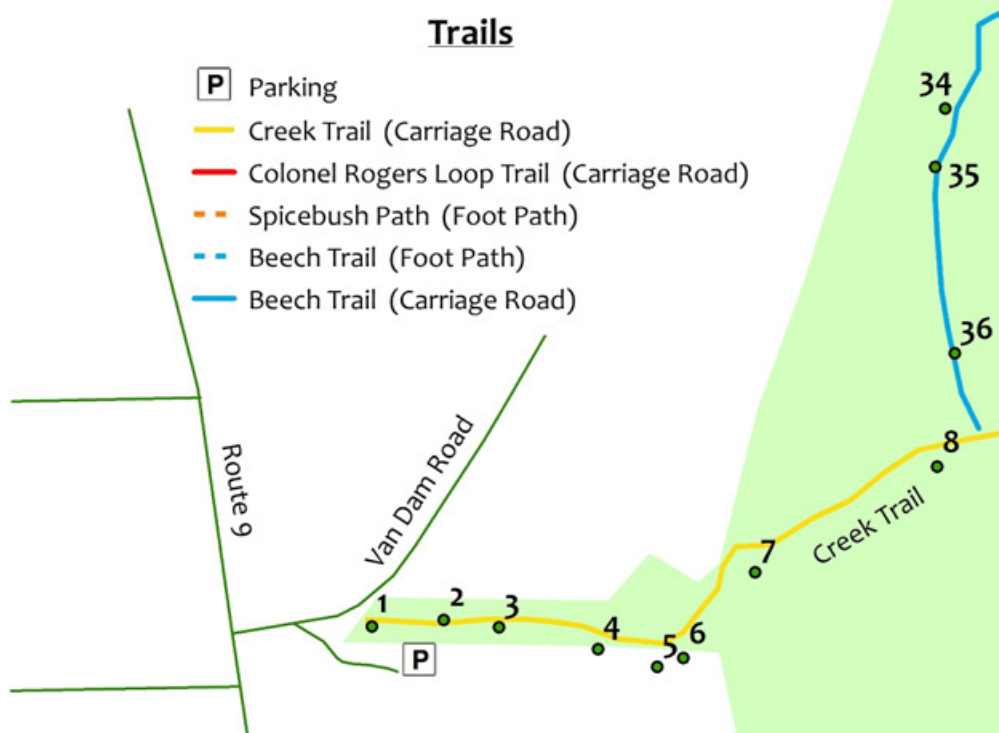
— Creek Trail (Carriage Road)

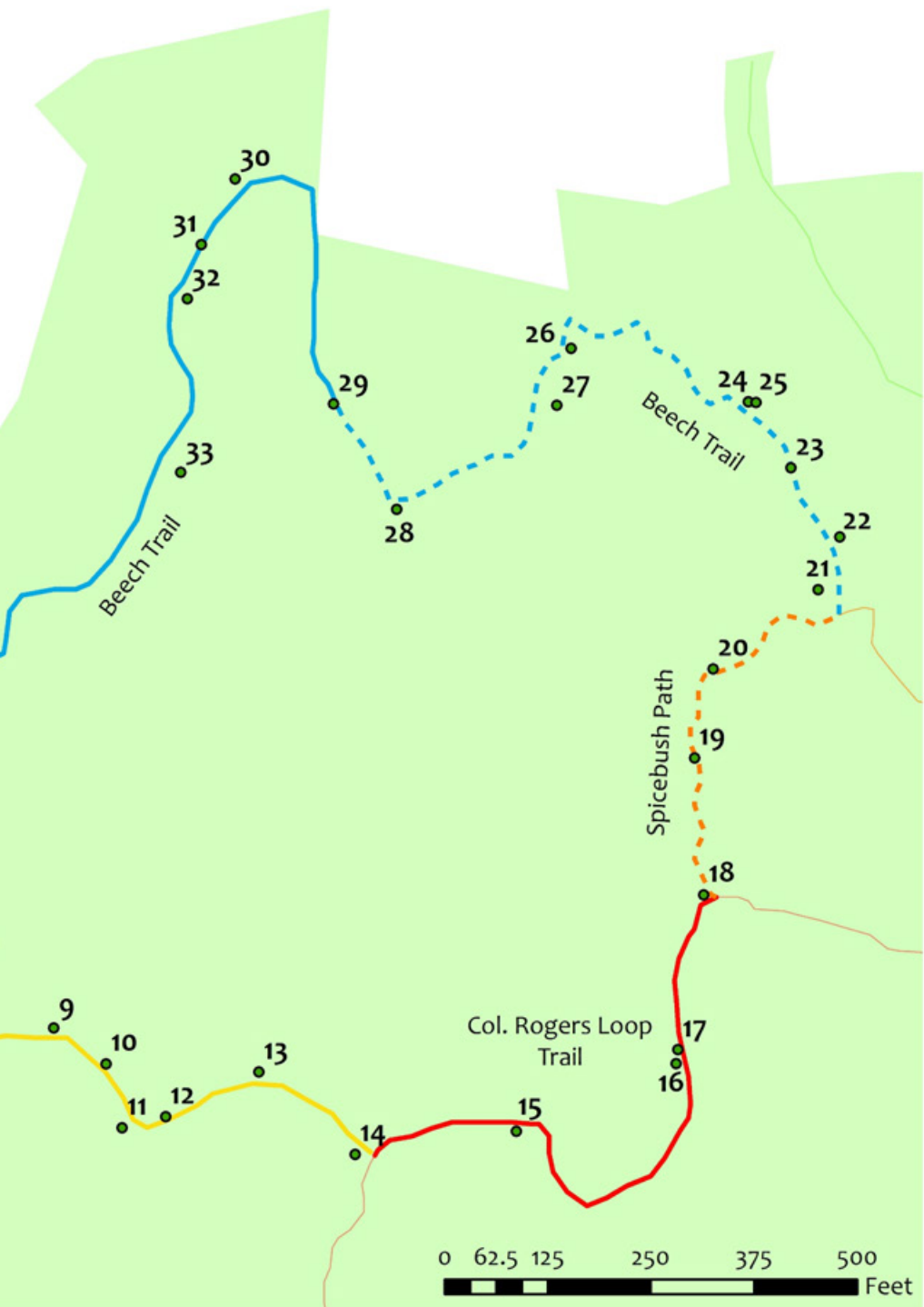
— Colonel Rogers Loop Trail (Carriage Road)

