



# THE NATIVE TREE GUIDE



# WELCOME TO THE UNIVERSITY OF ST. THOMAS NATIVE TREE TOUR!

The Native Tree Guide leads you through a campus tour of some of Minnesota's native trees and teaches you about some of their human uses.

You can use this booklet on its own or you can pair it with the Treasure Hunt App available for free with this QR code:



The walk takes you from north campus near Cleveland and Summit, to the grotto area on south campus, just below Brady Education Center.

If you use the Treasure Hunt App, there is a question for each tree that you will have to answer correctly in order to move on to the next tree. The same questions are in this booklet, with the answers in the back.

Each of the trees on the Native Tree Tour has an ID tag on it with a QR code that links to our St. Thomas Trees website with in-depth information about each species. The QR codes are also printed in this book.

**You can visit the Univeristy of St. Thomas Trees website here:**  
**<https://stthomastrees.wordpress.com>**

# ABOUT THE NATIVE TREE GUIDE

The Native Tree Guide is the result of a multi-phase project highlighting Minnesota native trees on campus. Over the course of several years, students in Amy Vehoeven's BIOL 315: Plants, Food, and Medicine course created web pages with detailed information on campus trees. In the spring of 2021, student Lizzy Azar received a University of St. Thomas Sustainability Scholars Grant to research native trees on campus and help update and refine the tree web pages. In the summer of 2021, Amy Verhoeven received a grant from the Office of Sustainability Initiatives to develop resources about our campus trees, which included the development of the Native Tree Tour using the Treasure Hunt App that launched in the fall of 2021.

Finally, Sarah Nelson, Sustainable Communities Partnership Artist-in-Residence, illustrated each tree species and designed this booklet to serve as a print and PDF version of the Treasure Hunt App. Charlie Mossey, the Lab Coordinator for the Engineering Carpentry Lab, designed and built the custom literature boxes to hold copies of The Native Tree Guide. Biology Greenhouse Manager Catherine Grant tied all the loose ends together to get this beautiful, printed copy into your hands.

  
PLEASE RETURN THE BOOKLET TO  
ONE OF THE TREE TOUR BOXES.  






# HOW TO GET STARTED:

Start the Native Tree Tour at the first tree, the Paper birch, on north campus near the intersection of Summit and Cleveland. Follow the directions on each page that lead you sequentially from tree to tree.

If you're using the Treasure Hunt App, the map tool can help you find each tree with geolocation. To access this feature in the Treasure Hunt App, click on the map icon in the upper right-hand corner.

Go forth, explore, and enjoy!!!



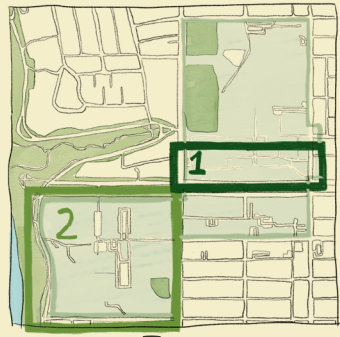
## HOW TO UTILIZE A QR CODE:

🌿 Open your phone's camera and aim it at the QR code.  
(do NOT snap a photo of it!)

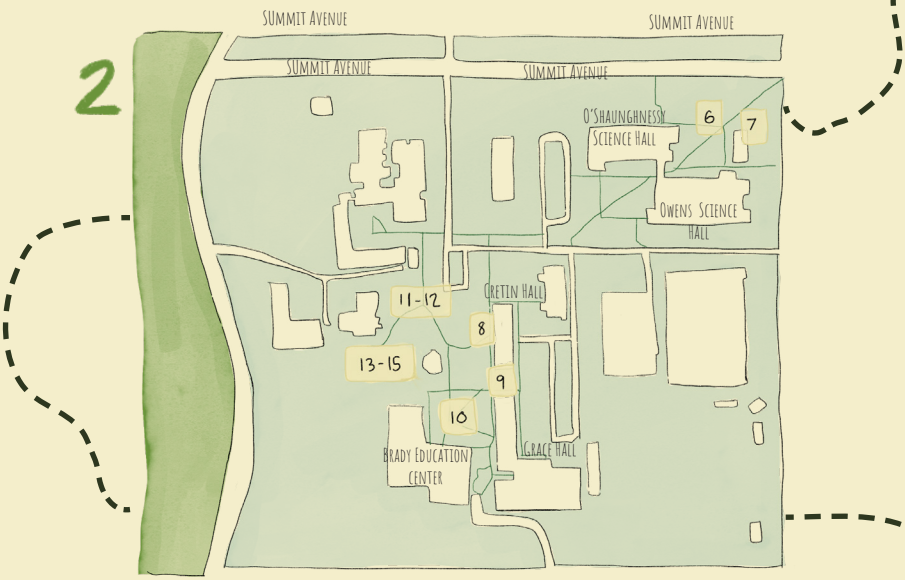
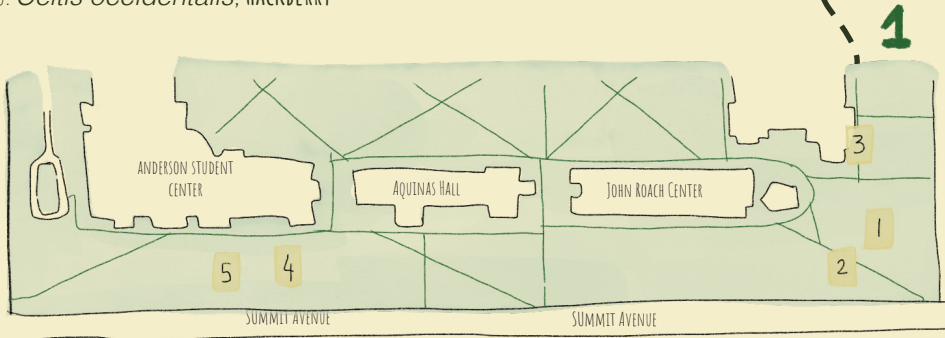
🌿 A message from your default search engine  
(Google/Safari/Firefox, etc.) will appear at the top of the screen.

