

# The Allegheny Arboretum at Indiana University of Pennsylvania

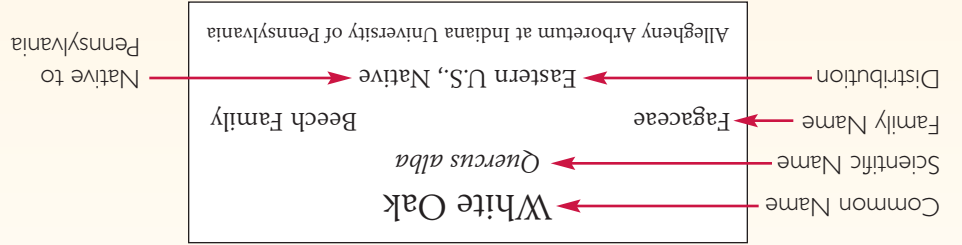


## Map and Guide to the LIVING COLLECTION

# Welcome to the Allegheny Arboretum at Indiana University of Pennsylvania, a living museum devoted to the study, conservation, and enjoyment of trees, shrubs, and vines.

The Allegheny Arboretum consists of the entire 354 acres of the IUP campus. There are 1,320 trees on the north campus, representing seventy-six tree species. One tree of each of the different species has been identified by placing an information plaque on or near the tree.

## How to Read a Tree Plaque



Allegheny Arboretum trees that have been planted since 2000 possess an accession tag that is hung from a branch of the tree.

## Accession Tags

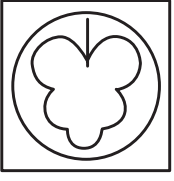
Common names are useful, but they vary from one region to the next, and several species of trees may be known by the same common name. The scientific name, in Latin, is the universally accepted name. Latin names adhere to a binomial (two-word) system. The first word designates the genus, a group of closely related species. The second name is the species, a group of individuals which are similar in appearance and can freely interbreed. Cultivar names are enclosed within quotations. A family consists of a genus or group of related genera sharing several characteristics.

## Classification and Identification

Classification is the process by which organisms are grouped and named, according to their overall similarities and differences. The theory and practice of classification is called taxonomy, and those that work in this field are known as taxonomists. There are about a quarter-million plants worldwide that include herbs, vines, shrubs, and trees. About 20,000 species of flowering plants are found in North America, which includes 750 tree species.

All trees and shrubs undergo secondary growth which produces wood. Woody plants are classified into two major groups: conifers (Gymnosperms) and flowering plants (Angiosperms).  
Gymnosperms possess the following traits:  
• unisexual reproductive structures are produced in cone-like structures  
• female part-ovule exposed on surface of scale, naked-seeded  
• female cones often become woody  
• resin-bearing  
• usually evergreen  
• leaves usually needle-like or scale-like  
There are over ninety species of conifers in North America. These are called softwoods. Angiosperms possess the following traits:  
• produce flowers which are usually bisexual  
• ovule enclosed in an ovary  
• ovule develops into seed enclosed in a fruit (mature ovary wall)  
• usually not resinous  
• usually deciduous (leaves fall in autumn)  
• leaves usually broad and flat.  
These are called hardwoods.  
The identification of a tree is primarily based on seven main features. These features include: size and shape of tree, evergreen or deciduous, leaves, flowers, fruits, bark, and buds.

[www.iup.edu/arboretum](http://www.iup.edu/arboretum)



An arboretum is a living museum established for the growing and effective display of trees, shrubs, and vines. The specimens are maintained, labeled, cataloged, and mapped. The characteristics of the grounds, the collections, the type of research and educational programs sets each arboretum apart.

### MISSION STATEMENT:

To provide a learning environment that will advance our global understanding of temperate forests, cultivate an aesthetic appreciation for the regional flora of the Allegheny Plateau and demonstrate practical applications of woody plant materials to modify and mitigate local environmental conditions.