- - - Spicebush Path (Foot Path)

- - - Beech Trail (Foot Path)

— Beech Trail (Carriage Road)





1. Eastern Redbud



Cercis canadensis



With its spreading crown and brilliant spring flowers, eastern redbud is a popular native landscaping tree. This particular tree was planted in memory of Seth Lyon, who was an active member of the Hyde Park Trails Committee as well as an avid hiker and dedicated environmental educator.



Redbud flowers are edible and a good source of vitamin C. They were often eaten fresh or pickled by native Americans and colonists. The flowers are also important in some areas as a source of nectar for bees producing honey.



Identification

Bark	Smooth, dark gray-brown when young. Furrows with age.
Branching	Alternate
Leaves	Simple, heart-shaped leaves with smooth edges. May have slightly hairy underside.
Fruit	Small, oval, chestnut-brown seeds in a 2-4" long bean-like pod.



2. American Sycamore



Platanus occidentalis



American sycamore is one of the largest trees in our northeastern forests and commonly grow well over 100' tall and 4-6' across. Sycamores also grow quickly: 1-year-old seedlings may reach 10' in height. They are tolerant of urban conditions, making them ideal street trees.



Sycamore wood is exceptionally resistant to splitting and is commonly used to make butcher blocks for this reason.



Identification

Bark Large brown flakes peel to reveal smooth patches of green and white or yellow trunk.

Branching Alternate

Leaves Wide, 5-lobed leaves with coarse teeth. Smooth above, hairy along veins on underside. 4-9" across.

Fruit Round heads, 1" across, made up of tightly packed fluff with seeds attached.



3. Trees for Tribs



The tributary that runs through Winnakee Nature Preserve flows directly into the Hudson River. As an urban stream, it is subject to runoff from nearby roads, sidewalks, and parking areas, as well as the road salt and other pollutants that runoff carries.

Winnakee Land Trust has partnered with the New York Department of Environmental Conservation’s Hudson River Estuary Program to plant native trees and shrubs around the entrance to the Winnakee Nature Preserve. Native plants such as buttonbush, Virginia rose, and black birch slow the flow of runoff into the creek, filtering pollutants and allowing more water to soak into the soil.



Stream corridors with healthy native vegetation provide valuable wildlife habitat, reduce flooding and erosion, and improve the health of the stream and ultimately the Hudson River.

Thanks to the DEC’s Trees for Tribs program for providing trees, shrubs, and the opportunity to enhance the health of our Preserve.



TREES FOR TRIBS
Hudson  Estuary

For more information, visit: www.dec.ny.gov/lands/43668.html



Canopy Tree



Shrub/Understory



Historic



Wildlife

4. Black Cherry



Prunus serotina



Black cherry trees are highly valued in making furniture. Their richly colored, fine-grained wood is often applied as a veneer over less expensive woods.



Black cherry fruits are a valuable food source for wildlife. They are eaten whole by raccoons, foxes, and coyotes, and the seed inside the fruit is often gnawed open by mice, chipmunks, and other rodents.

The bark of black cherry twigs has a noticeable almond scent when scratched.



Identification

Bark Dark. Smooth when young, breaking into “burned potato chip” flakes as it grows.

Branching Alternate

Leaves Simple, lance-shaped leaves with finely serrated edges. Back develops fine orange hairs along main vein by late summer.

Fruit Clusters of small, dark cherries.



5. Tree of Heaven



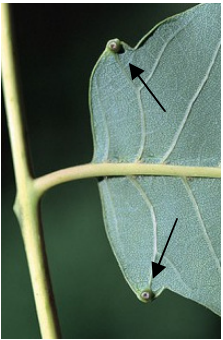
Ailanthus altissima



Tree of Heaven is a widespread invasive tree. Originally from Asia, it was widely planted in America beginning in the late 18th century, when all things Chinese were fashionable and it was viewed as a desirable specimen.



Tree of Heaven reproduces prolifically from both seeds and root sprouts. It quickly invades new areas, where toxins released by its roots can make it difficult for native plants to grow. Used in traditional Chinese medicine, the Chinese name is *chouchun* - “stinking tree” - for the odor released by oil glands at the base of each leaf.



Identification

Bark Gray-brown. Smooth with light-colored grooves or spots.

Branching Alternate

Leaves Pinnately compound leaves, 12-48” long with 10-42 leaflets. Strong “old peanut-butter” odor.

Fruit Large clusters of papery oval wings, each with one circular seed in the center.



6. Pin Oak



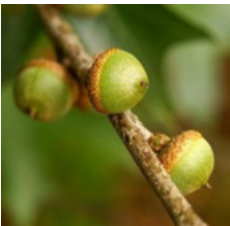
Quercus palustris



Pin oak is a relatively small, short-lived oak. The specimen here is somewhat unusual for a northern pin oak—though the Latin name *palustris* means “swamp,” many pin oaks in the northeast are found in relatively dry upland areas.



Pin oaks, like the larger scarlet oaks, are poor self-pruners. This means they don't shed dead branches easily, which results in a “skirt” of shaggy-looking dead lower branches. Pin oaks are usually smaller than scarlet oaks, however, with significantly smaller acorns and narrower leaves.



