# OBig Trees of ARE ERVICE Delaware

DELAWARE **FOREST SERVICE** 

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5th Edition



A Guide to the Largest Trees in the First State



Blackbird State Forest in New Castle County



Redden State Forest in Sussex County



Funding for this book was provided by the Delaware Forest Service Urban and Community Forestry Program

## Delaware Forest Gervice

Our Mission: To conserve, protect, and enhance Delaware's

forests through education, management, and

professional assistance.

Our Pledge: Delivering quality services in a timely and

professional manner with courtesy and integrity.



To achieve our mission, the Delaware Forest Service maintains offices in all three counties in the First State. Our professionals provide a wide variety of services through several state and federally funded programs. These services cover three main areas—Forest Conservation, Forest Protection, and Forestry Education.

The Forest Conservation Program helps Delawareans better manage their forest resources. This program includes the following services:

- Forest management assistance to Delaware landowners
- Reforestation assistance, including low-cost tree seedlings
- Community forestry assistance and grants to cities and towns
- Marketing forest products

The Forest Protection Program helps homeowners and landowners to monitor, maintain, and improve the health of Delaware's forests through several services:

- Wildland fire prevention and suppression
- Enforcement of forest protection statutes such as the Seed Tree Law and the Erosion and Sedimentation Law
- Forest diseases and pests—diagnosis and treatment recommendations

The Forestry Education Program helps educate Delawareans about the critical importance of our forests:

- Management of three state forests Blackbird, Redden, and Taber totaling nearly 21,000 acres
- Education and information programs to increase public knowledge of forestry issues

We are happy to help the public learn more about our services or arrange a meeting with a forester to discuss forest management or community trees. Please visit our offices, call us at (302) 698-4500 or (800) 282-8685, or visit our website at: de.gov/forestry.

#### **Big Trees of Delaware**

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**American holly** 



Eastern redbud



Yellow-poplar

Delaware's first state forester William S. Taber measures a champion white oak in 1940.



In 1932, this yellow-poplar was Delaware's tallest tree.



This white oak in Dover is hundreds of years old.

## Introduction

What literally covers the First State from Claymont to Cape
Henlopen? Trees of all kinds... from Atlantic white-cedar to zelkova!
The largest specimens of many of these species are listed in this publication, *Big Trees of Delaware, Fifth Edition*. For example, one can find the record of the state's tallest tree, a majestic 173-foot-tall yellow-poplar at Winterthur in Wilmington, as well as an American hornbeam at Hagley Museum in Wilmington that is 41 feet tall. While the hornbeam is not as tall as the yellow-poplar, it is still the largest of its species reported in Delaware thus far; therefore it can be appropriately listed and recognized as a Big Tree.

Over the years, people have organized lists of trees for various purposes. Some lists included historical trees, some of notable trees associated with certain natural areas, and some of Delaware's Big Tree Champions. One of the first lists was recorded in William S. Taber's book *Delaware Trees* in 1939. In 1960 Walter Gabel started a list of "Penn Trees" that included white oaks recognized as growing during William Penn's time. The Delaware Forest Service published its first edition of *Big Trees of Delaware* in 1995, a second edition in 2000, a third in 2006, and a fourth in 2012. We hope that you sincerely enjoy this new *Fifth Edition* as you continue your search for Delaware's biggest trees!

# Measuring Big Trees

Three distinct measurements are used to compare trees of the same species. These numbers are added to create a total point value that decides whether a tree is a champion of its species:

- 1. Circumference
- 2. Height
- 3. Average Crown Spread

#### 1. Circumference

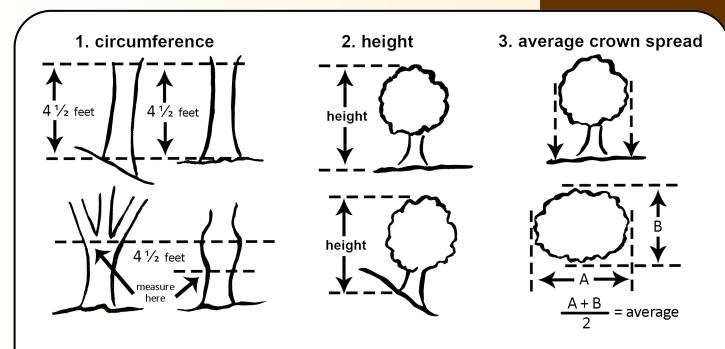
Circumference at Breast Height (or CBH as it is often referred) is measured in inches at a point on the tree trunk 4-1/2 feet above the ground. If a tree grows on a slope, the 4-1/2 foot point is determined from its uphill side. The tree must have a single trunk for a least 4-1/2 feet to be deemed a single tree. A tree forked below 4-1/2 feet is considered two trees. If there is abnormal swelling at that point, the measurement should be taken at a point lower on the trunk to reflect the normal size of the tree.

If circumference is measured at a point other than at 4-1/2 feet, this should be noted. For example, a tree might be recorded as 75 inches at 3-1/2 feet. The objective should be to measure the circumference as near 4-1/2 feet above the ground as possible and yet show the tree's normal size. If you do not have a diameter tape to measure the circumference, use a non-stretching rope or cord to get around the tree, and mark it. Then lay the rope flat and measure the length in inches. One point is given for each inch of circumference.

#### 2. Height

Tree height is measured from the ground line to the highest point on the tree. If a tree grows on a slope, the line is determined from the uphill side. Height measurements are difficult to make without a proper instrument, such as an Abney level or a clinometer, but one can get a fairly good reading by using a straight stick. First, hold the stick vertically (plumb), and be certain that the length of the stick above your hand equals the distance from your hand to your eye (usually about 24–25"). This creates a right-angled triangle.

Now move away from the tree, on level ground, and sight over your hand to align the base of the stick with the bottom of the tree and stop when the top of the stick is level with the top of the tree. (Do not move your head up and down, just your eye.) Now the distance from you to the tree is equal to the tree's height. One point is given for each foot of height.



Circumference (inches) + Height (feet) + 1/4 Average Crown Spread (feet) = Total Score (points)

#### 3. Average Crown Spread

Two measurements are taken at the outer edges (drip line) of the spreading crown to measure its average spread. Measurements are recorded in feet at the widest point of crown spread and at the narrowest point. These two measurements are added together and divided by two to get the average crown spread.

One-fourth of a point is given for each one foot of average crown spread (or one point for each four feet of spread). Points from each measurement are added to determine a total point value. A co-champion tree is named if it is within five points of a champion. If you have difficulty measuring a Big Tree nominee, just measure it to the best of your ability.

When submitting a tree, include a notation with your entry that the measurements will need further verification. Three other items are necessary for a Big Tree nomination: the landowner's name and address, the nominator's name and address, and the tree's exact location. With this information, your tree could be in the next *Big Trees of Delaware*. You can send information on a tree nomination to the following address:

"Big Trees of Delaware" c/o Delaware Forest Service 2320 S. DuPont Highway Dover, Delaware 19901

# Selection of Tree Species

The Delaware Forest Service selected the species of trees to be included in this book. A commonly accepted definition of a tree is a woody plant with a single, central stem capable of reaching 30 feet in height. Plants that did not meet this definition were not considered. For example, mountain-laurel is not included because, although common, it rarely exceeds 15 feet in height and lacks a central stem.

Invasive exotics are also excluded because they represent a serious forest health issue. Invasives are plants that are not native to this region. However, once introduced, invasive trees grow rapidly, typically produce abundant windborne seeds, and spread quickly. Invasive trees compete aggressively with the native trees of Delaware and are difficult to eradicate once established.







Littleleaf linden



Kentucky coffeetree



Willow oak

A big tree is interesting not only for its size, but also its uniqueness, age, appearance, and historical significance. For example, the dawn-redwood was once thought to be extinct, but was rediscovered in China and later introduced to Delaware, where it is a valuable tree in community settings.

Examples of invasive exotic trees excluded from this publication are widely-planted trees such as Norway maple, white mulberry, and tree-of-heaven. Natural resource managers spend thousands of dollars annually to combat the spread of invasive exotics.

However, many exotic trees are not invasive. This list includes trees such as Norway spruce, ginkgo, and dawn redwood that have been brought from other parts of the world and are widely planted throughout the state. Unlike invasive exotics, these trees do not reproduce aggressively or spread too rapidly, and therefore do not threaten the health of native forests. These well-known and handsome trees are important components of our urban landscapes, and are included in this edition.

There are, however, some species for which no official champions have been found, such as swamp white oak. Who knows? Perhaps your discovery might lead to the crowning of tomorrow's champion!

While visiting a Big Tree can be an awe-inspiring experience, it should be enjoyable for everyone, including the tree's owner. Please respect an owner's rights and wishes by asking permission to view a tree. And good luck finding a Big Tree champion!

# Benefits of Trees

Who can put a value on an old shade tree? Many times the term "value" automatically evokes the idea of dollars and cents, but trees offer a diverse range of valuable benefits that are, quite simply, priceless. The many contributions that trees make to society are often taken for granted, or maybe only the most obvious come to mind. But considering just a few of these many benefits, one can develop an even greater appreciation of trees.

#### 1. Shade or Cooling Effect

Cities tend to be warmer than the surrounding countryside by an average of 1 to 2.5 degrees Fahrenheit. Trees and shrubs, used wisely, can help combat this warming effect in at least two important ways. The first involves how the tree deals with direct sunlight (solar radiation). In the summer, the leaves in the tree's crown reflect and absorb solar radiation, thus creating a cooling effect on hot days. Conversely, in the winter, the leaves are gone from the tree and more solar radiation reaches the ground where we appreciate it on those cold winter days.