### Web sites

- [www.forestry.about.com/library/weekly/aa021300.htm](http://www.forestry.about.com/library/weekly/aa021300.htm)
- [www.arborday.org](http://www.arborday.org)
- [www.extension.iastate.edu/Pages/tree](http://www.extension.iastate.edu/Pages/tree)

### References

- Elias, Thomas S. The Complete Trees of North America. Van Nostrand Reinhold, 1980.
- Petrides, George A. A Field Guide to Trees and Shrubs. Houghton Mifflin, 1986.
- Russell, Tony, Catherine Cutler, and Martin Walters. The New Encyclopedia of Trees. Hermes House, 2005.

**62. American Beech<sup>#</sup>**—*Fagus grandifolia*  
The thin, smooth, pale gray bark is a distinctive trait of this tree. Markings made by wild animals and humans remain on the bark. Our word “book” derives from the Anglo-Saxon *boc*, meaning letter, which in turn comes from *beece*, for beech. The leaves remain on the tree during winter.

**63. Horse Chestnut** —*Aesculus hippocastanum*  
Native to the Balkans. Produces white flowers in six- to twelve-inch long clusters in May. The large brown seeds are encased in a leathery husk covered with spines. All parts of the tree are toxic.

**64. Blue Spruce** —*Picea pungens*  
Native to the Rocky Mountains. This is a popular ornamental and Christmas tree. The needles are four-sided and when bruised give off an odor. The needles range in color from a blue-green to a pale yellowish-green.

**65. Tulip Tree<sup>#</sup>**—*Liriodendron tulipifera*  
Also known as Tulip Poplar or Yellow Poplar; however, it is unrelated to the poplars. The two-inch yellow-green flowers form in May and June and resemble tulips and the water lily. Another name for this tree, “canoe wood,” comes from its use by Native Americans. Supposedly, Daniel Boone floated his family down the Ohio River in such a canoe!

**66. Apple Serviceberry** —*Amelanchier x grandiflora*  
A natural-occurring hybrid between *A. arborea* and *A. laevis*. Exhibits intermediate traits between the two parents.

**67. Sargent Cherry** —*Prunus sargentii*  
Considered by some the *crème de la crème* of the flowering cherries. Produces pink flowers before the leaves appear.

**68. Ohio Buckeye<sup>#</sup>**—*Aesculus glabra*  
Also called Fetid or Stinking Buckeye because the twigs and leaves release a foul smell when broken. The dark brown seeds, which resemble the eye of a deer, account for the buckeye name. The plant contains a narcotic alkaloid that is poisonous. Plant parts were used by settlers to stun fish for easy catching.

**69. Baumanni Horsechestnut**—*Aesculus hippocastanum* “Baumannii”  
This variety is considered the best of many varieties of the common horsechestnut. White flowers form on upright panicles up to twelve inches long in May. All parts of the plant are toxic.

**70. Autumn Splendor Buckeye** —*Aesculus x arnoldinana* “Autumn Splendor”  
A cross between *A. flava* and *A. glabra* which results in the unusual red fall leaf color. Flowers are yellow with an orange-red blotch on the upper part.

**71. Ft. McNair Red Horsechestnut**—*Aesculus carnea* “Fort McNair”  
This hybrid between *A. pavia* and *A. hippocastanum* produces spectacular red flowers on six- to eight-inch panicles.

**72. Bottlebrush Buckeye** —*Aesculus parviflora*  
One of the best shrubs for late spring flowering. The white flowers with pinkish stamens are produced in eight- to twelve-inch long, bottle-brushed-shaped inflorescences.

**73. Red Buckeye** —*Aesculus pavia*  
The brilliant red flowers form on three- to six-inch long panicles in spring. The smooth brown capsules enclose one or two dark brown seeds.

**74. Yellow Buckeye<sup>#</sup>**—*Aesculus flava*  
Also known as Big Buckeye or Sweet Buckeye. The seeds contain the toxin aescalin. Native Americans roasted the seeds, mashed them, and soaked them in water to leach the toxin away, leaving a nutritious paste.

