ARBORETUM GUIDE

Jane Decker Arboretum

TREE *TREK*

Ohio Wesleyan University

This Tree Trek is an informative and enjoyable way of experiencing the natural beauty on the Ohio Wesleyan University campus, including some trees that are part of the Jane Decker Arboretum.

INTRODUCTION

Be fearless in your explorations—though mindful that trees are living things, which can be harmed and damaged. Smelling and touching are good ways to learn about a tree, as are collecting leaves, sketching, and examining them from both up close and afar. Know that it is possible to train yourself, through practiced observation, to notice small things in nature, such as hairs on the bottom of a leaf or what kind of fruits various animals like to eat. Ultimately, your level of knowledge will depend on time spent and attention paid, as much as books read. This guide is intended to be just a starting point, an introduction. Pursue whatever interests you most!

We hope you will become better acquainted with OWU, learn something about the most notable and striking trees on campus, and—most importantly—enjoy yourself while getting to know a few of the many beautiful and interesting trees growing here.

Tree Trek

Begin the Tree Trek directly behind Slocum Hall at the giant Ginkgo tree (N40°17.760' W83°04.009').

The ***GINKGO*** tree is called a "living fossil." It is a member of the oldest living tree species on earth, whose fossils date back 270 million years. Even individual trees can live to be 3,000 years old! Ginkgos are *dioecious*, meaning that a tree either makes only male or only female reproductive parts (pollen or seeds), unlike most other trees, which make both. The ginkgo behind Slocum Hall bears female reproductive parts and in the fall produces fleshy orange seeds resembling berries, which contain the same chemical found in rancid butter and share a similar smell. Despite this, some people believe the seeds hold medicinal properties and the ginkgo, with its fan-shaped leaves and pegged branches is prized as an attractive and unusual tree. In fact, this particular tree was of such value to the Ohio Wesleyan community that rather than fell it to enlarge the Slocum Library in the 1960s, builders instead opted to construct Beeghly Library across Sandusky Street. A ginkgo with male cones can be found in front of Sturges Hall.

Taking the path that leads around the back (south) side of Elliott Hall, you will pass a solitary ***SHINGLE OAK*** (N40°17.741' W83°03.981'). Though it has typical acorns, the leaves of the shingle oak differ from the usual oak shape; the leaves are simple (not lobed) ovals with a slightly wavy margin. Elliott Hall, originally called Mansion House, was constructed in the 1830s as a hotel to accommodate tourists seeking the healthy waters of the nearby Sulphur Spring. The Mansion House offered a dining room, bar, card room, dance hall, drawing room, and numerous guest rooms for visitors to enjoy. Its purchase, headed by Methodist minister Adam Poe in 1841, led to its reincarnation as Elliott Hall and the founding of Ohio Wesleyan University.

As you pass behind Elliott Hall, notice the young Southern Magnolia, with its evergreen leaves. Across the path, on the slope, we have three **FALL WITCH HAZEL** bushes (N40°17.742' W83°03.970'). There are also three spring witch hazels to the right of the main entrance to the Science Center. Witch hazel, partially identifiable by its *oblique* (lopsided) leaf bases, has been a useful plant to humans for many reasons. The name comes from the Old English "wych," the divining rod used to locate water hidden underground. The nutty seeds were favored by Native Americans and taste similar to pistachios. If you can locate a ripe seed capsule, gently pull at it; when ripe, the seed capsule explodes, catapulting the seeds away from the parent plant. Flowers are produced at the same time that the previous year's fruits mature and release seeds. At present, witch hazel is one of the few American medicinal plants still approved by the FDA as an ingredient in over-the-counter products, including astringents, cosmetics, external pain relievers, and hemorrhoid treatments.

Just up the slope from the witch hazels, east of Elliott Hall, is a **HORSE CHESTNUT** tree (N40°17.747' W83°03.958'), with palmately compound leaves and round, husked fruits, similar to an Ohio Buckeye, which you will encounter later in the trek. At first glance, it is easy to confuse these two species, but they are distinguishable if you take note of the details: horse chestnut has a glistening, resinous coating on the buds, while the buckeye's buds are covered in a *glaucous* (whitish) bloom; horse chestnut's leaves comprise 7-9 leaflets while Ohio buckeyes tend to have 5 leaflets. The horse chestnut, which flowers in late spring after the buckeye, produces large, showy clusters of white flowers, while the Ohio buckeye's earlier yellow-green flowers are less conspicuous.