The second is the release of water into the atmosphere, a process known as transpiration. Research has shown that a single isolated tree can transpire approximately 88 gallons of water per day, providing there is sufficient soil moisture available. This can be compared to the cooling activity equivalent to five window-mounted air conditioners.

#### 2. Wind Reduction - Wind Breaks

The ability of trees to alter wind patterns has been recognized for years. The shelter belts that were planted during the dust bowl days were very effective as windbreaks. But how many of us have stopped to consider how conifers (such as pine trees) planted on a slope can impede the cold air that would normally flow to a low-lying frost pocket? Planting trees in the right places can provide many benefits.

It is important to remember that trees, which are not required to be taken down every summer, serve as natural snow fences. A few dense trees planted in the right place around your home will reduce winter heating bills by blocking the passage of air into the house and reducing heat loss.

#### 3. Noise and Odor Abatement

Leaves, twigs, and branches have been shown to absorb sound and reduce ambient noise. Trees are also an effective barrier to wind-driven odor.

#### 4. Pollution Abatement

Aside from the familiar carbon dioxide-oxygen exchange, trees definitely help give us cleaner, purer air. There is no denying the filtration value of leaves—just look closely at the leaves of a tree on a hot summer day and notice the dust and dirt that has collected. And once autumn leaves fall, they begin to function as a soil filter.

#### 5. Wildlife Habitat

It is easy to understand the value of habitat. Trees provide two essentials for wildlife: food and cover. Depending on the amount, type, and spacing of the trees, you can attract many species of wildlife to your home, from songbirds to deer. Yet, stop and think, how many species of wildlife would you attract without trees and shrubs?

#### 6. Natural Beauty

The aesthetic qualities of trees can make any house more visually appealing. Architecturally, plants are used to cut harsh lines, for traffic control, and for special effects around the home, and what about the imaginary jungles they spark in the minds of children? More broadly, trees provide breathtaking panoramas in our rural areas and create a rainbow of colors in our hardwood forests each fall. The world would be a mundane place without them.

# Proper Tree Care

Trees face many stresses from construction damage, insects, disease, fire, pollution, and even drought. Therefore, it is vital to properly care for trees to ensure they stay vigorous and healthy for many years to come.

Just a few simple tree care practices can do wonders for a tree by improving its health. The most commonly neglected part of the tree is the root system. Most of a tree's roots are located within the top 12 to 18 inches of soil. Additionally, a tree's roots may spread up to three times as far from the trunk as the crown width of the tree. This is "the root zone."

The following are precautions you can take to protect the health of a tree's roots:

- Do not cut or remove soil in the root zone. This exposes the roots to possible drying or sun damage.
- Do not add more than two inches of fill dirt in the root zone. This limits the gas and water exchange, effectively smothering a tree's roots.
- Roots grow in a radial pattern outward from the tree's trunk. Never trench across
  this radial root pattern, as a devastating number of roots will be severed. If trenching
  is required for utilities or other reasons, attempt to route trenches away from the
  root zone. If not possible, consider boring under the root zone rather than trenching
  through it.
- Avoid vehicle traffic, parking, or pedestrian traffic in the root zone. Each can cause soil compaction, which is detrimental to tree roots.
- Use caution when applying fertilizers or pesticides in the root zone. Many products designed for turf can be very harmful to trees.



Sweetbay magnolia



White oak



American beech



Sweetgum



Red maple



**Black locust** 

#### Mulching

Proper mulching serves three beneficial functions for trees:

- Mulch controls tree stress by stabilizing soil temperature and holding moisture in the soil.
- 2. Mulching prevents damage from trimmers and lawnmowers by keeping them away from a tree.
- 3. Mulch reduces competition to trees from turf and weeds.

Ideally, mulch should be placed two to four inches thick over the entire root zone. If not possible, mulch as far out from the trunk as practical. Keep mulch one to two inches away from the trunk of the tree, as contact with the trunk may promote decay. Do not place mulch greater than four inches thick. This interferes with gas exchange in the soil.

#### **Pruning**

Pruning may be necessary or desirable to remove dead, diseased, or insect-infested branches, or to improve tree structure, enhance vigor, or maintain safety. Pruning of mature trees should be performed by professional arborists.

When pruning, try to keep these basic rules in mind:

- 1. No branch should be removed without a reason.
- 2. When removing an entire branch, make the cut just outside the branch collar.
- 3. Avoid major pruning after the spring growth flush.
- 4. Minor pruning when the tree is young might prevent major pruning years later.
- 5. Remove dead or damaged limbs and limbs that rub or cross one another.
- 6. Never top a tree! This practice is extremely detrimental to tree health.

#### **Selecting an ISA-Certified Arborist**

Always check to ensure that an arborist is licensed, insured, and can provide references. The International Society for Arboriculture sponsors its Certified Arborist Program for three main reasons:

- 1. To improve the technical competency of tree care industry personnel.
- 2. To create incentives for those in tree care to continue their professional development.
- To provide a means for the public to identify those professionals who have demonstrated, through rigorous education and exams, a thorough knowledge of tree care practices.



Trees provide numerous natural benefits to the First State.

## National Register of Big Trees

The National Register of Big Trees is a list of the largest recorded living specimens of each tree variety found in the continental United States. A tree on this list is called a National Champion Tree.

This list has been maintained since 1940 by American Forests. Founded in 1875 as the American Forestry Association (AFA), American Forests is the oldest national conservation organization in the United States. To be eligible, a species must be recognized as native or naturalized in the continental U.S., including Alaska.

The current list of National Champion Trees can be found online at: https://www.americanforests.org/get-involved/americas-biggest-trees/champion-trees-national-register/

In addition to the national list, several states, counties, and cities maintain their own list of local Champion Trees. Many are on public ground and can be visited without obtaining prior permission. The public may nominate trees as well.

As of 2006, the largest National Champion Tree is a giant sequoia located in California. Known as the General Sherman tree, it is estimated to be about 275 feet tall, 85 feet in circumference, and 107 feet in average crown spread. According to the National Park Service, the General Sherman is the world's largest tree, measured by volume.

At the time of publication, Delaware's only representative on the National Register of Big Trees is an Osage-orange (*Maclura pomifera*) at Hagley Museum in Wilmington. It is considered a "co-champion" with 412 points, because it is within five points of the current national champion Osage-orange in Charlotte County, Virginia (416 points) and a second national co-champion in Fairfax County, Virginia (414 points).



Delaware Forest Service staff members have spent many hours in the field recording measurements for the current edition of "Big Trees of Delaware."



Hagley Museum's
Osage-orange is the
only tree species in
the First State currently
listed on the National
Register of Big Trees.



The largest National
Champion Tree is the
"General Sherman,"
a giant sequoia in the
Giant Forest of Sequoia
National Park in Tulare
County, California.
By volume, it is the
largest known living
single-stem tree on Earth.



Conifers belong to a group of trees known as gymnosperms, or "cone-bearing" seed plants. Conifers include trees such as: cedars, cypresses, firs, junipers, kauri, larches, pines, hemlocks, redwoods, spruces, and yews. While usually evergreen, some conifers are deciduous, losing their needle-like leaves in winter.



Atlantic white-cedar



**Baldcypress** 

Conifers dominate large areas of land on Earth, particularly the forests of the northern hemisphere. Since they first appeared around 300 million years ago, conifers evolved biological features such as wind-based pollination and the unique ability of their needles to retain moisture and reduce water loss. Many conifers can survive harsh winter conditions because their conical shape and downward-sloping limbs help shed snow. Conifers also can adjust their internal chemistry to resist freezing, a process called "hardening."



The world's coniferous forests constitute the world's largest collective carbon sink and therefore help to make our planet a better place to live. Conifers also hold tremendous economic value, primarily for timber and paper production. The wood of conifers is known as softwood, however, some species (including southern yellow pines) have wood that is stronger than some hardwoods.

## Hlantic white-cedar

Atlantic white-cedar is not a true cedar (actually a cypress) but can often be found near streams and in wet, boggy areas in southern Delaware. Its light, soft, fragrant, and durable wood is used for boats, shingles, and decoys. Not as common due to stream drainage, this columnar-shaped tree has bluish-green leaves and holds appeal for wetland reclamation purposes.

Atlantic white-cedar Chamaecyparis thyoides				
Location	Points	C.B.H.	Height	Crown
Routes 36 & 626, Milford	209	119	84	23
Carey Farms property, Milton	192	105	82	21
2558 Betts Pond Rd., Millsboro	176	90	79	30



Atlantic white-cedar has flat, scale-like leaves. Its thin bark and leaves are prone to fire damage and the tree is vulnerable to high winds due to its shallow roots.

# Baldcypress

Baldcypress is Delaware's only truly native deciduous conifer and is often found in swamps and ponds in southern Delaware. It is identified by its broadly-flared trunks and root-like knees. Suited for parks and large estates, its light and durable wood is used for shingles and boats. One of the northernmost natural stands of baldcypress in the U.S. is at Trussum Pond near Laurel.

Baldcypress Taxodium distichum				
Location	Points	C.B.H.	Height	Crown
Delaware Avenue, Laurel *	377	259	100	72
Cubalo Park, Millsboro	362	248	94	78
North of Trussum Pond, Laurel	281	161	108	50
* behind R.J. Riverside Restaurant				



Baldcypress leaves are flat, linear, and light-green with one-inch round cones that occur singly or in clusters of two or three.



Dawn redwood has flat leaflets arranged opposite each other. It is one of the few conifers to shed its needles (the others are baldcypress and larch).

## Dawn redwood

Dawn redwood, once thought extinct, is native to Asia and one of three conifers classified as redwoods (along with the giant sequoia and Pacific coast redwood). Capable of heights over 100 feet, it has a conical crown and a large straight trunk. Well-suited for long drives or streets, it is found in urban areas and estates throughout Delaware.