Identification

Bark Gray-brown. Thin, with shallow dark furrows.

Branching Alternate

Leaves 5 pinnate lobes with very deep sinuses and bristle-tipped teeth. 3-5” long.

Fruit Tiny, hard-shelled acorn 1/3-1/2” long. Thin cap covers 1/4 or less of acorn.



Native Plant



Non-Native/Invasive Plant



Under Threat

7. Historic White Oak



Quercus alba

**Identification information at Stop 25.*

This particular tree is a relic of a time when this area was open field. When land was cleared for agriculture, solitary trees were left behind—as shade for livestock, or because they grew in a spot too wet or rocky to be useful for farming, or for one of many other reasons. These lone trees grew in full sun, which allowed them to develop thick trunks and spreading crowns of low branches that would ordinarily be shaded out by other trees.



When farmland was abandoned and allowed to grow back into forest, these large trees remained, holdovers from another time. Sometimes known as “wolf trees,” they provide old-growth habitat in new-growth forests. Wolf trees are

used more often by more species of mammals and birds than surrounding, younger competitors.

“We know from simple deduction that the oak trees in these fields grew up in open fields as is proved to us by their wide spreading lower branches....”

-Franklin Delano Roosevelt



8. Japanese Barberry



Berberis thunbergii



Japanese barberry is an ornamental shrub that has invaded many forests in the northeastern United States. Familiar as a garden plant or hedge, in forests it can form dense mats of thorny vegetation. Deer avoid eating it, giving barberry a survival advantage over many native understory plants.



A native species, the American barberry, is found in the Appalachian states. Its appearance is very similar to Japanese barberry, but American barberry has serrated leaves and somewhat different flowers.



Identification

- | | |
|------------------|--|
| Bark | Brown to reddish, spiny. |
| Branching | Alternate |
| Leaves | Simple, spoon-shaped leaves clustered in groups of 3-5. Single sharp spine at the base of each cluster. 1/2-1 1/2" long. |
| Fruit | Hard, oval, bright red hanging fruits. |



9. White Ash



Fraxinus americana



White ash is the most valuable timber ash, famed for its use in baseball bats. It is also commonly planted to re-vegetate disturbed areas. Historically the leaves were put into shoes and socks as a snakebite preventative.



White ash is currently under threat from the Emerald Ash Borer, an invasive Asian beetle whose larvae burrow into the trunks of ash trees to feed on the inner bark. Trees typically die within 2-4 years of becoming infested. Over 50 million trees have been destroyed since the discovery of the Emerald Ash Borer in North America in 2002.



Identification

Bark Gray, furrowed with interwoven diamond pattern.

Branching Opposite

Leaves Pinnately compound with 7 smooth, lance-shaped leaflets.

Fruit Long, narrow wing with a plump oval seed at one end.



10. Spicebush



Lindera benzoin



Spicebush is one of the earliest plants to flower in our forests; clusters of small yellow flowers appear as early as mid-April. It is one of several plants in the Hudson Valley that are “dioecious”, meaning that it has separate male and female plants. Both have flowers, but only female plants bear fruit.



Spicebush leaves and fruits are an important food source for wildlife, including deer, raccoons, rabbits, opossums, and many species of birds. People brew tea from spicebush leaves, and dried berries can be crushed and used to season meat.



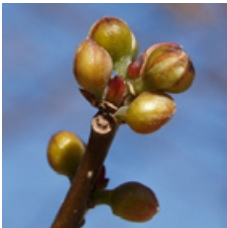
Identification

Bark Smooth, dark bark with raised, light-colored speckles.

Branching Alternate

Leaves Simple leaves with smooth edges, tapered to a point at both ends. Spicy odor when crushed. Flower buds visible all winter as bright green balls.

Fruit Firm, oval red berries, 1/2” long.



11. Tulip Tree



Liriodendron tulipifera



Also known as tulip poplar or yellow poplar, the tulip tree was Franklin Roosevelt's favorite tree. He had several areas of his Hyde Park property planted with tulip trees, many of which can still be seen today.

Tulip trees are one of the few species to have bark furrows which are significantly lighter in color than their ridges. They also have unique, tulip-shaped flowers in spring and bright yellow fall foliage, making them desirable ornamental trees in landscapes large enough to accommodate their impressive stature.

Identification

- | | |
|------------------|--|
| Bark | Gray ridges with light-gray to white furrows. |
| Branching | Alternate |
| Leaves | Simple, 4-lobed leaves with rounded sinuses, resembling the profile of the tree's tulip-like flowers. 4-6" long. |
| Fruit | Woody wings clustered around a central spike. |

12. American Hornbeam



Carpinus caroliniana



Also known as ironwood, musclewood, and blue-beech, the American hornbeam is a native that requires relatively deep, moist soils to grow well. This species is a very slower grower and rarely found larger than this specimen.



American hornbeam wood, as the alternate name ironwood implies, is very hard and difficult to work with. It is sometimes used to make mallets and golf club heads. Historically it was the preferred wood to use when making pegs for construction of timber-frame barns.



Identification

Bark Very smooth and silvery gray, appearing to be stretched over a flexed muscle.

Branching Alternate

Leaves Simple, lance-shaped leaves with doubly-serrated edges.

Fruit Tiny nut encased in a leaf-like wing. Hang in clusters.

13. Norway Maple



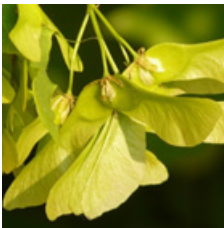
Acer platanoides



Norway maple was commonly planted as a street tree in the northeastern U.S. because of its tolerance of dry conditions and pollution. It has escaped cultivation and invaded many areas, where it can be found growing alongside native maple species. In some places Norway maple is replacing native maples, and planting it is no longer recommended.