Beside the horse chestnut, a ***PERSIMMON*** tree produces edible orange fruits in the fall. Warning: Until the first hard frost, tannins make the fruit extremely astringent! Take the path that curves away from the Science Center back toward Merrick Hall. Just before the four-way intersection you'll find a ***SUGAR MAPLE*** hanging over the path on the left (N40°17.767' W83°03.941'). One of the most common trees in this area, the sugar maple gets its name from the sweet, sugary sap that is tapped in the spring to make maple syrup. (Ohio is the #4 state for maple syrup production in the U.S.) One way to identify the sugar maple is by its fruit, a *samara* (more familiarly known as a helicopter or whirligig), which grows papery "wings" to catch the wind for dispersal. You may also recognize the leaf of the sugar maple from the Canadian flag. Notice that some leaves on our tree are more full and flat, like a plate, while others have deeper cutouts, like a hand. Find examples of these leaves on the tree and consider why the tree might produce these different shade and sun leaves.

Next to the sugar maple is an ***AMERICAN BEECH*** (N40°17.770' W83°03.940'). These two kinds of trees are often found growing together in Central Ohio. The beech, with its distinctive smooth grey bark, produces beechnuts that are coveted by chipmunks, squirrels, and other mammals, but most notably by blue jays, which hoard nuts in underground caches. Blue jays are believed to have been the means by which the American Beech's range expanded in the postglacial period. In what is called a jump-dispersal pattern, American Beech reached Wisconsin by crossing habitats where it does not grow now, possibly by spreading

eastward across Lake Michigan or from the south across the Prairie Peninsula. This discontinuous pattern included 25-100 kilometer gaps, suggesting that the blue jay was the primary agent of seed dispersal, given its migratory and hoarding behaviors.

This path ends at the bases of giant ***AMERICAN SYCAMORES*** (N40°17.780' W83°03.953'), among the most striking trees on campus, growing tall with white and grey patchy bark resembling camouflage. The bark is unusually rigid and flakes off as the trunk, whose diameter exceeds that of any other North American hardwood, expands to make room for the growing tree. Sycamores can also be identified by their broad, plate-like leaves and green fruit balls dangling from the branches. If you are able, tear a fruit open and see the surprising inside of these hard balls: hundreds of little dry fruits attached to hairy fluffs. Why might the tree attach these hairs to its seeds?

As you take the path that leads toward Slocum and University Halls, notice the tall shrubs that grow along the paths. These are ***LILACS,*** and in early May they produce sweet-smelling bunches of purple flowers. In the circle drive behind University Hall is a tall ***EASTERN COTTONWOOD*** tree (N40°17.784' W83°03.973'). If it is late May or early June, you will easily be able to figure out how the cottonwood got its name: its seedpods open and release their seeds, which are attached to puffy, white strands like cotton. When all of the seedpods burst, the air is filled with the soft seed fluffs blowing in the wind, and these may be carried for miles. Find one of the cottonwood's triangular, wavy-margined leaves and observe the

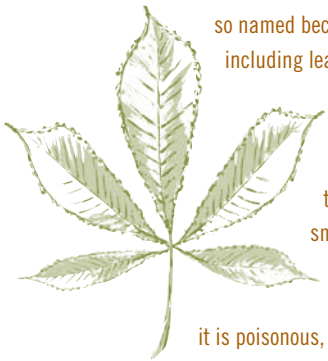
shape of the *petiole* (leaf stem). It is the flat petiole, attached perpendicularly to the leaf base, that causes the leaves to flutter in the slightest breeze. Near the cottonwood are a few ***FLOWERING DOGWOOD*** trees, whose lovely flowers open in April.

Take the path that leads past the eye-catching ***GOLDEN RAIN TREE,*** around to the back of Phillips Hall. At the very edge of campus, next to the Sulphur Spring, is one of the most beautiful and interesting trees on campus: the ***BALDCYPRESS*** (N40°17.816' W83°03.904'). It is distinctive with its shreddy reddish bark and needle-like leaves. In the fall, the tree loses its leaves in a unique way, by dropping entire branches. It is this deciduous habit within the usually evergreen plants of the Taxodiaceae family, that gives the tree the name "bald." Bald-cypresses grow in swampy areas and dominated the swamps that once covered the southeastern part of the United States. The most complete old-growth stand today, with trees around 500 years old, is found in the Corkscrew Swamp Sanctuary near Naples, Florida; trees more than 1,200 years old have been found in historic times. It is possible that the thickening at the bottom of the trunk (called buttressing) helps these trees stand strong in the hurricanes that strike the southern states; baldcypresses rarely topple, even in hurricane winds. Baldcypresses are an important resource for wildlife: the seeds feed wild turkeys, squirrels, evening grosbeaks, and wood ducks, and bald eagles and ospreys build nests in the treetops.