**75. Katsura** —*Cercidiphyllum japonicum*  
Native to China and Japan, this is an elegant tree whose fall-colored leaves give off a delightful spicy odor.

**76. Eastern Redbud<sup>#</sup>**—*Cercis canadensis*  
Also called Judas Tree. The bright violet-purple flowers form in early spring before the leaves appear. The fruit is a pod two to three inches long which contain four to ten bean-like seeds.

<sup>#</sup>—Native to Pennsylvania

<sup>\*</sup>—Gymnosperm species

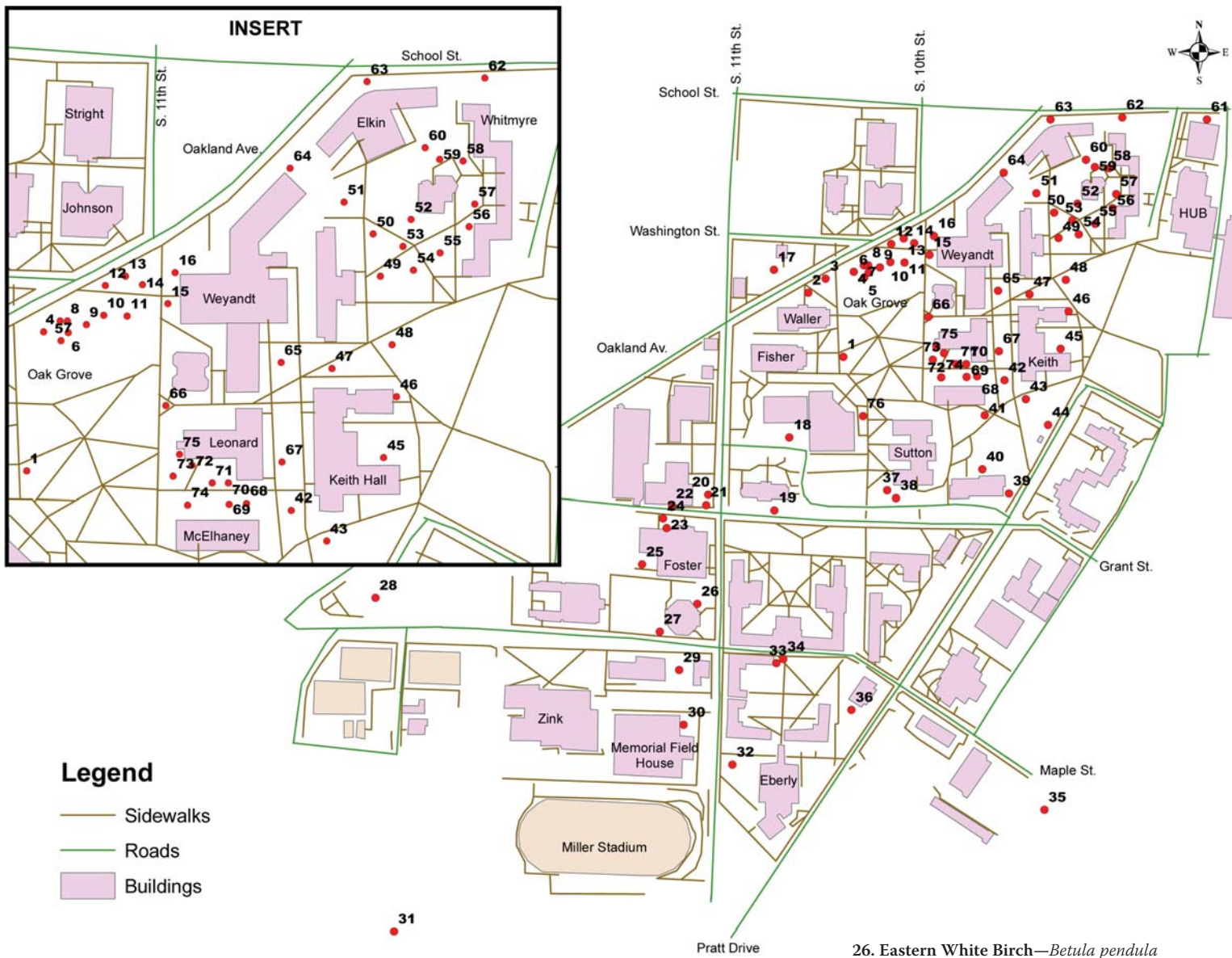
## Thank you for your growing support.