Many people are familiar with the cultivar “Crimson King,” which is commonly used as a landscaping tree for its deep purple-red summer foliage.



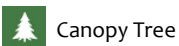
Identification

Bark Light brown, with shallow furrows and vaguely diamond-patterned ridges.

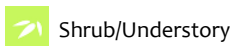
Branching Opposite

Leaves 5-lobed leaves with large teeth and U-shaped sinuses. Similar to sugar maple leaves, but larger, with a longer petiole. Milky sap.

Fruit Winged, flat seed at one end.



Canopy Tree



Shrub/Understory



Historic



Wildlife

14. Black Birch



Betula lenta



Also known as sweet birch and river birch, black birch is common in cool, moist forests throughout New York. Its inner bark produces wintergreen oil, which can be used as a non-steroidal anti-inflammatory drug similar to aspirin or as a flavoring.



Black birch can be tapped for sap to make syrup just as sugar maple is, though it takes much more birch sap to make an equivalent amount of syrup. The sap can also be used to make root beer or birch beer.



Identification

Bark Dark. Smooth with dark horizontal stripes. Breaks into thick black plates when mature.

Branching Alternate

Leaves Simple, lance-shaped leaves with finely serrated edges. Indented at the petiole.

Fruit Tiny winged nutlets, held in cone-like clusters 1 1/2" long.



15. Shagbark Hickory



Carya ovata

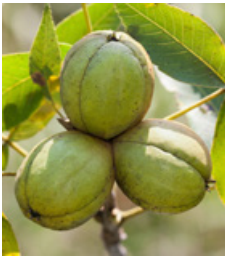


Shagbark hickory trees are a significant resource for wildlife. Their sweet nuts are important food sources for a number of species such as squirrels, raccoons, foxes, and black bears.

The large, thick bark plates that give the shagbark its name also provide shelter for roosting bats. Preserving shagbark hickory trees is an important part of supporting populations of the endangered Indiana bat.



The word “hickory” is derived from the Algonquian word “pawcohiccora.”



Identification

Bark	Light gray. Breaks into long, peeling sheets.
Branching	Alternate
Leaves	Compound leaves with 5-7 unevenly sized leaflets. Leaflets are widest at the top and taper toward the petiole. 8-14” long.
Fruit	Nut encased in a thick green husk. Can resemble green pumpkins.

16. Norway Spruce



Picea abies



Norway spruce is the official Rockefeller Center Christmas Tree. Its tall, narrow shape allows it to move through the streets of Manhattan, and its strong, flexible wood is capable of bearing the weight of thousands of pounds of decorations.



Norway spruce was originally introduced to North America from northern Europe as a timber tree. Its long, straight grain makes it ideal for resonant musical instruments such as violins. Norway spruce is also useful for lumber and paper, making it one of the most valuable timber species in the world.



Identification

- Bark** Medium-gray, very scaly.
- Branching** Alternate
- Leaves** Stiff, sharply pointed needles 1/2-1" long, arranged individually around each branch. Twigs droop from main branches.
- Fruit** Oval seed on a light, papery wing. Encased in a cone 4-7" long.



17. Eastern Hemlock



Tsuga canadensis



Eastern hemlock is currently under threat from the Hemlock Woolly Adelgid. This invasive Asian insect spends the winter feeding on the stored starches of hemlocks, depleting the trees' food and energy reserves and eventually killing them. The insects go dormant during the hot summer months, when they cover themselves with the protective layer of woolly wax that gives them their name.

Interestingly, all hemlock adelgid insects are female and reproduce by cloning themselves (called parthenogenesis).

Identification

- Bark** Dark purple-green with deep, craggy orange furrows.
- Branching** Alternate
- Leaves** Round-tipped needles, arranged individually around the top half of each twig. Two parallel white lines on the back of each needle.
- Fruit** Oval seed on a light, papery wing. Encased in a cone 1/2-3/4" long.

18. Carriage Roads



Carriage roads are a common feature of many late-19th-century estates. Designed to showcase the landscape, carriage roads were both private routes used by the wealthy to travel



between estates and places to take scenic rides. On many properties, Crumwold included, they were also used to move timber during logging.



As automobiles became common, carriage roads were either updated to accommodate the new vehicles or abandoned. The carriage roads at what is now

Winnakee Nature Preserve have been converted to foot trails. The Colonel Rogers Loop red trail you have been walking is a converted carriage road; the orange Spicebush Path was built more recently for foot traffic only. While no longer used to move from one social engagement to the next, the old roads still provide a place for quiet reflection and enjoyment of the natural landscape.



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Native Plant



Non-Native/Invasive Plant



Under Threat

19. Basswood



Tilia americana



Sometimes called American linden, basswood trees have many useful properties. The inner bark is strong and fibrous and can be twisted into rope. The inner bark is also mucilaginous—it causes liquids to coagulate—and can be used as a bandage to stop bleeding.

The wood itself is soft, close-grained, and almost free of knots, making it ideal for woodworking. It is also highly resonant and is often used to make solid-body electric guitars. Basswood is traditionally planted on the windward side of orchards to protect young trees.



Identification

Bark	Chalky gray, flat ridges with narrow, dark furrows.
Branching	Alternate
Leaves	Simple, asymmetrical leaves with toothed edges and pointed tips. 5-10” long.
Fruit	Small, woody nutlets clustered on a single stem under a narrow, leaf-like wing.

20. Canals



The canals you can see here are part of a broad network of engineered drainage that Colonel Rogers installed to keep his forests accessible year-round. Alongside a small team of workers, Rogers dug and maintained a system of ditches and culverts to channel runoff. This simple, well-planned drainage system kept woods roads from washing out in heavy rain.