While you're here, check out the Sulphur Spring. Despite the bad smell, the water has long been considered healthful, and the University is located here because of the Sulphur Spring, which brought visitors to Delaware from all parts of the U.S. in the 1800s. Across the path from the spring is an

AMERICAN SWEETGUM (N40°17.821' W83°03.913'), recognizable by its spiky "gumballs" and palmately lobed, star-shaped leaves. Each gumball is in fact a cluster of many little green flowers that develops into a *multiple fruit*. The sweetgum takes its common name as well as its scientific name, *Liquidambar styraciflua*, from the balsamic resiny secretion on its buds. The oils can also be smelled when a leaf is crushed, and it was the resin of *Liquidambar* species that produced copal balsam, a valuable oil used medicinally and as a decorative lacquer that was later important in the development of styrene, the first manmade polymer. The sweetgum's leaves turn red, yellow, and purple in the fall, making it one of the most beautiful trees in the area.

Directly behind the sweetgum is an **OHIO BUCKEYE** (N40°17.825' W83°03.915'), the state tree of Ohio. Another name for this tree is the Stinking or Fetid Buckeye, so named because all parts of the tree, including leaves, flowers, twigs, and bark, give off a bad smell when crushed. As is the case with many other plants that produce unpleasant smells, the odor is meant as a warning to herbivores not to eat this tree because it is poisonous, although some animals are able to eat the fruits. The Delaware Indians took advantage of this toxic property by adding ground nuts to streams in order to stupify and catch fish. In fall, the buckeye tree drops hard, round fruits that contain two or three smooth, brown seeds. Try breaking a fruit open and see if you agree with the Native Americans, who thought the seeds look like the eyes of male deer, and so gave the tree the nickname of "buck's eye."



Wander through the lawn along the Delaware Run, the stream that borders campus, where there are many types of trees that

like to grow by water. One of these is the ***AMERICAN BASSWOOD*** (N40°17.860' W83°03.981'), a tall tree on the stream bank with branches that sweep down to the ground and which tends to produce multiple trunks. The *cordate* (heart-shaped) leaves of the basswood have oblique bases, like the witch hazel, with main veins radiating out palmately. Look for flowers in June; they grow in clusters of sweet-smelling yellow flowers and are pollinated by bees, which make excellent honey from the flowers' nectar. If it is later in the season, these flowers turn into light brown nutlets that hang in the cluster with a light, papery bract attached. The wind catches the bract and blows the little nuts away or they fall into the stream and float away on the water. Can you spot more sycamores growing nearby?

As you follow the stream, you will meet a path that leads toward Edgar Hall. To the left of the path, between the Delaware Run and University Hall, is one of the fiercest trees around, the ***HONEYLOCUST*** (N40°17.838' W83°04.021'). The trunk and twigs of this tree grow long, branching thorns. Be careful, they are as sharp as they look! According to a grisly local legend dating back to the War of 1812 era, two drunken soldiers based in the area got into a fight, resulting in one of them being thrown against the honeylocust. A thorn growing from the tree trunk pierced through his ear into his brain, killing him. The other soldier, afraid for his life, hid the body in a vat of the old tannery, which used to be located next to the Delaware Run. For more local folklore and early campus history, see *Ohio Wesleyan's First Hundred Years* by Henry Clyde Hubbart (1943), available in Beeghly Library. One thing the honeylocust shares with most other plants in its family, the legume or bean family, is *compound* leaves. If you examine the branches and you can see that there are many tiny leaves growing along a stem, and that the entire stem of leaves actually comprises only one leaf. Plants in the

legume family also grow seedpods, which are almost a foot long on the honeylocust. The pods and beans inside contain a great deal of nutrition and energy. Many animals love to eat them, including cows, pigs, squirrels, rabbits, possums, crows ... and humans! These pods ripen from late September to mid-October and can be opened up to show a green, slimy pulp inside. Try tasting this pulp; you will find it very sweet, like honey. This is how the honeylocust gets its name.