The Allegheny Arboretum Board would like to thank all who have contributed to the creation and growth of the arboretum. With your support, the Allegheny Arboretum has become a successful undertaking. We look forward to continued partnerships and constructive progress in achieving our projected goals.

Contributions can be made by contacting the Office of Annual Giving at 724-357-4832 or via the web page at [www.iup.edu/arboretum](http://www.iup.edu/arboretum).



# The Allegheny Arboretum at Indiana University of Pennsylvania—Labeled Trees



- 1. Black Oak<sup>#</sup>**—*Quercus velutina*  
This tree often hybridizes with red oak. Tannins from the bark were used to tan leather and make yellow dye.
- 2. American Hornbeam<sup>#</sup>**—*Carpinus caroliniana*  
The wood is fluted and ridged like a tensed muscle, thus this tree is also called musclewood. The name hornbeam connects two words: horn (hard), and beam (from *baum*—German). This is because it is extremely hard wood.
- 3. Shadblow Serviceberry**—*Amelanchier canadensis*  
Early settlers bestowed the name shadbush or shadblow when the tree flowered in April. People knew it was time to go to streams and set nets for shad swimming up from the Atlantic to spawn.
- 4. Swamp White Oak<sup>#</sup>**—*Quercus bicolor*  
The upper surfaces of the leaves are dark green and the lower surfaces are bright and pale which give rise to the name *bicolor*.
- 5. Kentucky Coffee Tree**—*Gymnocladus dioica*  
*Gymnocladus* means “naked branch” and refers to the fact that this tree leafs out late in the spring and sheds its foliage early in autumn. Thus, the branches remain naked for more than half the year.
- 6. Red Oak<sup>#</sup>**—*Quercus rubra*  
This is the fastest growing of all oaks. Acorns mature at the end of their second growing season, drop in the fall, and germinate the following spring.
- 7. Honey Locust<sup>#</sup>**—*Gliditsia triacanthos*  
Also know as Sweet Locust or Thorny Locust. Has spines from two to eight inches long. Bows were made from the branches of this tree.
- 8. Red Maple<sup>#</sup>**—*Acer rubrum*  
Grows on a wider range of soil types, moisture, pH, and elevation than any other forest tree in North America. At all seasons of year this tree has something red about it. Also called Soft Maple because the wood is soft (as opposed to hard maple-sugar maple).
- 9. Sugar Maple<sup>#</sup>**—*Acer saccharum*  
Sap collected during late winter and early spring is boiled down to make syrup and sugar. The wood is hard, tough, close-grained, and makes excellent hardwood floors.
- 10. White Oak<sup>#</sup>**—*Quercus alba*  
The wood is extremely strong, hard, and heavy. It is the most valuable of all oak woods. Because the pores of the wood are plugged with woody cells (tyloses), liquids cannot seep through them, and the wood has been used for barrels. Lacking a strong tannin defense, white oak acorns germinate quickly after they fall.
- 11. Scarlet Oak<sup>#</sup>**—*Quercus coccinea*  
Emerging leaves in the spring are bright red. In the fall the leaves turn a rich maroon. Acorns take two years to mature.
- 12. Shingle Oak<sup>#</sup>**—*Quercus imbricaria*  
Also called Laurel Oak because the leaves resemble those of Mountain Laurel. The single bristle tip at the end of the leaf shows the “red oak affiliation” of this tree. The name *imbricaria* means “overlapping” and refers to the use of the wood for shingles.
- 13. Cimarron Ash**—*Fraxinus pennsylvanica*  
“Cimarron”  
The foliage is a glossy dark green in summer and will fade to a brick red or red-orange in the fall. This tree is seedless.