Dawn redwood Metasequoia glyptostroboides			
Location	Points C.B.H. Height Crown		
Winterthur, Wilmington	324 210 98 63		
Mt. Cuba Center, Greenville	317 162 140 60		
212 Clayton Avenue, Clayton	282 179 87 63		



Ginkgo leaves have a unique fan shape. Extracts from ginkgo trees are sold as herbal supplements that claim to improve mental function and memory.

# Ginkgo

**Ginkgo** is considered the oldest tree species in the world and a link between conifers and prehistoric plants. Planted in parks, gardens, and urban areas because it is hardy and resistant to disease, male ginkgos are preferable because the fruit of female trees can be messy and emit an offensive odor. Ginkgo is easily identified by its fan-shaped leaves that turn a brilliant yellow color in the fall.

Ginkgo Ginkgo biloba				
Location	Points	C.B.H.	Height	Crown
201 Quintynnes Dr., Wilmington	309	177	108	95
State Housing Authority, Dover	308	198	90	79
959 Hazlettville Rd., Wyoming	303	217	68	74



Eastern hemlock has flat, round-tipped needles. It has oval cones that hang on short stalks at the tips of branchlets.

## Hemlock

Hemlock is a slow-growing conifer native to northern New Castle County. It is a favorite ornamental that makes a great hedge. Often found on moist sites due to its preference for shade, it also adapts to other soil types and to pruning. However, hemlock is susceptible to the hemlock woolly adelgid, an exotic insect that can kill the tree.

Eastern hemlock  Tsuga canadensis				
Location	Points	C.B.H.	Height	Crown
701 Delaware Ave., Wilmington *	189	99	79	44
1381 South State St., Dover	170	79	80	46
* Wilmington & Brandywine Cemete	ery			



Dawn redwood



Ginkgo



Eastern hemlock



Eastern redcedar



Eastern white pine



**Loblolly pine** 

# Juniper

Eastern redcedar is Delaware's only native juniper, but it is not a true cedar. Its red and white wood is lightweight, aromatic, and durable, and it is often used to line closets and chests. Although it grows slowly, redcedar is useful for windbreaks and screens. Shade-intolerant, it grows well in adverse conditions and its berries are favored by birds.

Eastern redcedar Juniperus virginiana				
Location	Points	C.B.H.	Height	Crown
971 Cloverfield Lane, Houston	204	130	65	36
379 Stockley Road, Millsboro	194	126	58	42
Routes 9 and 518A, Georgetown	n 183	113	59	44



Eastern redcedar is a "pioneer species" that is often one of the first trees to occupy open areas. It is able to expand its range because its berries are a food source for birds.



Eastern white pine is a long-lived species rich in historical and economic significance. Most of Delaware's native pines are located in its south, however, white pines are planted throughout the First State. Its wood is light, straight-grained, easy to work, but not strong. White pine is often used in cabinetry, interior finishes, and other types of lumber.

Eastern white pine Pinus strobus				
Location	Points	C.B.H.	Height	Crown
701 Delaware Ave., Wilmington *	261	144	101	64
Bellevue State Park, Wilmington	256	124	117	60
Rockwood Park, Wilmington	255	125	117	52

\* Wilmington & Brandywine Cemetery

**Loblolly pine** is the main commercial species in Delaware and it is predominantly found in the southern part of the state. Adaptable to many sites, it seeds into open areas readily. Loblolly seeds are eaten by wild turkeys, squirrels, and some songbirds. On good sites it can reach 100 feet in height with a trunk diameter of two to three feet.

Loblolly pine Pinus taeda				
Location	Points	C.B.H.	Height	Crown
Redden State Forest, Georgetown <sup>1</sup>	262	124	122	63
Redden State Forest, Georgetown <sup>2</sup>	251	114	123	55
9 Eagle Way, Rehoboth	241	109	121	43
<sup>1</sup> Headquarters Tract <sup>2</sup> Jester Tra	ict			



Eastern white pine needles come in bundles of five, each 3 to 5 inches long. The tree is suited for both reforestation and landscaping uses.



Loblolly pine usually has three needles per bundle (but sometimes two) that are typically 6 to 9 inches long.



Pitch pine needles are 2.5 to 5 inches long with three needles per bundle.



Shortleaf pine needles grow in clusters of two or three, each 3 to 8 inches. Cones are 1 to 4 inches and wider at the base than the tip.



Virginia pine has two needles per bundle, each of which is about 1.5 to 3 inches long.

## Pine continued

Pitch pine usually grows 50 to 60 feet tall with diameters of two to three feet. Its branches are often contorted, giving it a ragged but picturesque crown. Its coarse-grained wood is very durable and can be used for lumber, but is more likely to be used for fuel or other products. An unusual trait of the tree is the presence of needles growing from the trunk.

Pitch pine Pinus rigida				
Location	Points	C.B.H.	Height	Crown
Redden State Forest, Georgetown *	210	84	93	38
Redden State Forest, Georgetown *	185	77	100	30
Redden State Forest, Georgetown *	164	60	98	25
* Headquarters Tract				

Shortleaf pine is a hard pine that grows from 80 to 100 feet on favorable sites, with diameters of two to three feet. Its slender branches often form a pyramid-shaped crown. Similar to other southern yellow pines, its wood is heavy, hard, shock-resistant, and useful for building materials. Its cones are ovoid in shape and its seeds provide food for wildlife.

Shortleaf pine Pinus echin	ata			
Location	Points	C.B.H.	Height	Crown
Redden State Forest, Ellendale 1	175	68	99	31
Austin Short's Farm, Georgetown	164	64	91	36
Redden State Forest, Georgetown <sup>2</sup>	142	60	75	29
<sup>1</sup> Jester Tract (Long Rd., West gate) <sup>2</sup> Headquarters Tract (behind Lodge)				

Virginia pine, also known as scrub pine, is a small or medium-sized tree useful for reforesting abandoned lands and also as a source of pulpwood and lumber. However, a few record trees have measured over 100 feet in height. Virginia pine tends to do best in moderately well-drained soils and is less tolerant of wet sites and impeded drainage than pitch or loblolly pines.

Virginia pine Pinus virginia	na			
Location	Points	C.B.H.	Height	Crown
Redden State Forest, Ellendale *	184	76	98	41
Killens Pond State Park, Felton	182	70	101	44
22375 Donovan Rd., Milton	177	82	86	34
* Jester Tract				



Pitch pine



**Shortleaf pine** 



Virginia pine



Hardwood trees belong to the class of trees known as angiosperms, which means they produce seeds with some type of outside covering. This might be a fruit, such as a pear or an apple, or a nut with a hard casing such as an acorn, walnut, or a pecan.



Green ash



White ash

Hardwood trees differ from conifers (softwoods) in several important ways. Unlike gymnosperms, which have seeds (cones) with no covering, hardwoods (angiosperms) encase their seed in some type of covering (such as a fruit or nut). They typically have broad leaves (not needles), often have some type of flower, and are usually deciduous—meaning their leaves drop in the colder months. While the rules apply in *most* cases, not all hardwoods are deciduous. For example, the American holly is an evergreen but also a hardwood. On the other hand, not every conifer is evergreen—baldcypress, dawn-redwood, and larch all shed their needles in winter months.

In addition to providing ample shade and reducing energy costs in summer, hardwood trees are the source of many valuable timber products as well as fruits and nuts that provide nutritious food for people and also sustain wildlife.



Green ash is a hardy native tree that grows well in wet areas. Widely planted in cities and towns, ash trees of all types are susceptible to the emerald ash borer, an insect from Asia that can kill the tree. Ash wood is strong and durable, which is why it is often used for furniture and tool handles.

Green ash Fraxinus pennsylvar
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Location	Points	C.B.H.	Height	Crown
12 Millwright Road, Newark	333	190	125	73
Hagley Museum, Wilmington	317	166	132	75
Hagley Museum, Wilmington	302	161	116	102

White ash is the largest and most common ash. Not often found in swampy areas, it grows well on rich, moist, well-drained soils but is also adaptable to other soil types. Like other ash trees, its wood is tough, strong, and highly resistant to shock, used for handles, oars, and baseball bats. The seeds also provide food for birds.

White ash Fraxinus americana				
Location	Points	C.B.H.	Height	Crown
First State National Park, Wilmington	359	222	115	87
Brandywine Park, Wilmington	354	203	118	133
Brandywine Park, Wilmington	287	162	103	88



Green ash has compound leaves with 5 to 9 leaflets. Along with buckeye, dogwood, and maple, it has an opposite leaf arrangement.



White ash is the largest, most common ash with 5 to 9 (but often 7) oblong leaflets 3 to 5 inches long.



American basswood has heart-shaped leaves with hard, round fruits suspended in clusters below paper-thin bracts.



American beech leaves turn copper in the fall and have prominent parallel veins.



European beech leaves are alternate, simple, and serrate. The leaves persist well into winter in a process known as marcescence.



Birch has pointed leaves with sharp-toothed edges.

## Basswood

American basswood is native to northern Delaware but not common. It prefers deep, rich soils but can be planted in urban areas. A large tree growing more than 80 feet high, basswood has fragrant flowers and a small nut favored by animals. Its wood is soft, lightweight, and used for carving.

American basswood	Tilia americana			
Location	Points	C.B.H.	Height	Crown
19 Wrangler Rd., Newark	337	217	106	55
5620 Kennett Pk., Centreville	269	155	98	64
7851 Westville Rd., Wyoming	160	91	59	40



American beech is common to northern Delaware and has smooth, gray bark. Beech grows on many soils and its thick canopy forms dense shade. Its nuts are favored by wildlife, but its wood is not valuable. Its long life, shape, and size are ideal for large spaces.