The path that leads from Edgar Hall to University Hall is lined with ***FLOWERING CRABAPPLES***, which are planted more for their beautiful pink, white, and red spring blossoms than for their tiny, bitter fruits. It is not uncommon, however, to make a fine jelly from the fruits, which contain a high amount of pectin. In the lawn between this walk and Sandusky Street, locate a ***SASSAFRAS*** tree (N40°17.843' W83°04.046'). Besides its green twigs, the sassafras is unusual because it can produce, on the same branch, four different forms of leaf. Can you find all four? Like other members of the Lauraceae family, which includes avocados, cinnamon, and bay leaf, sassafras produces aromatic oils, which are expressed in the leaves and roots; try chewing on a leaf and see what it tastes like to you. Because of medicinal and culinary uses learned from Native Americans, sassafras became one of the first exports to the Old World. The roots were traditionally boiled into a medicinal tea and the dried, ground leaves known as filé powder still are used for thickening sauces and soups such as in filé gumbo in Cajun and Creole cooking. Along with molasses, the roots were once the primary flavoring in root beer. More recently, a compound, safrole, contained in the roots has been identified as a carcinogen with many harmful effects, and safrole-containing products have been banned in the U.S. and Canada.

Walk past University Hall to Slocum Hall, and turn right down the alley of ***EUROPEAN LINDENS*** (N40°17.774' W83°04.041') that leads to Sandusky Street. Cross on to the JAYwalk, which connects the academic and residential sides of campus. Just past the main sign, notice the collection of magnolias to the right, including the ***SWEETBAY MAGNOLIA*** (N40°17.780' W83°04.110'). Early colonists nicknamed the sweetbay "beavertree" because the fleshy roots were used as bait in traps to catch beavers. The plant is also very popular with deer, which browse on the leaves and twigs year-round, and cattle, whose winter diet can comprise up to 25 percent sweetbay. The fruits are unique, made of an aggregate of follicles containing bright red seeds. When ripe, the fruits open and the seeds hang suspended by fine silky threads, to be dispersed by birds. Though not a native to Ohio, the sweetbay magnolia is a commonly planted species because of its beautiful fruit, foliage, and flowers, which give off a mild lemon scent. Another interesting feature of the sweetbay is its ability to be both deciduous (in the northern portion of its range) and evergreen (in the southern portion of its range). Are you able to tell whether our sweetbays are deciduous or evergreen?

Another point of interest along the JAYwalk is the Maple Garden (N40°17.772' W83°04.150'), located to the left of Beeghly Library. This area includes a variety of mostly cultivated maple species, including the aptly named ***CHINESE PAPERBARK MAPLE*** and a number of Japanese maple varieties.

The large, green-roofed building across from the library is the Hamilton-Williams Campus Center, a hub of student activity. "Ham-Wil" houses the Student Involvement Office, various academic and student services offices, and the Chaplain's office, as well as three dining options, the mailroom,

bookstore, and the Benes Rooms, where many lectures and events take place. Students gather here throughout the day to eat, work, and hang out in the atrium. It's a good place to finish the tour or take a break before continuing. This next part of the tour is a longer walk, approximately ½ mile, but it ends at the lovely Monnett Garden. The Monnett Garden and the lawn between Sanborn Hall and Austin Manor is another area containing historic OWU buildings and large trees. Parking is available behind Sanborn Hall, or you may continue on for a guided walk.

At the end of the JAYwalk, continue straight down Rowland Avenue. The little park beside the fire station is a nice place to hear music performed or enjoy the ample shade provided by the large trees, which include a ***TULIP TREE*** (N40°17.788' W83°04.313') and another ***AMERICAN BASSWOOD*** (N40°17.780' W83°04.319'). Also on Rowland Avenue, find another female ginkgo. Along the other side of Rowland Avenue is a row of Small Living Units (SLUs), of which there are nine on campus. SLUs are coed community living houses that promote student activism according to each house's mission statement. House themes include the Women's House (also a resource center for women's concerns and safety on campus), Creative Arts, Modern Foreign Languages, and the Treehouse (for environmental interests).

As you enter the residential side of campus, across the crosswalk, you are greeted by a pair of enormous ***BLACK PINES*** (N40°17.802' W83°04.406'). Take the path that crosses the Welch lawn, then walk west on Oak Hill Avenue. As you walk beside the ravine on the north side of the street, see if you can pick out the

SHAGBARK HICKORIES from among the ***WHITE OAKS, MAPLES, OHIO BUCKEYE***, and ***BLACK WALNUTS*** growing there (N40°17.859' W83°04.490'). Bats are known to roost under the hanging plates of bark on this tree. Shagbark hickory nuts are the tastiest of native hickories in Ohio, but they're protected by a thick husk and hard shell. Even squirrels have to work hard to open them.