- 14. Bur/Mossy Cup Oak<sup>#</sup>**—*Quercus macrocarpa*  
This is the northernmost American oak. Small branchlets bear corky-winged projections similar to those of Sweet Gum. The acorns are the largest of our native oaks and possess cups with shaggy outer fringes.
- 15. Crab Apple**—*Malus sylvestris*  
It used to be called “garland tree” since the blossoms were woven into garlands for the May queens. The fruits are heavily loaded with malic acid, which gives the fruits a sour taste.
- 16. Eastern Hemlock<sup>#</sup>**—*Tsuga canadensis*  
The state tree of Pennsylvania. Rich in tannic acid, the bark was used to cure leather in the late 1800s and early 1900s. Needles have two white lines on their lower surface.
- 17. Tree of Heaven**—*Ailanthus altissima*  
Native to China, the tree was introduced into New York City in 1820 as a food source for silkworms. It is now considered an undesirable tree, since it has crowded out many native plants.
- 18. Sourwood<sup>#</sup>**—*Oxydendrum arboreum*  
The foliage of this primarily southern tree is acidic and sour-tasting. In summer, white, bell-shaped flowers (like lily-of-the-valley) stand upright on stalks.
- 19. Cucumber Tree<sup>#</sup>**—*Magnolia acuminata*  
The name “magnolia” commemorates the French botanist Pierre Magnol, who died in 1715. The compound fruit—oblong, curved, knobby, and greenish—gives the tree its name.
- 20. Maidenhair Tree<sup>#</sup>**—*Ginkgo biloba*  
Species has both male and female trees (dioecious). Females produce an edible seed that has a pungent odor when ripe. A diagnostic trait is its fan-shaped leaves. Genus dates back 270 million years.
- 21. Balsam Fir<sup>#</sup>**—*Abies fraseri*  
Balsam comes from Greek *balsamon*, referring to a Middle Eastern shrub from which myrrh is obtained. The North American tree earned its name from the fragrance of the needles. In natural settings, this tree grows in cool swamps and bogs in northern Pennsylvania.
- 22. White Mulberry**—*Morus alba*  
The tree was imported from China to provide food for silkworms. The fruits, which are white to pink and occasionally purple, ripen in June and make excellent preserves.
- 23. Downy Serviceberry<sup>#</sup>**—*Amelanchier arborea*  
Also known as Shadbush or Juneberry, originating from the flowering in April when the shad spawn and the production of fruits in June and July. Young leaves are covered with numerous hairs. The fruits are excellent as preserves and pie fillings.
- 24. Sweet Gum**—*Liquidambar styraciflua*  
This tree has star-shaped leaves that turn purple in the fall. The prickly spherical fruits of this tree contain many small winged seeds. Pioneers used the “liquid amber” from the tree as a chewing gum and antiseptic. It is an ancient species, appearing during the Cretaceous Period between 65 and 135 million years ago.
- 25. Small Leaved Linden**—*Tilia cordata*  
A popular lawn and shade tree which has a high tolerance to drought and poor soils. Distinctly pyramidal in its form.