American beech Fagus grandifolia				
Location	Points	C.B.H.	Height	Crown
1700 N. DuPont Hwy., Dover *	307	155	127	102
Killens Pond State Park, Felton	299	162	114	91
618 Silverside Rd., Wilmington	296	169	101	103
* behind Cedar Chase Apartments				

**European beech** is a large tree that lives up to 300 years. Few plants survive in a beech forest as little sun reaches the ground.

European beech Fagus sylvatica				
Location	Points	C.B.H.	Height	Crown
6686 Millington Rd., Clayto	n 250	176	55	76



**River birch** is found along streams and ponds and identified by its thin curling bark. Birches thrive on many sites and are suited for urban areas and wetlands. The seeds are also eaten by wildlife. Though close-grained, its wood is not very valuable.

River birch Betula nigra				
Location	Points	C.B.H.	Height	Crown
971 Cloverfield Ln., Houston	240	114	110	63
Fawn and Newton Rds., Bridgeville	225	120	84	84
Paradise Alley, Harrington	213	117	78	74



American basswood



American beech



River birch



**Blackgum** 



Sweet buckeye



Northern catalpa

# Blackgum

Blackgum is native to Delaware and among the last trees to leaf out in spring and the first to lose its leaves in the fall. Its dark blue fruit (called a "drupe") is preferred by birds and other wildlife. Known for hardiness, its leaves turn a fiery-red in the autumn.

Blackgum <i>Nyssa sylvatica</i>	3			
Location	Points	C.B.H.	Height	Crown
Coverdale Farm, Yorklyn	289	159	108	89
Rockwood Museum, Wilmington	277	161	93	93
Redden State Forest, Georgetown	228	122	90	63

Blackgum leaves are roughly oval with short, blunt points. The fruit is round, dark blue and clustered on stalks up to 1.5 inches long.

# Buckeye

Buckeye and horsechestnut are not native to Delaware— Ohio, of course, is well-known as the "Buckeye State"—but they are widely planted for their showy flowers and vibrant fall color. The leaves have a distinctive palm shape with five leaflets, however the timber lacks commercial value. Parts of the tree, including the nut-like seeds, are somewhat toxic.

Sweet buckeye Aesculus octandra				
Location	Points	C.B.H.	Height	Crown
Hagley Museum, Wilmington	on 210	122	79	36

Horsechestnut Aesculus hippocastanum				
Location	Points	C.B.H.	Height	Crown
Bellevue State Park, Wilmingtor	n 222	128	78	63
4185 St. Georges Rd., St. Georg	ges 207	142	49	65

# Buckeye has compound leaves with five narrow oval leaflets. The fruit is a spiny capsule that contains two dark-brown, shiny seeds –

each with a distinct "eye".

# Catalpa

Catalpa is not native to Delaware but is found in yards and urban areas because it is tolerant of many soil conditions. Known as the "cigar tree" due to its long seed pods, it has large heart-shaped leaves and showy white flowers. Catalpa wood is soft and brittle but is sometimes used for carving.

Northern catalpa Catalpa speciosa				
Location	Points	C.B.H.	Height	Crown
217 Park Avenue, New Castle	329	222	86	83
10027 North Old State Rd., Lincoln	254	166	72	63
Holy Cross Church, Dover	227	136	77	55





Cherry flowers appear from April to June and the fruit ripens from early to late summer.



Black cherry is a native tree often seen in abandoned fields, hedgerows, and after timber harvests. Many cherry hybrids can endure urban conditions and are used as street plantings in cities. Black cherry fruit is a food staple for many birds and cherry wood is highly valued for furniture and cabinets.

Black cherry Prunus ser	otina			
Location	Points	C.B.H.	Height	Crown
513 West Spruce St., Seaford	301	209	76	64
6702 Marshall St., Milford	299	178	105	64
65 Johnson Rd., Lincoln	234	144	79	46

Sweet cherry is often cultivated as a flowering tree though its size is more suited to a park tree. In autumn, the leaves turn orange, pink or red before falling. The reddish-brown wood is prized for its uses in woodturning, cabinets, and musical instruments.



Cherry trees produce beautiful spring flowers. Leaves are alternate, simple and ovoid, 3 to 6 inches long and 2 to 3 inches wide.

## Sweet cherry Prunus avium Location Poi

Location	Points	C.B.H.	Height	Crown
14 Milltown Rd., Wilmington	294	201	81	49
606 N Church St., Wilmington	224	101	103	81
Hagley Museum, Wilmington	212	116	85	45



Flowering dogwood is a small native tree (around 40 feet tall) that is common in both forests and urban areas. Known for the beautiful cross-shaped white bracts around its flowers, the red berries of the dogwood are a favorite of birds. The wood is very hard and was used for tool handles.



Dogwood flowers appear in spring and fruit in October. Its "true" flower is the center of the cross-shaped bracts.

Flowering dogwood Cornus	florida	1		
Location	Points	C.B.H.	Height	Crown
701 Delaware Ave., Wilmington *	123	73	41	38
Forest Presbyterian, Middletown	117	61	46	40
4010 Valley Green Rd., Greenville	113	63	42	33
* Wilmington & Brandywine Cemetery				



**Black cherry** 



**Sweet cherry** 



Flowering dogwood



American elm



**Hackberry** 



Bitternut hickory



American elm is a tree species that has almost vanished due to Dutch elm disease, but new resistant cultivars are now available. Elms are favorite landscape trees for their umbrella shape and massive size, but the wood is not very valuable.

American elm	Ulmus	americana
Allielleall elli	Ullilus	aiiiciicaiia

Location	Points	C.B.H.	Height	Crown
The Green, Dover	367	226	115	104
White Clay Creek State Park, Newark	346	213	113	81
1191 Boyds Corner Rd., Middletown	305	199	75	125

Slippery elm is a fast-growing tree that Native Americans and early settlers used for medicines such as herbal throat lozenges.

Slippery elm	Ulmus rubra				
Location		Points	C.B.H.	Height	Crown
2401 East Mall Rd	., Ardentown	215	97	102	66



Hackberry prefers moist soils but can tolerate poor, sandy soils. It is suited for parks and large open areas because it withstands dry, windy conditions. Though its leaves are highly variable, it can be identified by corklike ridges and warts on its bark. Its wood is not valuable, but its fruit, a small berry, is eaten by birds and mammals.

Hackberry Celtis occider	talis			
Location	Points	C.B.H.	Height	Crown
Pilottown Road Cemetery, Lewes	214	151	47	64
Cubalo Park, Millsboro	190	105	70	58
Federal St., Milton	156	78	67	45

Hickory

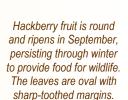
Bitternut hickory is a species of hickory that is common in Delaware. Hickories are identifiable by alternate, compound leaves that display brilliant yellow fall color. Its wood is durable, very hard, and commonly used for tool handles. As the common name implies, bitternut hickory has nuts that taste bitter.

Bitternut hickory	Carya cordiformis
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Location	Points	C.B.H.	Height	Crown
Brandywine Park, Wilmington	232	107	108	68
701 Delaware Ave., Wilmington *	217	111	88	71
* Wilmington & Brandywine Cemeter	ery			









Bitternut hickory has leaves 6 to 10 inches long with 7 to 9 oval leaflets. The tree has a straight trunk and can grow to over 100 feet.



Mockernut hickory leaves are 8 to 12 inches long with 7 to 9 thin, sharp-pointed, finely-toothed leaflets that are dark-green on top and orange-brown underneath.



Pignut hickory leaves are 8 to 12 inches long with 5 (sometimes 7) finely-toothed and sharply-pointed leaflets.



Pecan is a member of the walnut family and its leaves grow in groups of 11 to 17. The pecan nut is long and pointed with a thin shell.

# Hickory continued

Mockernut hickory is considered one of the most abundant hickory trees and is often found on drier soils of ridges and hillsides. Unlike bitternut, it produces nuts that are sweet. It is also called white hickory due to the light color of its wood. An excellent source of fuel wood, mockernut is similar to other hickories because its wood is suited to applications that require strength, hardness, and flexibility.

Mockernut hickory Carya	tomen	tosa		
Location	Points	C.B.H.	Height	Crown
Brandywine Park, Wilmington	253	122	111	80
Dover Air Force Base, Dover	215	87	113	60

Pignut hickory is a common but not abundant species in the oak-hickory forest association in the Eastern United States. Its pear-shaped nut ripens in September and October and is important to the diet of many wild animals. The wood is used for many products, including fuel for home heating.

Pignut hickory Carya glab	ra			
Location	Points	C.B.H.	Height	Crown
Killens Pond State Park, Felton	320	163	130	107
4976 Wheatleys Pond Rd., Smyrna	258	134	105	77
Dover Air Force Base, Dover	242	113	113	65

Pecan is one of the better-known hickories. Early settlers to America found pecans growing over wide areas. The nuts are harvested after they have fallen because those on the tree are still growing. In addition to the commercial edible nut, pecans also provide food for wildlife. Pecans are excellent landscape trees, providing nuts, furniture-grade wood, and aesthetics.

Pecan Carya illinoiensis				
Location	Points	C.B.H.	Height	Crown
24943 Broadkill Rd., Milton	317	186	110	86
Conrail Rd., Seaford	300	186	90	98
Odd Fellows Lodge #27, Laurel	280	157	98	99
105 Delaware Ave., Bridgeville	279	148	108	93

**Sand hickory** is suited to dry, sandy upland soil and is a great specimen tree. It should be preserved if found in the landscape.

