

# Campus Tree Stops



**Hope** COLLEGE

# TABLE OF CONTENTS

Our Mission.....	3
Sustainable Hope.....	3
Trees of Hope College.....	4
Tree Campus Map.....	5
1. Japanese Zelkova.....	6
2. River Birch.....	6
3. Honey Locust.....	7
4. Ginkgo.....	7
5. London Planetree.....	8
6. Douglas Fir.....	8
7. Weeping Cherry Tree.....	9
8. Kentucky Coffeetree.....	9
9. Green Roof.....	10
10. Northern Red Oak.....	10
11. White Oak.....	11
12. Striped Maple.....	11
13. Japanese Snow Bell.....	12
14. Japanese Pagoda Tree.....	12
15. Lace Bark Pine.....	13
16. Witch Hazel.....	13
17. Eastern Hemlock.....	14
18. Paper Bark Maple.....	14
19. Eastern White Pine.....	15
20. Japanese Maple.....	15
21. Dawn Redwood.....	16
22. Grand Fir.....	16
23. American Elm.....	17

# SUSTAINABLE HOPE

**The Christian faith calls us to care for all of God's creation and to ensure preservation for generations to come.**

Our goal is to bring students and stakeholders together, so they can be prepared as Christian stewards and responsible global citizens. We engage the world constructively through our teaching, research and community service in order to shape Hope College into a model of sustainability and to be a force for good in the world.

Hope College prides itself in a beautiful campus environment that encourages the community to connect with nature. One of the most valuable assets to encourage this relationship is our trees, some of which we outline here.



# TREES OF HOPE COLLEGE

Hope College has been honored with Tree Campus USA® recognition for the 2018-2019 academic year. A campus with this status is regarded for fostering considerable community and campus involvement in maintaining urban forests and having effective management of campus trees.

Hope's campus has over 2,000 trees composed of approximately 100 different species. The structural value of these trees adds up to over \$3.8 million, though the most valuable aspects of these trees are the ecosystem services they provide our community every year.

With the help of USDA Forest Service i-Tree software we were able to calculate the environmental benefits for the majority of campus trees. As of July 2019, the annual ecosystem services provided by these trees' accounts for over 40,613 ft<sup>3</sup> of avoided storm water runoff, over 1,060 pounds of pollution removed from either interception or absorption by the leaf's surface, more than 16.7 tons of carbon sequestered, and approximately 31,000 kilowatt hours of energy saved from heating and cooling by shading of nearby trees every year.





## 1. Japanese Zelkova | *Zelkova serrulata*

Zelkova trees are able to grow up to 80 feet tall and stand out because of their umbrella-shaped crown. This species has also been used to replace elm trees because of their resistance to Dutch elm disease.

These specific trees were planted to replace a 164-year-old American Elm after straight-line winds brought it down in 2011. The fallen trees were repurposed for use as furniture and paneling in the Great Room and chapel of the Bultman Student Center.



## 2. River Birch | *Betula nigra*

This is a fast-growing, shade-intolerant tree species with a lifespan ranging from 50 to 150 years. They are characterized by strongly doubly-serrate leaves and thin gray or red bark that peels away to reveal salmon or light pinkish tan-colored inner bark.





### 3. Honey Locust | *Gleditsia triacanthos*

This medium to large-sized tree grows upwards of 60 to 85 feet high. It is a fast-growing, shade-intolerant tree with a lifespan of up to 120 years. This species is generally characterized by the large thorns that protrude from the bark of the tree, but the thorns are absent in the “inermis” (unarmed) form.