Draining sodden soils in what would now be considered forested wetlands reduced stress on trees and enabled them to grow more quickly to harvestable size. Drier soils also kept loggers and their horses and equipment from getting bogged down .



Today forested wetlands are recognized as important habitat for animals such as wood turtles and blue-spotted salamanders, and they are often protected. In Rogers' day these habitat values were usually unknown or overlooked. Appropriate to the times he lived in, Rogers engineered his landscape to keep horses, carriages, and timber moving through the woods.



Native Plant



Non-Native/Invasive Plant



Under Threat

21. Pignut Hickory



Carya glabra



Pignut hickory is valuable both as a timber and wildlife resource. The nuts of pignut hickory are important food for many animals including mice, squirrels, deer, and bears. American colonists collected nuts to use as feed for their livestock, hence “pignut.”

Like other hickories, pignut hickory has strong, flexible, shock-resistant wood, commonly used for hammer handles, wheel spokes, and lacrosse sticks. Hickory wood is also popular for smoking meats. Pignut hickory's flexibility and deep tap root make it resistant to ice and wind damage.



Identification

Bark Gray with dark furrows. Ridges form multi-layer diamond lattice.

Branching Alternate

Leaves Compound leaves with 5-7 unevenly sized leaflets. Leaflets taper either toward tip or base, depending on position along petiole. 8-12” long.

Fruit Nut encased in a thick green oval husk that browns as it ripens.



22. Hogback



If you spend any time at all in the Hudson Valley, you're probably familiar with rocky protrusions like this hogback ridge. Stone outcroppings are very common in this area due to an interesting bit of geologic history.

The greywacke (*gray-wacky*) that forms these ridges is a type of stone formed of sand and silt deposits laid down on the ocean floor about 450 million years ago. That sandstone was then pushed up from the bottom of the sea, creating the steep angles that form these rocky fins. Several hundred million years of weathering, combined with relatively recent erosion by passing glaciers (approx. 20,000 years ago), has resulted in rock formations like the ridge you now stand on.

Ridges like this hogback provide a unique habitat for many species. Spleenworts, columbines, and many types of ferns do well in stony crevasses. While you walk the remainder of your hike today, and when you're out and about in the Hudson Valley, take a look around you and appreciate the diversity provided by our geologic past.



Native Plant



Non-Native/Invasive Plant



Under Threat

23. Northern Red Oak



Quercus rubra



Northern red oak acorns are partly responsible for driving Lyme disease risk in the Northeast. Red oaks, like many other plants, produce abundant seeds in some years and few in others (called “masting”). Plentiful years give mice enough food to survive winter, creating a population boom the following summer. Tick larvae feed on the high numbers of mice, then mature into Lyme-infected tick nymphs the next summer.

The result is a predictor of Lyme risk: high red oak acorn production one year will lead to high Lyme risk two years later.



Identification

- Bark** Dark brown with smooth, raised, light-colored “ski trails”.
- Branching** Alternate
- Leaves** Simple leaves with 3-9 pairs of pointed, pinnate lobes with deep sinuses. Points taper to single long bristle. 5-10” long.
- Fruit** Hard-shelled acorn 1/2-1 1/4” long. Smooth, scaly cap covers 1/4 or less of acorn.

24. Eastern Black Oak



Quercus velutina



Black oak wood, sold under the name “red oak”, is valuable for cabinetry and flooring due to its strength and beautiful grain.

Like northern red oak, the acorns of black oak overwinter well and germinate in spring. This makes them a valuable winter food source for a host of animals, including mice, chipmunks, squirrels, blue jays, wild turkeys, opossums, and deer.

Black oaks cross readily with northern red oaks, and can create hybrids with traits of both species.



Identification

Bark Dark gray, broken into scaly plates by black furrows. May have smooth, raised, light-colored “ski trails” above $4 \frac{1}{2}'$.

Branching Alternate

Leaves Simple leaves with 3-9 pairs of pointed, pinnate lobes with deep sinuses. 4-9” long.

Fruit Hard-shelled acorn $\frac{3}{4}$ ” long. Fringed cap covers $\frac{1}{2}$ of acorn.



Native Plant



Non-Native/Invasive Plant



Under Threat

25. White Oak



Quercus alba



White oaks are one of the longest-lived oaks in the Northeast, able to reach ages of 450 years or more. They develop widely spreading crowns and have deep red-purple fall colors, making them valued landscape trees.

White oaks have other uses as well. Their acorns are an important food source for a variety of wildlife including chipmunks, blue jays, wild turkeys, and black bears. The unusual structure of white oak wood makes it leak-proof. As such, it is useful for the construction of wine barrels and ships.



Identification

Bark Light gray to white, irregular scales, often has a corky texture.

Branching Alternate

Leaves Simple leaves with 7-9 pairs of rounded, pinnate lobes with deep sinuses. Smooth, whitened underside. 5-9" long.

Fruit Soft-shelled acorn $\frac{3}{4}$ " long. Bumpy cap covers $\frac{1}{3}$ or less of acorn.

26. Witch-hazel



Hamamelis virginiana



Witch-hazel is most well-known for the astringent properties of its leaves, twigs, and inner bark. Extract of witch-hazel is popular in lotions and ointments. The shrub's twigs are used in folk practice as divining rods.



Witch-hazel is the only common fall-flowering shrub in the northeastern U.S. Its yellow, thread-like flowers appear in early autumn and persist after leaf-fall. Witch-hazel seeds grow encased in a woody capsule. As the capsule matures and dries, it explodes with an audible popping sound and can eject its seeds as far as 30 feet.



Identification

Bark Thin. Gray-brown with raised speckles.

Branching Alternate

Leaves Simple leaf with slightly lobed edges and an asymmetrical base.

Fruit Shiny black oval seeds expelled from a woody capsule.