Sand hickory	Carya pallida				
Location		Points	C.B.H.	Height	Crown
Zoar Rd., Georgeto	own	227	128	82	69



**Mockernut hickory** 



**Pignut hickory** 



**Pecan** 



Shellbark hickory



**Shagbark hickory** 



**American holly** 

# Hickory continued

Shellbark hickory is a slow-growing tree often found on deep bottomland soils near rivers and creeks. It is more resistant to forest pests and pathogens than other hickories. The nuts are favored by wildlife because they are sweet, edible, and the largest of all the hickories. The tree's hard and durable wood is ideal for fuelwood and charcoal. The common name refers to the mature bark that peels away like a shell in strips like the shagbark hickory.

Shellbark hickory Carya	Carya lacinosa			
Location	Points	C.B.H.	Height	Crown
Brandywine Park, Wilmington	216	94	107	62

Shagbark hickory is common in eastern forests and gets its name from its distinct bark, which separates into long strips that give it a "shaggy" look. Like other hickories, its wood is strong and hard and can be used to smoke meats. Often found amongst oak trees, shagbark hickory grows best in well-drained soils. It has both male flowers (in bundles called catkins) and female flowers (in clusters known as petallets).

Shagbark hickory	Carya ov	ata			
Location		Points	C.B.H.	Height	Crown
227 Creek Rd., Ashland		251	118	116	68
3000 Creek Rd., Yorklyn		243	96	129	72
3668 Spectrum Farm Rd.	, Felton	217	117	81	78
Commerce and Main Sts.	, Kenton	215	121	80	57



American holly is a native tree easily identified by its dark green, thorny leaves and smooth bark. Holly has both male and female trees, with females producing ornamental red berries that are a favorite food for birds. American holly was named Delaware's official state tree in 1939 when the state was the leading exporter of holly Christmas wreaths.

American holly	llex opaca
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Location	Points	C.B.H.	Height	Crown
302 Clinton St., Delaware City	190	121	60	37
101 Darwin Dr., Newark	176	109	55	47
S. of Lake Forest High School, Felton	148	71	68	38
191 Deakyneville Road, Townsend	146	101	36	39



Shellbark hickory trees usually have 7 to 9 leaflets with a terminal leaflet somewhat larger than its lateral leaflets.



Shagbark hickory leaves are both compound and alternate, growing up to 14 inches long and 8 inches wide.



American holly has dark green, thorny leaves and smooth bark. The bright red berries appear on female trees and provide food for birds.



Hornbeam has flowers that appear along with the leaves around April. The tree produces a small egg-shaped nut eaten by forest rodents and birds.

## Hornbeam

American hornbeam is a small, native tree that seldom exceeds 30 feet in height. Known as blue-beech, ironwood, or musclewood, its fruit is a small, egg-shaped nut. Its main distinguishing characteristic is its smooth, blue-gray bark (similar to beech) that often appears twisted or contoured like muscles. Not often seen in landscape settings, this flood-tolerant tree is common in Delaware forests. However, hornbeams are attractive ornamentals with beautiful fall color.

American hornbeam	Carpinus caroliniana				
Location	Points	C.B.H.	Height	Crown	
Hagley Museum, Wilmington	89	38	41	41	
7320 Burnite Mill Rd., Felton	86	41	37	34	



American hornbeam



**Kentucky coffeetree** 



**Black locust** 



Kentucky coffeetree seeds can be toxic to humans and animals. Its long leaves contain many leaflets that are pointed but not toothed.

# Kentucky coffeetree

Kentucky coffeetree is not native to Delaware but it is the only member of its genus native to North America. A member of the legume family, it is called the "dead tree" because it is dormant for six months a year (*gymnocladus* means "naked branch"). Its seeds (resembling coffee beans) grow in pods on female trees, which can be a nuisance in urban areas as they drop. Its wood quality is good but not widely used.

Kentucky coffeetree G	Gymnocladus dioicus				
Location	Points	C.B.H.	Height	Crown	
The Green (NW corner), Dover	219	118	84	68	



Black locust leaves are pinnately compound with 7 to 21 small, round leaflets per leaf. Leaflets are typically 1.5 inches long.

## **Locust**

Black locust is native to the eastern United States and, though not naturally found in Delaware, is widely planted as a shade tree. However, in some parts of the United States, the tree is considered invasive due to its aggressive growth and root system. Because it is hard and durable, locust wood is valued for fence posts, firewood, and furniture.

Black locust Robinia pseudoacacia				
Location	Points	C.B.H.	Height	Crown
500 McKennan's Church Rd., Wilmington	248	151	80	68
500 McKennan's Church Rd., Wilmington	218	120	82	66



**Honey locust** 



**Bigleaf magnolia** 



**Cucumber magnolia** 

## Gocust continued

Honeylocust is a fast-growing tree that tolerates poor soil conditions and is useful for establishing shade trees in new housing developments or parks. The fruit of the honey locust is a flat legume (pod) that matures in early autumn. The pulp on the inside of its pods is edible, unlike the black locust, which is toxic. Honeylocusts produce a high quality, rot-resistant wood that polishes well, but the tree rarely grows in numbers to support its widespread use.

Honeylocust Gleditsia triacanthos				
Location	Points C.B.H.	Height	Crown	
Brandywine Park, Wilmington	185 112	61	48	
Brandywine Park, Wilmington	180 90	82	34	

# Magnolia

Named for French botanist Pierre Magnol, **magnolia** is an ancient genus that encompasses some of the oldest flowering trees. Appearing before bees did, the flowers are believed to have evolved to encourage pollination by beetles. Magnolias are popular for landscaping uses because they have fragrant flowers. Birds and rodents also feed on the small, red seeds.

Bigleaf magnolia is a medium-sized deciduous tree known for its large leaves and large flowers. It has a relatively fast rate of growth and does not need full sun to survive once established. Like other magnolia trees, it is relatively free of problems but needs monitoring during a period of drought.

Bigleaf magnolia Magn	Magnolia macrophylla			
Location	Points	C.B.H.	Height	Crown
Rockwood Museum, Wilmington	167	96	57	56

Cucumber magnolia is a deciduous flowering tree that has dark-brown, furrowed, and very scaly bark. Its wood is light and soft but not strong or durable. It is used in furniture and cabinet-making, and also for flooring. This tree often has a pyramid-shaped crown, small branches, and a straight trunk.

Cucumber magnolia Mag	Magnolia acuminata				
Location	Points	C.B.H.	Height	Crown	
Scull Mansion, Dover	323	204	95	95	
Ferris Center, Wilmington	322	196	107	77	
Wilmington Country Club, Wilming	ton 291	180	94	70	



Honey locust branches feature distinct thoms. The pinnately compound (old trees) or bipinnately compound leaves (young trees) turn a brilliant yellow color in the autumn.



Bigleaf magnolia leaves are 12 to 32 inches long and 7 to 12 inches wide. The leaves are bright green above and fuzzy, silver-grey underneath.



Cucumber magnolia has deciduous leaves 6 to 8 inches long and 4 to 8 inches wide. They are oblong-oval in shape with smooth, wavy margins and sharp-pointed ends.



Saucer magnolia leaves are usually 3 to 7 inches long and half as wide. They are elliptical in shape with sharply-pointed tips.



Southern magnolia leaves are shiny-green on the upper surface with a leathery, rust-color fuzz below. Oblong in shape and bluntly pointed, they are 5 to 8 inches long and 2 to 3 inches wide.



Sweetbay magnolia has creamy white flowers that are very fragrant. Its deciduous leaves are 4 to 6 inches long and oblong in shape.

# Magnolia continued

Saucer magnolia is a medium-sized deciduous tree that gets its name from the saucer-shaped flowers that bloom in early spring: pinkish-purple on the outside and white on the inside. A fast grower with a good tolerance for pollution, the tree features high-quality foliage throughout the season. In the spring, its leaves are reddish-bronze in color before turning green in summer and eventually a yellow-brown in autumn.

Saucer magnolia	Magnolia soulangiana				
Location	Points	C.B.H.	Height	Crown	
Hagley Museum, Wilmir	ngton 108	59	38	45	

Southern magnolia is a large, striking evergreen tree. Like other magnolias, it is considered easy to grow and generally free of pests. The Latin term "grandiflora" means "big flower." The tree's beautiful white flowers measure 7 to 8 inches across. Experts believe magnolia flowers evolved at a time when bees did not exist, and therefore developed to encourage pollination by beetles. Trees in this genus date back roughly 95 million years.

Southern magnolia Mag	gnolia grandiflora			
Location	Points	C.B.H.	Height	Crown
Thatcher St., Frankford	247	174	57	65
Sandy Landing Rd., Dagsboro	242	162	63	70
104 S. 1st St., Greenwood	197	139	45	52

Sweetbay magnolia is the only one of several species of magnolia planted in Delaware that is actually native. More commonly found in wet locations of southern Delaware, it can reach over 60 feet tall on ideal sites. Deciduous in the northern part of its range, its wood is soft and used occasionally for minor products such as handles, novelty woodenware, and lower-grade furniture.

Sweetbay magnolia Magnolia virginiana				
Location	Points	C.B.H.	Height	Crown
Austin Short's Farm, Georgetown	100	26	65	36
Delaware State University, Dover	99	32	60	30



Saucer magnolia



Southern magnolia



Sweetbay magnolia



**Red maple** 



Silver maple



Sugar maple

# Maple

\* Owens Tract

412 N. Bradford St., Dover

Red maple is the most common of the maples that occur in Delaware—in fact, it is the most numerous tree species in the First State. Planted in urban areas for its colorful fall foliage, red maples adapt easily to most environments. Red maple produces reddish-colored flowers in springtime before the leaves appear, followed by winged, V-shaped fruit (samara) that ripens in late spring or early summer.