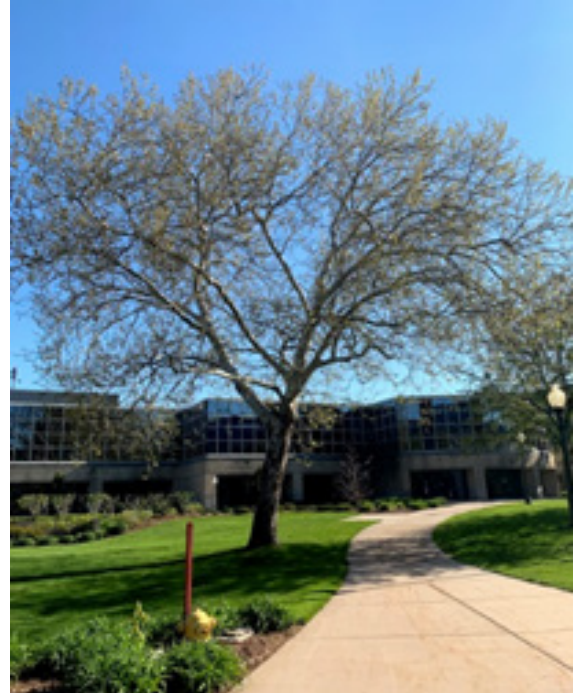
### 4. Ginkgo | *Ginkgo biloba*

Ginkgo trees are known as “living fossils.” They are one of Earth’s oldest living tree species (270 million years old) coming from an ancient order of plants that have characteristics of both conifers and ferns. Male ginkgo trees are planted more frequently than the female variety because female ginkgos produce large quantities of foul-smelling seeds. This species also produces a chemical that has been used as a memory-enhancing supplement. salmon or light pinkish tan-colored inner bark.



## 5. American Sycamore | *Platanus occidentalis*

American sycamore can grow as high as 75 to 100 feet tall. They have tan-grey or pale grey-green outer bark, which sheds in large flakes, revealing patches of white, smooth inner bark. The tree's peeling bark helps to shed damaging pollutants. It is also a close relative of a tree species from Vietnam that has evergreen leaves and contains a cancer-treatment compound.



## 6. Douglas Fir | *Pseudotsuga menziesii*

This is an evergreen conifer (cone-producing) tree in the pine family that can grow up to 60 feet tall in an urban environment. Due to the thick bark of mature Douglas fir trees, they are often able to survive forest fires with the only blackened bark. This species occurs naturally on the West Coast of the United States.





## 7. Weeping Cherry Tree | *Prunus pendula*

This ornamental tree species grows between 15 to 25 feet tall. This species is best known for its luscious pinkish-white blossoms and drooping branches. The fruits produced by this tree are too small and sour for humans, but they are a valuable food source for many bird species.



## 8. Kentucky Coffeetree | *Gymnocladus dioica*

A Kentucky coffeetree can reach 60 to 75 feet tall at maturity. This unique tree is characterized by large leaves made up of many smaller leaflets. This species is a part of the legume family and has woody seed pods. The coffeetree gets its name because these seed pods were used as a coffee substitute by early colonial settlers. The closest relative of this tree lives in Southern China.



## 9. Green Roof

With a green roof, you can utilize your space for buildings and nature! This Green Roof was added to the Bultman Student Center to create additional habitat for butterflies and other animals, to soak up rain, decreasing the chance for sewage overflows into our lakes, and to soak up sunlight, providing insulation to save on energy costs!



## 10. Northern Red Oak | *Quercus rubra*

This mildly shade-tolerant and relatively fast-growing tree species has the potential to grow up to 75 feet tall. The acorns of this tree are medium-brown colored and have thin, saucer-shaped caps. These acorns take approximately 2 years to fully mature. Native Americans used this oak tree for many medicinal purposes such as indigestion, chills and fevers, and sore throat.



## 11. White Oak | *Quercus alba*

These trees reach heights of 50 to 100 feet at maturity. Unlike the Red Oak, the leaves of white oak trees have round and blunt lobes and often stay attached to the tree throughout the winter months – even after they have died. The acorns of this tree are also less bitter than that of red oaks, making them a valuable source of nutrition for many animal species.



## 12. Striped Maple | *Acer pensylvanicum*

The Striped Maple is a small understory tree that can grow up to 30 feet high. This tree species is also known by many other names, Goosefoot, Goosefoot Maple, Pennsylvania Maple, Moosewood, and Snake-bark Maple, but it is the only species of snake-bark maple in North America. Young Striped Maples are known for their smooth green bark with pronounced vertical white striping.





### **13. Japanese Snow Bell | *Styrax japonicus***

Japanese Snowbells are small deciduous trees that can grow up to 30 feet tall and have rounded canopies with horizontal branching. This species has small white flowers that dangle from the tree's branches like bells – hence, the name 'Snowbell.' The fruits of this tree are covered in dense, fine, star-shaped, hairs.



### **14. Japanese Pagoda Tree | *Styphnolobium japonicum***

Despite its name, the Japanese Pagoda is native to China, Korea, and Vietnam. When cultivated as an ornamental tree, this species typically grows between 25 and 35 feet tall. This plant is important in traditional medicine and has edible leaves and flowers. The pea-like flowers of a Pagoda Tree give way to long, unusual seed pods that look like a string of beads.