27. Sugar Maple



Acer saccharum



Also known as rock maple or hard maple, sugar maple is an iconic tree in the Northeast. It is most well-known as the source of maple syrup and for its vibrant fall foliage. Sugar maple wood is dense and nicely grained, making it desirable for furniture.



Sugar maples have been declining in the northeast in recent decades. Research points to a combination of factors causing this, including pollution from road salt and acid rain, invasion by insects and funguses, and root freezing during winters with cold temperatures and little snow cover.



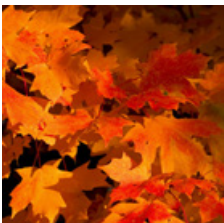
Identification

Bark Gray-brown. Smooth to slightly pebbled when young, breaking into thick vertical plates when mature.

Branching Opposite

Leaves 5 palmate lobes with large teeth and U-shaped sinuses. 4-5".
Clear sap.

Fruit Winged, round seed at one end.



28. Red Maple



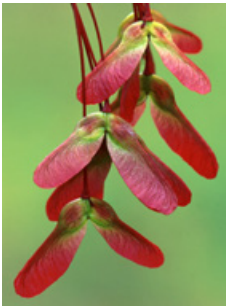
Acer rubrum



Red maple is one of the most widespread tree species in North America and can be found from central Quebec to southern Florida. It is able to thrive in both wet bottomlands and on dry ridge tops, though it is often out-competed by sugar maples in moderately moist midlands.



Red maples are prolific seed producers. One tree only 8 inches in diameter can produce nearly 100,000 seeds in a single season. These seeds are a popular food for mice, chipmunks, and other small animals. The red maple's wilted leaves are toxic to horses.



Identification

Bark Gray-brown. Smooth to slightly pebbled when young, breaking into thin, sometimes shaggy scales when mature.

Branching Opposite

Leaves 3-5 palmate lobes with small teeth and V-shaped sinuses. 2-4".

Fruit Winged, thick oval seed at one end. Often red tinted.



29. Black Locust



Robinia pseudoacacia



Black locust was brought to the Hudson Valley from its home range in the central Appalachians. It has been planted extensively worldwide due to its showy, fragrant flowers and hardy growing habits.

Black locusts are one of the most common trees to be struck by lightning. Early homesteaders often planted them to attract lightning away from their homes.

Gray squirrels also make use of black locust, marking their territory by chewing the outer bark to expose the orange inner bark.



Identification

Bark Deeply corded, with brown-green ridges and bright orange furrows.

Branching Alternate

Leaves Pinnately compound leaves, 21-40" long with 10-24 small oval leaflets. Pair of short, thick thorns at the base of each leaf.

Fruit Small, dark brown seeds in a papery pod 3-4" long.

30. Chestnut Oak



Quercus prinus



Chestnut oak acorns are a valuable food source for a wide variety of wildlife, including chipmunks, blue jays, wild turkeys, and deer. They are only available as food for short periods each year, however, as they sprout within days to weeks of falling to the ground. In this they are unlike the acorns of many other oaks which overwinter before germinating.



The common name “chestnut oak” comes from the resemblance of chestnut oak leaves to the leaves of the nearly extinct American chestnut tree.



Identification

- Bark** Thick, blocky with deep furrows.
- Branching** Alternate
- Leaves** Simple leaves with 7-16 pairs of rounded, pinnate lobes with very shallow sinuses. Glossy above, slightly hairy underside. 4-8” long.
- Fruit** Soft-shelled acorn 1 1/4” long. Thin cap covers 1/3 or less of acorn.

31. Eastern White Pine



Pinus strobus



Eastern white pine is the tallest tree in eastern North America. Modern individuals can reach heights over 180', and some historic old-growth trees were reported to be over 230' tall. Cell phone towers disguised as "trees" are made to resemble white pines to make their unusual height less noticeable.

White pines are a highly valued timber species. Tall, straight trunks from the American colonies were particularly desirable as masts for the British Royal Navy. Defensiveness over Royal claims to colonial trees was one cause leading to the Revolutionary War.



Identification

- | | |
|------------------|--|
| Bark | Dark. Smooth gray-green when young, breaking into large black-red blocks when mature. |
| Branching | Alternate |
| Leaves | Long, soft needles in clusters of 5. |
| Fruit | Thin, papery wing with a small oval seed on one end, encased in a flexible woody cone 3-6" long. |

32. American Beech



Fagus grandifolia



American beech is a vital food source for wildlife where it occurs. Thin-shelled high-calorie nuts, which beeches produce by the thousands during high-yield years, are eaten by mice, blue jays, coyotes, deer, bears, and many other animals. Beech nuts have been food for people and livestock as well.



American beech is currently threatened by Beech Bark Disease. An introduced European insect damages the bark, permitting entry to a native fungus that kills the tree. Damaged beeches grow root-sprout saplings that will eventually be infected themselves.



Identification

Bark Thin, smooth, light silver.

Branching Alternate

Leaves Simple, lance-shaped leaves with coarsely serrated edges and well-defined ribs.

Fruit Pyramid-shaped nuts paired in a spiny husk.



33. Logging



Colonel Rogers' Forestry

Archibald Rogers was an early proponent of forestry as a science. Unlike many forest owners of his time, he viewed forests as resources to be cultivated rather than just timber to be extracted.



Civilian Conservation Corp, Staatsburg

Rogers used the forests on his Crumwold estate to try out new, sustainable management ideas. He practiced what is known now as “selection” cutting to improve the health and quality of his trees. By removing trees of different sizes, and by removing many crooked or damaged trees, he left the best-formed trees to produce seeds to renew the forest and created space for those new trees to flourish. U.S. Department of Agriculture inspectors called Rogers’ efforts “one of the best examples of reforestation by a private owner in the state of New York.”¹

Franklin Roosevelt received his early education on the importance of responsible forestry during his many visits to Rogers’ estate.