Red maple Acer rubrum				
Location	Points	C.B.H.	Height	Crown
32164 Townsends Rd., Dagsboro	348	230	97	84
Redden State Forest, Ellendale *	290	170	106	58
24 Southern Blvd., Wyoming	280	199	68	52

Silver maple is a fast-growing shade tree that prefers wet areas but is very adaptable and can do well in urban areas. However, its wood is brittle and often damaged by storms. Silver maple also does not have autumn color comparable to other maples and its leaves often turn a pale yellow before falling. On mature trees the bark is gray and shaggy, with strips that pull loose at the ends. On young trees, the bark is smooth and silvery gray.

Silver maple Acer saccharinum				
Location	Points	C.B.H.	Height	Crown
3554 Barley Mill Rd., Ashland	395	266	99	119
18 William St., Selbyville	386	282	85	74

220

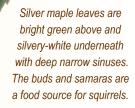
69

Sugar maple is a valuable hardwood tree that provides high-quality lumber that is heavy, strong and shock-resistant, useful for furniture and hardwood flooring. Maple wood is especially suitable for bowling alleys and dance floors. The sap is used to make maple syrup and maple sugar. The gutter-clogging samaras make their appearance in springtime. In addition to its many uses, sugar maple is also a popular shade and ornamental tree.

Sugar maple Acer saccharum					
	Location	Points	C.B.H.	Height	Crown
	Hagley Museum, Wilmington	277	167	90	79
	Forest Presbyterian Church, Middletown	275	187	65	91
	West of Rt. 15, Oaknoll, Canterbury	255	152	82	86



Red maple leaves have 3 to 5 lobes with coarselytoothed edges. They turn a brilliant scarlet, orange or bright yellow color in fall.





Sugar maple leaves feature 5 lobes with rounded, shallow sinuses. They produce colorful autumn foliage in shades of orange,

Oaks, encompassing trees in the genus *Quercus*, part of the beech family or Fagaceae, are some of the most valuable hardwoods. North America contains the largest number of oak species worldwide, with about 90 species found in the United States. Oaks are broadly divided into two groups: red oaks and white oaks. Red oaks tend to grow quickly and have leaves with pointed lobes. White oaks, which can live hundreds of years, grow slowly and have rounded lobes. Red oak acorns are mostly bitter-tasting and don't mature until their second season. Red oak wood is hard, stiff, and high in shock resistance, but is also extremely porous. While not as useful as white oak for constructing barrels or building ships, red oak wood is great for flooring.



Black oak leaves are variable in form with 7 toothed lobes (can be 5) that are sometimes divided nearly to the midrib by rounded sinuses.



Laurel oak leaves are small, 2 to 4 inches long, pointed, and can have unevenly-lobed edges.



Northern red oak leaves are 5 to 8 inches long with 7 to 11 lobes. Each lobe is usually 3-toothed and sharply pointed with bristles on the points. The leaves usually turn red before dropping in fall.

## Oak - Red

Black oak is a common tree on the dry uplands of eastern forests. Like most other red oaks, it has spiny, pointed lobes. Its acorn is oval or rounded and enclosed for about half its length in a deep, scaly, bowl-shaped cup. In spring, its unfolding leaves are a deep red and then turn silvery in a few days. Older trees have thick, black bark divided into broad, rounded ridges.

Black oak Quercus velutina				
Location	Points	C.B.H.	Height	Crown
W. Water Street, Dover	347	219	98	121
705 Woodsdale Rd., Wilmington	322	191	105	105
801 W. 20th St., Wilmington	319	198	97	97

Laurel oak is a rapid grower found on sandy soils near rivers and swamps. Its leaves are semi-deciduous: the current year's stay while the previous year's fall. Its acorns are small with a flat, saucer-shaped cup covered in hairy scales. Widely used as an ornamental, the tree reaches maturity in about 50 years.

Laurel oak Quercus lau	Quercus laurifolia			
Location	Points	C.B.H.	Height	Crown
2605 Newport Gap Pk., Wilmingt	on 283	163	101	78

Northern red oak is a relatively fast-growing tree that can achieve a large size. Found on rich, well-drained soils, it can also occur on wetter upland sites and dry slopes. Tolerant of many soils and varied situations, it is grown in parks and large gardens as a specimen tree. Northern red is among the most important oaks for timber production in North America—valued for lumber, veneer, and firewood. Despite their bitter taste, the acorns are eaten by deer, squirrels and birds.

Northern red oak					
Location	Points	C.B.H.	Height	Crown	
Tatnall School, Wilmington	427	294	102	123	
2605 Newell Dr., Wilmington	379	194	160	99	
North Star Rd., Hockessin	351	193	134	95	



Black oak



**Laurel oak** 



Northern red oak



Pin oak



Shingle oak



Southern red oak

## Oak - Red continued

Pin oak prefers deep, moist, rich soils of bottomlands and the borders of swamps. Wood from the pin oak has a tendency to split. Its acorn is a half-inch in diameter, round, with a thin, light-brown, scaly, saucer-shaped cup. The trunk is covered in smooth, light gray-brown bark.

Pin oak Quercus palustris					
	Location	Points	C.B.H.	Height	Crown
	12 Courtney Rd., Greenville	324	169	122	131
	Bellevue State Park, Wilmington	304	179	100	99
	2514 Emerson Dr. Wilmington	282	163	100	75

Scarlet oak is a native tree found on dry, sandy, acidic soils. It has comparatively small branches that form a rather narrow, open, and irregular crown. The acorn is one-half to one inch in length, oval, and enclosed up to half its length in a deep, bowl-like cup. It is often planted as an ornamental for its brilliant fall color.

Scarlet oak	Quercus coccinea				
Location		Points	C.B.H.	Height	Crown
3000 Creek Rd.,	Yorklyn	298	157	114	107

Shingle oak is named for its use in wooden shingles. Unlike other red oaks (except laurel), it has simple and unlobed leaves 3 to 6 inches long and 1 to 1.5 inches wide. With a pyramidal shape when young, it has attractive, dark-green summer foliage that turns a yellow-brown color in fall and persists until winter.

Shingle oak Quercus imbricaria					
Location	Points	C.B.H.	Height	Crown	
Delaware State University, Dover	188	102	69	68	
Hagley Museum, Wilmington	182	105	62	62	

Southern red oak is a deciduous tree with leaves that are identifiable by a distinctive inverted bell shape at the base and a long, narrow central lobe. Its acorns are round with a scaly cup that covers about one-third of the fruit. Southern red oak tends to be an upland tree that grows on dry, sandy, or clay soils and can reach over 80 feet in height.

Southern red oak Quercus falcata					
Location	Points	C.B.H.	Height	Crown	
6998 Hwy. 14, Harrington	359	252	89	71	
207 Lavinia St., Milton	296	182	91	91	
402 Fiddlers Green, Dover	271	152	96	91	



Pin oak leaves have 5 to 7 lobes with wide, deep sinuses rounded at the bottom. Lobes are toothed with sharp points. Leaves turn red or scarlet in fall.



Scarlet oak leaves are 5 to 8 inches long with 5 to 9 pointed lobes separated by wide sinuses. They turn a brilliant scarlet in fall.



Shingle oak has simple, unlobed leaves arranged alternately. Its small acorns take two years to mature.



Southern red oak leaves have a long, narrow central lobe with 3 to 7 deeply separated lobes.



Water oak has deciduous leaves that are small, 2 to 4 inches long, and much more broad at the apex than at the base.



Willow oak has narrow, smooth-edged leaves tipped with bristle points that are usually 2 to 5 inches long. Its round acoms are small in size with a thin, flat cup.



Bur oak has large leaves divided into 5 to 7 lobes with wide sinuses that reach almost to the midrib. Its wedge-shaped leaves are 6 to 12 inches long and 3 to 6 inches wide.

## Oak - Red continued

Water oak is a bottomland species that will also grow on upland sites. Its leaves are variably shaped but usually exhibit three indistinct lobes. The tree is easily damaged or killed by fire. On good sites the tree has a slender, straight trunk and can occasionally reach heights of 100 feet or more. Its acorn is small and almost black in color, often a half-inch or less in length. Its wood is not considered very suitable for finished lumber.

Water oak Quercus ni	Quercus nigra				
Location	Points	C.B.H.	Height	Crown	
Redden State Forest, Ellendale	e * 238	145	81	49	
* Appenzellar Tract					

Willow oak is so named because of its willow-like deciduous leaves. High-quality trees tend to be found on bottomland soils where they can grow from 80 to 100 feet tall. Willow oak can be almost evergreen in the southernmost portion of its range, but not in Delaware. Its trunk is often short and covered with blackish, deeply furrowed bark. It can also be a good choice as an ornamental shade tree.

Willow oak Quercus ph	ellos			
Location	Points	C.B.H.	Height	Crown
1626 Williamsville Rd., Houston	367	259	88	82
West Water St., Dover	340	220	95	102
Hunn Property, Dover	327	216	92	76

## Oak - White

Bur oak is named for its rounded fringed acorns, which are the largest of any oak in North America (*macrocarpa* means "large fruit" in Latin). A rather slow-growing tree that can live for hundreds of years, it is resistant to fire and drought due to a large taproot. Every couple of years, larger quantities of acorns are produced in a process known as "masting," which helps to overwhelm wildlife's ability to eat them as food.