- 26. Eastern White Birch**—*Betula pendula*  
At one time the most popular white-barked birch, but when stressed it is susceptible to the bronze birch borer. Native to Europe and Asia Minor.
- 28. Douglas Fir<sup>#</sup>**—*Pseudotsuga menziesii*  
Native to the western side of the Rocky Mountains. The genus name comes from the tree’s resemblance to the hemlocks. Cones are unique by the presence of elongated tri-toothed bracts that extend beyond the scales.
- 29. Chinese Chestnut**—*Castaenea mollissima*  
A substitute for the American chestnut, this tree is resistant to the Chestnut Blight fungus, which devastated the native species. It produces foul-smelling flowers in midsummer. The nuts are edible.
- 30. Black Gum<sup>#</sup>**—*Nyssa sylvatica*  
Also known as Sour Gum because of its bad-tasting fruit. In the south, it is called Tupelo from a Creek name *ito opilwa*, meaning swamp tree. *Nyssa* comes from Greek, denoting a “water nymph,” and *sylvatica* means “of the forest.”
- 31. Osage Orange<sup>#</sup>**—*Maclura pomifera*  
Fruits are green and about the size of an orange. Osage Indians used the wood to make bows. Widely planted as living fences before invention of barbed wire. Note the numerous spines.
- 32. White Pine<sup>#</sup>**—*Pinus strobus*  
Named for its pale wood. It was the most highly sought logging tree between the 1700s and early 1900s. It is the only pine to hold its needles in bundles of five.
- 33. Hackberry**—*Celtis occidentalis*  
Also called Sugarberry, Hop Ash, Beaver Wood, or Nettle Tree. In September the tree produces fruits which are 1/4” to 1/2” spherical drupes, with purple skin and dry, sweet-tasting orange-colored flesh which encloses a thin-walled nutlet.
- 34. Drooping Rosebud Cherry**—*Prunus subhirtella*  
“Pendula”  
It is a sought-after accent tree in late winter or early spring, with showy pink flowers that emerge before the foliage emerges on pendulous branches.
- 35. European Hornbeam**—*Carpinus betulus*  
“Fastigiata”  
Often planted in groupings to form a screen or hedge. This variety produces upright branches and a pyramidal-oval form.
- 36. Black Walnut<sup>#</sup>**—*Juglans nigra*  
The compound leaf has thirteen to twenty-three toothed-edged leaflets attached to a central stalk called the rachis. It is one of the most highly sought-after timber trees. All parts of the tree produce a chemical called juglone, which inhibits the growth of many plants near the tree and also gives the tree its foul odor.
- 37. Northern Catalpa**—*Catalpa speciosa*  
The name “catalpa” comes from the Creek language and means “head with wings.” This describes the flower petals with their ruffled lobes. Seeds possess two papery fringed wings encased in a long cigar-like or bean-like capsule.
- 38. Silver Maple<sup>#</sup>**—*Acer saccharinum*  
The leaves are deeply cut and silvery white underneath. The leafstalks (petioles) are slightly flattened as in aspens, letting the leaves sway in a light breeze. It produces the largest samaras of any maple.
- 39. Tamarack<sup>#</sup>**—*Larix laricina*  
Also called American Larch, it is the only native deciduous needle-leaved tree. This trait is believed to have developed when the ancient species lived near the Arctic Circle and evolved to drop their needles during the long days without light.