Colonel Archibald Rogers, ca. 1910

He eventually created managed tree plantations of his own, and even as President was actively involved in forest management research conducted by the New York State College of Forestry at his property. Roosevelt considered himself a lifelong “tree farmer,” thanks in large part to the influence of Archibald Rogers.

¹FDR & the Environment, Woolner & Henderson, 1999.



Canopy Tree



Shrub/Understory



Historic



Wildlife



Recent Logging

Modern forestry has come a long way from the days when forests were only stands to be cut for profit. Unfortunately, poor forest management, through carelessness or lack of

understanding, is still with us nearly a century after Archibald Rogers established his personal research forest.

After Rogers' death in 1928, the Crumwold estate was divided and has changed hands a number of times. Much of the original forest was cleared for homes, and the forest that remained was not always managed to Rogers' exacting standards. The Crumwold forest that is now Winnakee Nature Preserve was logged by at least one subsequent owner using what is often termed "selective cutting" or "high-grading."

Selective cutting removes the most valuable trees, leaving misshapen and damaged trees behind. The result is a large one-time profit and a degraded forest that will produce lower-quality timber in the future.

As you walk the rest of the trail, look around you for signs of logging. Carefully executed forestry such as Rogers implemented leaves healthy multi-age stands of trees with scattered stumps of many sizes. Selective cutting, however, is often visible years later as large stumps and numerous gouged trees.



Native Plant



Non-Native/Invasive Plant



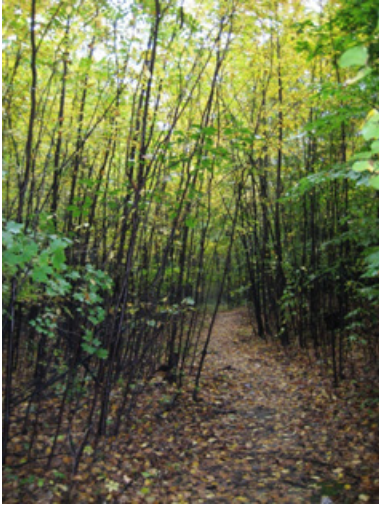
Under Threat

34. Black Birch Thicket



Betula lenta

*Identification information at Stop 14.



This black birch thicket provides a good illustration of how birches find new places to grow. All plants try to distribute their seeds as widely as possible. Different species have evolved different means of transporting their seeds, from burrs that ride on the fur of passing animals to pods that float downstream to new banks. Birches have evolved tiny, lightweight seeds with papery wings to catch the wind.

Birches don't sport large wings or feathery tufts that sail long distances on the breeze, however. Most seed cones of birches open between late fall and mid-winter, giving the seeds a good chance to land on snow. The seeds slide across the snow's smooth surface when pushed by the slightest breeze, like tiny wind surfers.

Birch seeds set root wherever the wind can't reach them, often in the crevasses around old stumps, or in small valleys like this one with rock fins rising on either side. This thicket likely established shortly after the last logging took place, opening this little valley up to sunlight and a lot of tiny seeds.



Canopy Tree



Shrub/Understory



Historic



Wildlife

35. Mockernut Hickory



Carya tomentosa



The Latin name *tomentosa* - “hairy” - refers to the thickly furred twigs, petioles, and leaves which set mockernut apart from other hickories. It has received the common name “mockernut” because its large, thick-shelled nuts contain very little meat.

Dutchess County is at the very northern edge of mockernut hickory’s home range. They are fairly uncommon here as a result, though they are considered the most common hickory species in America when more southern populations are included.

Identification

- | | |
|------------------|---|
| Bark | Gray. Wavy network of smooth, diamond-shaped ridges. |
| Branching | Alternate |
| Leaves | Compound leaves with 7-9 unevenly sized leaflets. Leaflets and petiole hairy. 8-20” long. |
| Fruit | Oval nut with a thick husk and thick shell. |

36. Eastern Hophornbeam



Ostrya virginiana



This slow-growing, hard-wooded tree is also known as ironwood, a common name it shares with American hornbeam. The common name “hophornbeam” comes from a combination of traits: “hop” because of the resemblance of its seed clusters to the hops grown for ale, and “hornbeam” for its colonial use to make hornbeams (a European style of oxen yoke).

Eastern hophornbeam seeds have little food value to wildlife, but flowers and leaf buds are eaten by wild turkeys and occasionally by other birds.



Identification

Bark Thin. Long, narrow vertical peels give a shredded appearance.

Branching Alternate

Leaves Simple, lance-shaped leaves with deeply doubly-serrated edges. Slightly hairy underside.

Fruit Tiny nutlet encased in an oblong, papery pocket.



Glossary



Alternate

Growth pattern where twigs or leaves are not paired.



Astringent

Causing skin or other tissues to contract; useful for reducing inflammation and bleeding.



Asymmetrical

Lopsided.



Canopy

Trees that, when mature, are tall enough to have direct access to sunlight.



Compound

Made of many parts. Compound leaves are made up of many leaflets sharing the same petiole.



Doubly-serrate

Leaf edges with small pointed teeth on their small pointed teeth.



Furrow

Inside of a crack in a tree's bark pattern.



Germinate

Sprout.



Grain

The growth pattern of wood rings. Straight grain results from neat, even tree ring growth.



Husk

The skin, sometimes thick, surrounding the outside of a nut.



Invasive

A plant or animal species that is introduced to an area where it did not previously occur, and where it damages or competes for resources with species that occur in the area naturally.



Lance-shaped

Wide, gradually tapering to a point at the tip.



Leaflet

Small part of a leaf that shares a petiole with other leaflets to create one complete compound leaf.