Bur oak Quercus macrocarpa				
Location	Points	C.B.H.	Height	Crown
Hagley Museum, Wilmington	226	118	86	88
Hagley Museum, Wilmington	213	115	80	74



Water oak



Willow oak



Bur oak



**Chestnut oak** 



Overcup oak



Post oak

## Oak - White continued

Chestnut oak grows best in bottomlands and well-drained coves, although it is common on dry, rocky soils. Like most white oaks, its growth is slow on almost all sites. It can form pure stands on hillsides and mountain slopes, but is often mixed with hickories, oaks, and pitch pines. It is a source of tannin, which can be used to make leather goods.

Chestnut oak Quercus prinus					
Location	Points	C.B.H.	Height	Crown	
35510 East Line Rd., Delmar	339	217	98	96	
56 Oakmont Dr., Wilmington	265	192	50	92	

Overcup oak gets its common name from its acorn, which is almost entirely covered over by its cup. It can take from 25 to 30 years before it produces acorns, and it is one of the few white oaks whose seeds do not germinate until spring. Predominantly found on poorly-drained bottomlands, it can reach up to 90 feet in height, however it is usually smaller. Its form and quality vary greatly throughout its range.

Overcup oak Quercu	s lyrata			
Location	Points	C.B.H.	Height	Crown
8276 Shawnee Rd., Lincoln	238	140	78	79
8276 Shawnee Rd., Lincoln	217	123	79	59
8276 Shawnee Rd., Lincoln	194	109	71	54

Post oak is a slow-growing deciduous oak with stout branches that form a dense, spreading, round-topped crown. Recognizable by its leaves, which take the shape of a Maltese cross, it grows on a variety of soils and sites. Its heartwood is very heavy, hard, close-grained, and durable in contact with the soil. Its wide use for fence posts is the origin of its common name.

Post oak Quercus stellat	ta			
Location	Points	C.B.H.	Height	Crown
Redden Lodge, Georgetown	187	97	74	63
Austin Short's Farm, Georgetown	147	66	75	24



Chestnut oak leaves are roughly-oval but often wider near the apex, and roughly-toothed. Its shiny acorn is up to 1.5 inches long.



Overcup oak has deciduous leaves that are 6 to 10 inches long and separated into 5 to 9 rounded lobes by deep or shallow sinuses. Its acorns are fairly flat and one-half to one inch long.



Post oak leaves are deeply divided into 5 lobes by broad sinuses. The central lateral lobes are roughly squared off at the ends and its acom is oval-shaped.



Swamp chestnut oak leaves are roughly oval, 6 to 8 inches long, 3 to 5 inches wide, and coated on the underside with thick silvery-white fuzz.



White oak leaves are 5 to 9 inches long with 7 to 9 rounded lobes. The sinuses between the lobes vary in depth and the base narrows abruptly to form a wedge shape.



Osage-orange leaves are 3 to 5 inches long, borne on thorny twigs, with pointed-oval shapes and smooth margins. Its large green-yellow fruit ripens in fall, and exudes a thick, milky juice.

## Oak - White continued

Swamp chestnut oak usually grows from 60 to 80 feet in height but can occasionally grow to 100 feet or more. The trunk is often free of branches for 50 to 60 feet. With stout branches that ascend at sharp angles, the tree often forms a round-topped crown. Its wood is hard, tough, very strong, and heavy. The wood of the swamp chestnut oak can be used in both flooring and construction, but is very difficult to kiln dry.

Swamp chestnut oak Que	wamp chestnut oak				
Location	Points	C.B.H.	Height	Crown	
Eagles Nest Landing Rd., Smyrna	330	226	73	123	
Dover Air Force Base, Dover	231	104	113	58	

White oak can live for hundreds of years. The acorns of white oaks—larger and sweeter than red oaks—are more preferred by wildlife. The tree has a round spreading crown in the open and thrives on deep, well-drained loamy soils. Unlike those in the red oak group, its heartwood is resistant to decay and virtually impervious to liquids. White oak is ideal for flooring, kegs, and casks, and prized for shipbuilding.

White oak Quercus alba				
Location	Points	C.B.H.	Height	Crown
1217 Wilson Rd., Wilmington	361	242	90	116
Greentree, Route 8, Dover	330	218	83	115
Brandywine Creek St. Park, Wilmington	330	200	103	108

# Osage-orange

Osage-orange is native to areas of the Great Plains inhabited by the Osage Indians. It was often planted in hedgerows to establish natural fences due to its stout branches and thorns. With a distinctive orange-brown bark, its large fruit resembles an orange and contains nut-like seeds. Its very heavy, hard wood was once used for fence posts, wheels, and bows, hence its nickname "bow-wood."

Osage-orange Maclura pomifera					
Location Points C.B.H. Height					
Hagley Museum, Wilmington	412	319	72	85	
669 Southwood Rd., Hockessin	334	237	75	87	
Walt Wagamon House, Milton	295	189	90	66	



Swamp chestnut oak



White oak



Osage-orange



Paw-paw



Persimmon



Bigtooth aspen

## Pawpaw

Pawpaw is a large shrub or small tree native to eastern North America that can grow up to 40 feet tall. A shade-tolerant understory tree, pawpaw prefers moist, well-drained sites such as those near streams and swamps. zebra swallowtail butterfly larvae feed almost exclusively on its leaves. Its fruit, said to derive from Spanish for "papaya," ripens in September and can be from 3 to 5 inches in length.

Pawpaw Asimina trilob	а			
Location	Points	C.B.H.	Height	Crown
Hagley Museum, Wilmington	76	28	41	27
Winterthur, Wilmington	69	34	29	24

to 12 inches long and half as wide. Fruit appears in September and ripens from light green to dark brown.

Pawpaw leaves are 6

## Persimmon

Persimmon is located throughout the state but mostly in open areas or along the forest edge. Like the holly, persimmons are either male or female, with female trees producing a seeded fruit 1 to 2 inches in diameter that sweetens as it ripens. The fruit is a staple in the diets of many animals. Its wood is hard, polishes easily, and is used for woodcarving and golf club heads.

Persimmon	Diospyros	virginiana
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Location	Points	C.B.H.	Height	Crown
221 Oak Rd., Seaford	221	127	81	54
235 Pine Valley Rd., Dover	187	104	68	61
5259 Little Mastens Corner Rd., Felton	101	66	30	22

Persimmon leaves are 4 to 6 inches long and pointedly elliptical with wavy edges. The fruit appears in October. Ripened by frosts, it has a rare sweet flavor.

# Poplar

Bigtooth aspen gets its common name from its leaf, which has conspicuous rounded teeth on its edges (*grandidentata* for "large teeth"). Its bark is thin, smooth, and light-gray to green on young trees and upper parts of old trees. Near the base of older trees, the bark is dark brown with a tint of red and measures up to an inch in thickness. Its soft, light-colored wood is used for pulpwood.

Bigtooth aspen Populus grandidentata				
Location	Points	C.B.H.	Height	Crown
Mt. Cuba Center, Greenville	148	55	86	27
Taber State Forest, Burrsville	140	54	80	23
Taber State Forest, Burrsville	136	53	78	22



Bigtooth aspen leaves are 2 to 3 inches wide, roundish, pointed, and dark green in color on the upper surface with lighter green below.



Eastern cottonwood leaves are triangular, toothed, pointed, 3 to 6 inches long, paler below than above, and with a flattened petiole.



Eastern cottonwood is one of the fastest-growing commercial trees in North America. Its fruit consists of many bud-shaped capsules on short stems that hang from branches in long, narrow clusters. Its lightweight wood is often used for crates, boxes, and pulpwood for high-grade magazine and book paper.

Eastern cottonwood	Populus deltoides			
Location	Points	C.B.H.	Height	Crown
Brandywine Park, Wilmingtor	n 278	139	122	68

Redbud has heart-shaped leaves with smooth margins. After flowers bloom, little bean pods appear. Leaves turn yellow before dropping in fall.

### Redbud

Eastern redbud is only native in extreme northern Delaware, but is commonly planted in urban areas for its abundant pink flowers and purple spring leaves. A small tree excellent for planting near utility lines, it has little wildlife or timber value. The flower is a delicacy that can be eaten in soups or salads. The chief importance of the redbud lies in the ornamental value of its beautiful and abundant flowers, which appear in spring.

Eastern redbud Cercis canadensis				
Location	Points	C.B.H.	Height	Crown
Hagley Museum, Wilmington	136	71	53	47
1205 Westview Terrace, Dover	78	39	32	27

# *Sassafras*

Sassafras is common throughout Delaware and often found on sandy soils. It does not thrive in shade and is recognized by its green twigs, variably shaped leaves (including mitten shapes), and spicy aroma. It is a great native tree for urban areas due to its fast growth and brilliant fall color. Sassafras roots are used for tea and many animals and birds eat its berries. Its orange-brown wood is light and durable, but seldom a size suitable for lumber.

* Y	
Sassafras leaves are highly	

variable, some with no lobes or up to five lobes. The tree flowers in April and bears fruit in early fall. Its shiny dark blue berry (drupe) has an aromatic pulp that covers a light brown seed.

Sassafras Sassafras albidum				
Location	Points	C.B.H.	Height	Crown
701 Delaware Ave., Wilmington *	232	157	63	47
Blueberry Road, Millsboro	183	79	97	28
Dogfish Brewery, Milton	180	136	38	26
* Wilmington & Brandywine Cemetery				



Eastern cottonwood



Eastern redbud



Sassafras



**Sweetgum** 



**Sycamore** 



**London plane** 

# Sweetgum

Sweetgum is a common, native tree that prefers wet sites but will grow on many soils. Identified by its five-pointed, star-shaped leaves and spiny "monkey balls," it is planted in urban areas but its large roots need more space. Fall color varies from yellow to maroon to purple, all on one tree. Its wood is difficult to dry and is used for low-value items like peach baskets and ice cream spoons.