Enter the Stuyvesant Hall parking lot on the right and walk to the rear northwest corner of the lot. In the brick mansion beside the Student Observatory (built by the house's Civil War-era inhabitant and OWU professor, Hiram Perkins) is another SLU, the House of Peace & Justice, which has been in existence since 1986. The house is surrounded by a grove of ***BLACK WALNUT*** trees (N40°17.017' W83°04.629'). The black walnuts have *pinnately compound* leaves with 15-23 leaflets, and exude aromatic oils from the leaves, twigs, and fruits, including a black liquid that can be used as a natural dye. This tree also secretes juglone, a chemical that inhibits the growth of other plants' roots in order to decrease competition for resources. This *alleleopathic* property of walnuts has been known since Roman times, and was first mentioned by the naturalist writer Pliny the Elder (AD 23- AD 79). While the fruits of the black walnut are edible, they are not as sweet as the commercially available English walnut. If you are able, break open a twig and note the chambered pith inside.

Go down the front steps of the House of Peace & Justice, located next to a beautiful, pink-flowering Saucer Magnolia, to William Street and cross at the light to Elizabeth Street. As you walk up the street, you will pass the drive to Blue Limestone Park, a former quarry and good place for observing migrating birds. As you enter the Monnett Garden and surrounding lawn by the

entrance sign on Elizabeth Street, you will pass between two large orange stone spheres on either side of the walk. These are *concretions*, unique round rock formations whose diameters range from a few inches to 9 feet. Concretions form in shale, compacted layers of ancient soil that in Ohio date back 360 million years, and are found along certain streams. These two concretions most likely came from our local Olentangy River. Concretions form in a (not completely understood) process of mineralization around a core, usually some type of organic matter, and fossils found in concretions include those of ancient crustaceans and rare fishes. If you are able, visit the Highbanks Metro Park on US23 South for a better understanding of concretions, a treasure in our local natural history.

The lawn between Sanborn Hall and Austin Manor is filled with magnificent **WHITE OAKS** and other oak varieties (N40°18.051' W83°04.594'). As evidenced by our trees, white oaks live to be very old, some more than 500 years. One famous white oak, called the Charter Oak because the colony's first charter was kept hidden in its trunk, is featured on the Connecticut state quarter. Like other members of the Oak *(Quercus)* genus, white oaks contain *tannins*—bitter, astringent metabolic compounds—developed as a protective mechanism against herbivores, but whose properties have many uses for humans. Tannins bind to and precipitate proteins, so they can be harmful to animals, but in low doses they act as biological antioxidants, which may defend against oxidative damage. Tannins are familiar to us as antioxidants in tea and wine, and in fruits, such as pomegranate, persimmon, and many berries. Other common genera that are high in tannins include *Acer* (maple), *Betula* (birch), *Salix* (willow), and *Pinus* (pine). The word tannin, which gave rise to the term leather tanning, comes from an ancient Celtic word for oak.

Another noteworthy tree, located near the Monnett Garden and most striking in the fall, is the **BLACK GUM**, also known as Black Tupelo (N40°18.054' W83°04.623'). This tree

is one of the first to turn in the fall, and its fiery red foliage acts as a *foliar fruit flag* to attract migratory birds—the tree's means of seed dispersal—to eat the otherwise inconspicuous and easily overlooked dark little fruits. The heartwood rots easily out of old black gums, creating ideal dens for wild animals, including black bears (though not in Ohio). Pioneers used the hollow trunks as bee gums, places for bees to make hives. They could make many from one tree because the trunk grows tall and unbranched. Wild bees also make use of the black gum, whose nectar is used to make honey (hence the Van Morrison song). Also near the garden are two species of birch. Can you locate these trees, characterized by their peeling, paper-like bark?

The Monnett Garden is a peaceful place to rest or read. It is named after Monnett Hall, which used to stand in its place. Monnett Hall was constructed in 1857 to house a women's college (est. 1853) at a time when Ohio Wesleyan was a males-only establishment. It was named for Mary Monnett, who donated ten thousand dollars to University trustees for the building's completion while she was a student here. The female college and male university were united in 1877. A wealth of entertaining stories and traditions from the days of separation can be found in *Ohio Wesleyan's First Hundred Years*. Today, the garden is maintained by a volunteer group from the Delaware community. Its role as a place of meditation and reflection continues, where one can experience both the spirit of the University's long history as well as the beauty of the trees and garden growing there today.

Conclusion:

A research binder with more complete information on many of the facts presented here is available in The Jason Swallen Herbarium in the Botany Department. If you are interested in learning more, you can find a variety of field guides in the University and Delaware libraries. Above all, let your own experience of the world around you be your teacher.

Thanks to Amanda Masters, '08 for writing this brochure
and Kate Ball, '11 for creating the illustrations.

Thanks to Greg Stull, '09 and
Anna Marie DelPropost, '10
for editorial assistance and to
Dr. David Johnson and Dr. Nancy Murray
for advice on the project.

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08.09