## 15. Lace Bark Pine | *Pinus bungeana*

A Lace Bark pine can reach heights up to 50 feet tall. This species is typically characterized by its exfoliating bark at maturity, setting this species apart from other pines. When the outer bark peels away, it reveals white, green, and purple inner bark - resembling camouflage. This feature is mostly visible during the winter. Lace Bark pine is one of the favorite evergreen trees planted in royal gardens in eastern Asia.



## 16. Witch Hazel | *Hamamelis virginiana*

Witch hazel is largely cultivated as a large shrub or a small tree. This plant is typically used for many medicinal purposes and has been known as “nature’s answer to Neosporin” by many chemists and pharmacists. This plant blooms in late fall and is typically the last bit of color you see after the majority of trees have lost their leaves. Witch hazel is a late-blooming species. This means that it is not pollinated by bees or butterflies, it is pollinated by shivering moths. Close relatives of this species originate in central American and eastern Asia.



## **17. Eastern Hemlock | *Tsuga canadensis***

Eastern Hemlocks are large trees that have the potential to grow 70 to 100 feet tall at maturity. The bark was an important source for tannin, a naturally occurring polyphenol commonly used in the leather industry. Since 1950, these Hemlock populations have been devastated by a pest called Hemlock Woolly Adelgids. However, relatives of this tree in Asia are resistant to the insect.



## **18. Paper Bark Maples | *Acer griseum***

Paper bark maple is a small, deciduous tree species that grows 20 to 30 feet tall. Its leaves are palmately shaped like a classic maple and are very coarsely toothed. In addition, it is one of only three maple species that has three small leaves in a cluster. These trees are especially unique because of their beautiful exfoliating bark. Paper bark maples have thin, cinnamon-colored bark that peels off in large curls like that of eucalyptus and birch trees.





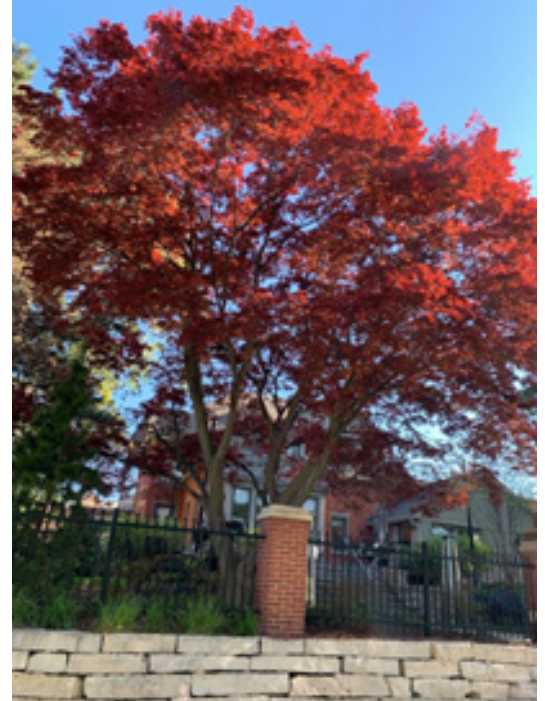
## 19. Eastern White Pine | *Pinus strobus*

This tree species can grow 50 to 80 feet tall with an average life span of 200 years. This species is distinct from other pine species because they have 5 needle-like leaves in each cluster. This species of pine was also dedicated as Michigan's state tree.



## 20. Japanese Maple | *Acer palmatum*

Japanese maples have an average growth potential of 2 to 30 feet tall. This maple species is known for having five to ten palm-like lobed leaves, hence the species "palmatum." In Japan, this maple is often called the "Autumn welcoming tree," and is planted on the western side of gardens (the direction from which fall comes).



## 21. Dawn Redwood | *Metasequoia glyptostroboides*

Dawn Redwoods typically grow between 50 to 60 feet tall but can reach heights of over 150 feet. Redwood trees have been around almost as long as the dinosaurs (240 million years) and were here before flowers! Although the tree was thought to have been extinct for almost 20 million years, a small conservation group travelled to south-central China and found several thousand in lowland canyons in 1940.



## 22. Grand Fir | *Abies grandis*

Grand Fir trees have an exceptionally large mature height. This tree is largely cultivated as a Christmas tree because of its thick, pyramidal-shaped foliage at immature heights. In fact, this tree is used every year for the annual Christmas tree lighting at the President's house!



## 23. American Elm | *Ulmus Americana*

The American Elm is native to Michigan, growing 60 to 100 feet tall. It is characterized by its thick ashy-gray bark, layered with alternating light and dark bands. American Elm leaves are alternate, simple, and doubly-serrate.