Sweetgum Liquidambar s	tyracifl	ua		
Location	Points	C.B.H.	Height	Crown
Redden State Forest, Georgetown <sup>1</sup>	271	145	108	72
3000 Andrews Lake Rd., Frederica	261	111	135	59
701 Delaware Ave., Wilmington <sup>2</sup>	251	133	96	89
Dover Air Force Base, Dover	249	113	118	72

<sup>1</sup> Rayne Tract <sup>2</sup> Wilmington & Brandywine Cemetery



Sweetgum has leaves shaped like a six-point star missing its bottom point. The reddish-brown fruit ("monkey ball") matures in October, and persists until early the next year.

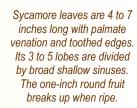
# Sycamore

Sycamore, or American planetree, is a tree native to Delaware that can grow rapidly to reach great heights and massive sizes. Found along streams and rivers, it can also be planted in drier urban areas. It is easily identified by its mottled, multi-colored bark. The whitish bark that covers the upper trunk and branches falls off in irregular patches, exposing the bark underneath. Its wood is not strong or durable, but is used for furniture, cutting boards, and paper.

Sycamore Platanus occide	entalis			
Location	Points	C.B.H.	Height	Crown
West of Hickman Rd., Greenwood	433	286	122	101
Valley Garden Park, Wilmington	409	228	147	136
805 Sycamore Lane, Centreville	375	219	127	117
Ridgewood Circle, Wilmington	374	235	112	110

London plane is a non-native hybrid of the American sycamore that is also planted in Delaware. Resistant to diseases and insect pests, it is a popular roadside tree in urban areas. The trunk can often take on a warted appearance as it advances with age.

London plane Platanus ac	erifolia			
Location	Points	C.B.H.	Height	Crown
1191 Boyds Corner Rd., Middletown	331	218	90	93
2304 Delaware Ave., Wilmington	296	174	99	93





London planetree leaves are similar to sycamore, but may be more deeply lobed. There can also be 2 to 3 seed balls per stem.



Blackhaw viburnum has deciduous leaves that are small (2 to 4 inches long) and elliptical in shape.

## Wiburnum!

Blackhaw viburnum is native to the First State. While generally assuming a shrubby form, species such as maple-leaf viburnum and southern arrowwood are among the most recognizable and common understory species in our forests. One species, blackhaw, tends to have a central stem and can achieve small tree status. Viburnums have showy flowers, provide ample food for wildlife, and make attractive ornamentals for landscape planting.

Blackhaw viburnum Viburnum prunifolium				
Location	Points	C.B.H.	Height	Crown
Mt. Cuba Center, Greenville	57	21	29	28
1472 Ashland Clinton School Rd., Yo	rklyn 54	30	19	22



Black walnut has compound leaves up to 24 inches long with 15 to 23 sharply-oval, toothed, and long-pointed leaflets.



Butternut has deciduous, alternate, and pinnately compound leaves 15 to 20 inches long with 11 to 17 oblong, fine-toothed, pointed leaflets, each 2 to 3 inches long.

## Walnut

Black walnut is native to Delaware and prized for its wood, which is used for veneer and furniture because it is durable and worked easily. Walnuts develop best on deep, rich, and well-drained soils and are usually planted in open areas in an urban environment because they are allelopathic (produce toxins harmful to other plants). Inside a yellow-green fibrous husk is the sweet and edible nut favored by many wildlife.

Black walnut Juglans nigr	a			
Location	Points	C.B.H.	Height	Crown
Holy Cross Church, Dover	366	226	114	104
416 Union St., Milton	333	199	112	88
961 Old Baltimore Pk., Newark	306	162	124	79

Butternut grows best on stream banks and on well-drained soils. It is not a common tree in any area but is a fast-growing species on favorable sites. However, the tree rarely attains more than 100 feet in height and often divides 20 to 30 feet from the ground into stout limbs that form the wide-spreading, round-topped crown typical of open grown trees. The wood is light and soft but not strong. It is most often used for interior finishes and furniture.

Butternut Juglans cinerea				
Location	Points	C.B.H.	Height	Crown
Hagley Museum, Wilmington	176	75	81	79
Mt. Cuba Center, Greenville	173	72	83	72



Blackhaw viburnum



**Black walnut** 



Butternut



**English walnut** 



Yellow-poplar



Zelkova

## Walnut continued

English walnut is a non-native tree that is the source of the thin-shelled and easily-opened type of walnut most commonly produced for human consumption. Fast-growing and attractive, it is a landscape tree with a rounded spreading crown that does well in full sun and rich deep soils. The wood of the English walnut is considered moderately durable and easy to work with a straight grain. It is commonly used for furniture, cabinets, paneling, and veneer.

English walnut Juglans r	egia			
Location	Points	C.B.H.	Height	Crown
39 South Main St., Camden	265	161	82	88
Fifer Orchards, Wyoming	248	167	56	99

# Gellow-poplar

Yellow-poplar is not a true poplar (actually a member of the magnolia family), but is a valuable species with wood that is useful for many commercial products. Shade-intolerant and self-pruning, it features a remarkably straight trunk often devoid of lower branches. A rapid grower resistant to many pests and diseases, it is now a popular landscape tree. One of the tallest tree species in Delaware, it prefers deep, rich soils. It is also known as tulip-poplar, named for its flower that resembles a tulip.

Yellow-poplar Liriodendron	ndron tulipifera				
Location	Points	C.B.H.	Height	Crown	
Winterthur, Wilmington	438	240	173	100	
Buck Rd., Greenville	399	247	123	116	
First State National Park, Wilmington	397	210	156	123	

# Gelkova

Zelkova is not native, but is currently the largest of any tree species found in Delaware. Found along many city streets, its vase-shaped crown makes it an attractive and popular urban tree. Also known as Japanese zelkova, it is often planted in areas once occupied by the American elm. Sometimes reaching up to 100 feet in height, zelkova prefers sunny sites and has a moderate growth rate. Some specimens develop massive trunks.

Zelkova Zelkova serrata				
Location	Points	C.B.H.	Height	Crown
501 Hillside Rd., Greenville	448	325	94	118



English walnut leaves are alternately arranged and oddly-pinnate with 5 to 9 leaflets. Like all walnuts, its twigs have a chambered pith with tiny brown air spaces.



Yellow-poplar has leaves with a very unique shape. Its fragrant flowers appear in spring and the leaves turn a clear yellow in the autumn.

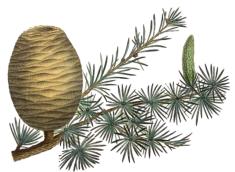


Zelkova leaves resemble American elm (almost wiped out by Dutch elm disease and also in the Ulmaceae family). Their leaves turn orange, yellow, or red in fall.

## Unusual Trees

#### Each of the following tree species meet one of the following criteria:

- 1. They usually occur as shrubs in our native forest but very rarely will achieve tree size.
- 2. They are non-native but not invasive, and are sometimes reported to the Delaware Forest Service.
- 3. They are unusual species with only one or two known in the State.



Cedar of Lebanon, Cedrus libani

Common Name, Scientific Name	Address	Points	C.B.H.	Height	Crown
Balsam fir, Abies balsamea	Ross Mansion, Seaford	200	109	80	46
Fraser fir, Abies fraseri	4353 Summit Bridge Rd., Middletown	200	131	60	38
Nikko fir, Abies homolepis	Winterthur, Wilmington	189	132	44	53
Nordmann fir, Abies nordmanniana	Buena Vista, New Castle	270	173	86	44
Incense-cedar, Calocedrus decurrens	Marl Pit Rd., Middletown	238	157	73	34
Atlas cedar, Cedrus atlantica	317 S. Walnut St., Milford	247	158	75	55
Cedar of Lebanon, Cedrus libani	701 Delaware Ave., Wilmington	222	146	58	73
White fringetree, Chionanthus virginicus	661 S Dupont Hwy., New Castle	63	27	30	24
Witch-hazel, Hamamelis virginiana	Hagley Museum, Wilmington	69	26	36	28
European larch, <i>Larix decidua</i>	Brandywine Park, Wilmington	196	106	77	53
Tamarack, <i>Larix laricina</i>	Buena Vista, New Castle	185	115	55	58
Norway spruce, Picea abies	Hagley Museum, Wilmington	239	109	120	40
Colorado blue spruce, Picea pungens	Wilmington Country Club, Wilmington	149	81	63	21
Red mulberry, Morus rubra	2158 Lighthouse Rd., Smyrna	306	256	32	75
Austrian pine, <i>Pinus nigra</i>	Bellevue State Park, Wilmington	139	68	62	37
Red pine, <i>Pinus resinosa</i>	Bellevue State Park, Wilmington	153	74	72	30
Himalayan pine, Pinus wallichina	Winterthur, Wilmington	291	181	95	62
Douglas-fir, Pseudotsuga menziesii	Belmont Hall, Smyrna	223	127	83	56
Japanese umbrella pine, Sciadopitys verticillata	1472 Ashland Clinton School Rd., Yorklyn	103	52	45	23
Giant sequoia, Sequoiadendron giganteum	Buck Rd., Greenville	281	181	90	42
Bladdernut, Staphylea trifolia	1 Walker's Mill Rd., Wilmington	123	67	44	50
English yew, Taxus baccata	Christ Episcopal Church, Dover	235	164	54	67
Northern white-cedar, Thuja occidentalis	Baynard Farm, Clayton	130	73	50	26
Littleleaf linden, Tilia cordata	Ross Mansion, Seaford	305	197	93	60

**Delaware Forest Service** 

Office Locations

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#### **KENT COUNTY**

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The Delaware Forest Service also thanks those landowners who nominate trees and allow us to measure them.

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