Lobe

A bulge or protrusion from the main body of a leaf.



Masting

A phenomenon in which nearly all trees of a particular species produce a large quantity of seeds in some years and very few seeds in other years. Evolved to inundate seed predators such as mice with more seeds than they can eat, allowing some seeds to survive to grow.



Native

Naturally occurring in the area.



Naturalized

A plant or animal species that is introduced to an area where it did not previously occur, and where it coexists with native species without significantly altering the function of the native ecosystem.



Nutlet

A small woody seed, resembling a tiny nut.



Opposite

Growth pattern where twigs or leaves are paired.



Palmate

Radiating out from a central point, like fingers from the palm of a hand.



Petiole

Seasonal leaf stem.



Pinnate

Projecting outward along the length of a petiole, like branches along the trunk of a pine tree.



Re-vegetate

To re-plant an area that has been cleared of vegetation.



Ridge

The outermost part of a textured bark pattern.



Root sprout

A sapling that sprouts directly from the roots of a stressed mature tree instead of growing from seed.



Selection cut

The removal of trees of a variety of ages and conditions, with the intention of both improving stand quality and making money.



Selective cut

Also known as “high-grading.” The removal of the most valuable trees in a stand.



Serrate

Having small pointed teeth along the edge, like a serrated knife blade.



Simple

A leaf made up of one part instead of multiple leaflets.



Sinus

A dip in the edge of a leaf; space between lobes.



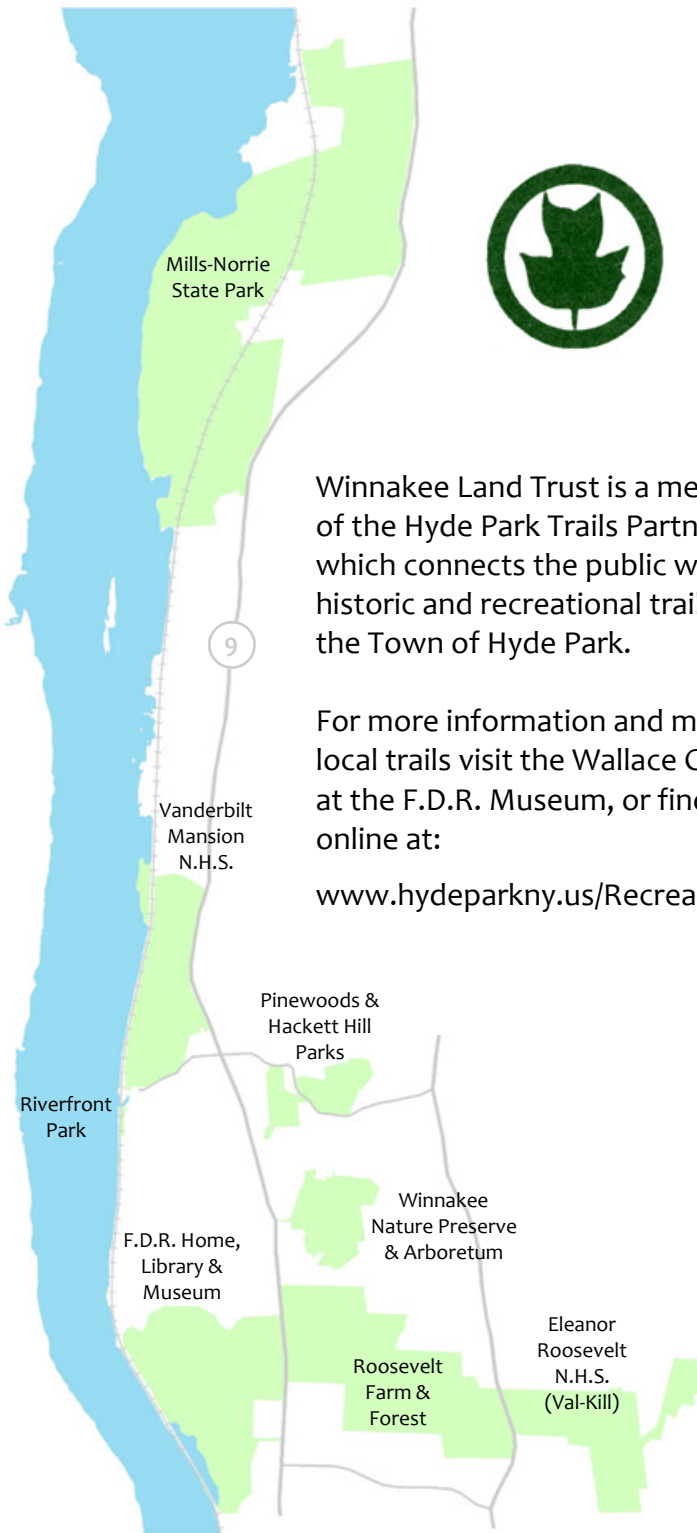
Tributary

A stream that empties into a larger stream or river.



Understory

A shrub or small tree that, when mature, is still short enough to be shaded by larger trees.



Winnakee Land Trust is a member of the Hyde Park Trails Partnership, which connects the public with historic and recreational trails in the Town of Hyde Park.

For more information and maps of local trails visit the Wallace Center at the F.D.R. Museum, or find us online at:

www.hydeparkny.us/Recreation/Trails/



Winnakee Land Trust protects farmland, woodland, and open space in northern Dutchess County and establishes parks and trails for public access. Winnakee works with local planners to promote smart growth and to implement planning strategies that protect valuable open space. Winnakee is a member-supported non-profit land trust accredited by the Land Trust Accreditation Commission since 2011.

To download an app of this tour, go to www.winnakeeland.org. For information on Winnakee and its projects and events, contact info@winnakeeland.org or call 845-876-4213.



An Accredited Land Trust



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