- 40. Persimmon<sup>#</sup>**—*Diospyros virginiana*  
The name “persimmon” comes from an Algonquin Indian word. *Diospyros* means “fruit of the gods.” The tree is dioecious, and the female trees produce berries about the size of ping-pong balls that are very tart (due to tannins) until ripe.
- 41. Kousa Dogwood**—*Cornus kousa*  
Possess four long-pointed whitish bracts which appear after the leaves form and about two to three weeks later than our native dogwood, *Cornus florida*.
- 42. Sawtooth Oak**—*Quercus acutissima*  
Native to Asia, the leaves possess prominent serrated edges. The acorn cups are distinctly tufted.
- 43. American Sycamore<sup>#</sup>**—*Platanus occidentalis*  
The most massive tree in eastern North America. They can live five to six hundred years. In the wild, look for sycamores along streams, rivers, and lakes. The tree is monoecious. The female flowers will develop into a composite spherical fruit about one inch in diameter.
- 44. Valley Forge American Elm**—*Ulmus americana*  
“Valley Forge”  
Released by the National Arboretum. This cultivar has high tolerance to Dutch Elm Disease, air pollution, drought, and poor soil conditions.
- 45. Japanese Maple**—*Acer palmatum*  
There are hundreds of varieties of this tree with leaves exhibiting a mixture of colors and degrees of serration.
- 46. Hawthorn**—*Crataegus* species  
Also called Thorn Apples. Because they hybridize readily, it is not certain how many species exist in North America. Many birds build their nests in the crown of these dense, thorny plants to be protected from predators.
- 47. White Ash<sup>#</sup>**—*Fraxinus americana*  
This has the toughest wood of any American tree. The wood is used for making tool handles, hockey sticks, and baseball bats. The tree is dioecious. The samaras are one to two inches long, and their shape resembles the end of a canoe paddle.
- 48. Cornelian Cherry**—*Cornus mas*  
Native to southern Europe, this dogwood produces small yellow flowers in early spring. The common name comes from the bright red, edible fruits.
- 49. Eastern Red Cedar<sup>#</sup>**—*Juniperus virginiana*  
A food favored by many birds, this tree gave its name to the cedar waxwing, which likes its seeds. People use the seeds to spice stews and to give gin its flavor. The name “gin” comes from the French word for juniper, *genievre*.
- 50. Norway Spruce<sup>#</sup>**—*Picea abies*  
Characterized by branches that end in long, pendulous branchlets. The tree produces four- to six-inch cones, the largest of any of the spruces. Native to northern Europe.
- 51. Red Mulberry<sup>#</sup>**—*Morus rubra*  
Also called Black Mulberry. The fruits, green at first, ripen to a dark red to black in July. Eating unripe fruits will cause severe indigestion, because the fruits contain hallucinogenic compounds; but when ripe the fruits are a favorite for juices and preserves.
- 52. Franklin Tree**—*Franklinia alatamaha*  
A small tree that produces Magnolia-like white flowers in September. Originally collected by John Bartram in 1770 along the Altamaha River in Georgia and never again seen in the wild.
- 53. American Elm<sup>#</sup>**—*Ulmus americana*  
These are becoming rare because the Asian fungus, Dutch Elm Disease (*Ophiostoma Ulm*), which arrived in 1930, has killed most trees. When mature, it is characterized by its vase shape. The disk-shaped samaras, about 1/2” across, mature in early spring before the leaves are freely expanded.
- 54. Alternate Leaf Dogwood**—*Cornus alternifolia*  
The only dogwood to possess alternately arranged leaves rather than opposite-arranged leaves. Also called Pigeonberry, Blue Dogwood, or Pagoda Dogwood. In late summer, it produces blue-black fruits that are eaten by many birds.
- 55. Dawn Redwood<sup>#</sup>**—*Metasequoia glyptostroboides*  
Thought to be extinct but “rediscovered” in northern China in the late 1940s, it is often referred to as a “living fossil.” This deciduous conifer grew throughout North America and Europe before the glaciers wiped them out.
- 56. Northern White Cedar<sup>#</sup>**—*Thuja occidentalis*  
Also know as Arborvitae, Latin for “tree of life,” which comes from its longevity since it can live three to four hundred years. A favorite for landscaping, more than fifty varieties have been developed.
- 57. Japanese Yew<sup>#</sup>**—*Taxus cuspidata*  
Yews are usually dioecious; females produce solitary poisonous seeds in a fleshy red aril. There are numerous cultivars of this genus.
- 58. Pin Oak<sup>#</sup>**—*Quercus palustris*  
The specific name *palustris* is a Latin word indicating a bog or marsh and denotes the trees preferred habitat: wet areas. Unlike other oaks, it sends up a central stem that does not fork. The lower branches droop toward the ground.
- 59. Flowering Dogwood<sup>#</sup>**—*Cornus florida*  
The four white “petals” are actually bracts that cover the developing small flowers, which are located where the bracts intersect. The common name comes from the German word *dag*, meaning a skewer to hold meat, and likely this hard wood was used for this task. This species is under attack by the fungus, *Discula destructiva*, introduced from Asia in the mid-1970s.
- 60. Norway Maple**—*Acer platanoides*  
Introduced from Europe as a shade tree, this species has spread widely. The leafstalks (petiole), when broken, exude a milky sap. Tolerant to pollution.
- 61. Callery Pear**—*Pyrus calleryana*  
Native to China, this pear is named for J.M.M. Callery (1810-1862), a Roman Catholic missionary and plant collector.