🌿 Touch this message and you will be taken to the webpage for that tree species.

# MAPS



1. *Betula papyrifera*, PAPER BIRCH
2. *Amelanchier canadensis*, SERVICEBERRY
3. *Juniperus virginiana*, RED CEDAR
4. *Ulmus americana*, AMERICAN ELM
5. *Celtis occidentalis*, HACKBERRY



6. *Quercus macrocarpa*, BUR OAK
7. *Juglans nigra*, BLACK WALNUT
8. *Thuja occidentalis*, NORTHERN WHITE CEDAR
9. *Pinus strobus*, EASTERN WHITE PINE
10. *Fraxinus pennsylvanica*, GREEN ASH

11. *Acer negundo*, BOXELDER
12. *Populus deltoides*, COTTONWOOD
13. *Ulmus rubra*, SLIPPERY ELM
14. *Tilia americana*, AMERICAN BASSWOOD
15. *Acer saccharum*, SUGAR MAPLE

# LEAF IDENTIFICATION

## LEAF MORPHOLOGY



SIMPLE



PINNATELY COMPOUND



PALMATELY COMPOUND

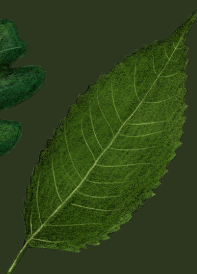
## LEAF MARGIN



ENTIRE  
(SMOOTH)



LOBED  
(OAK, MAPLE)



TOOTHED  
(ALL OTHERS)



TREE #1

# PAPER BIRCH

*Betula papyrifera*

The paper birch is characterized by white bark that peels off in sheets and resembles paper.

Paper birch bark was of vital use to Native Americans in the construction of many items ranging from wigwams to buckets. Additionally, the roots were used for both medicinal and culinary purposes, having a sweet, aromatic, wintergreen flavor. The inner bark of the young tree was used to make a reddish dye.

## DIRECTIONS:

The first tree is located near the corner of Cleveland & Summit.

Look for a multi-stemmed tree with white bark.



## QUESTION:

ONE OF THE CLASSIC USES OF PAPER BIRCH BARK BY NATIVE AMERICANS WAS IN THE CONSTRUCTION OF WHAT TYPE OF WATERCRAFT?





TREE #2

# SERVICEBERRY

*Amelanchier canadensis*

Serviceberry has lovely gray bark, beautiful white flowers in the spring, and delicious berries that ripen in June, leading to the name juneberry.

The more common name, serviceberry, is said to derive from early settlers in the New England area who would plan funeral services around the time that this tree blooms. Supposedly, this signaled that the ground had thawed enough to allow them to dig graves for those who had died during winter.

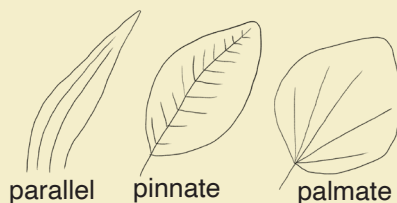
## DIRECTIONS:

There are several serviceberry trees along the diagonal sidewalk approaching John Roach Center from the corner of Cleveland & Summit



## QUESTION:

IN ORDER TO CLASSIFY TREES, THE PATTERN OF VEINS WITHIN THE LEAF IS OFTEN USED AS AN ID AID. USE THE IMAGE BELOW TO IDENTIFY THE VENATION PATTERN OF THE SERVICEBERRY LEAF.







TREE #3

# EASTERN RED CEDAR

*Juniperus virginiana*

This is an evergreen species that, instead of needles, has scale-like leaves. It is a slow-growing and long-lived tree with reddish-brown bark that is thin and fibrous. The plant contains a sweet-smelling oil that is repellent to moths and is the reason that chests and closet linings made from eastern red cedar have been used to protect stored woolens since colonial times. This tree was used by the Ojibwe people in the construction of homes, mats and cradle boards. Additionally, the bruised leaves and berries were used to treat headaches and colds by Native peoples. The Dakota people would put boughs of cedar on tipi poles to ward off lightning.

## DIRECTIONS:

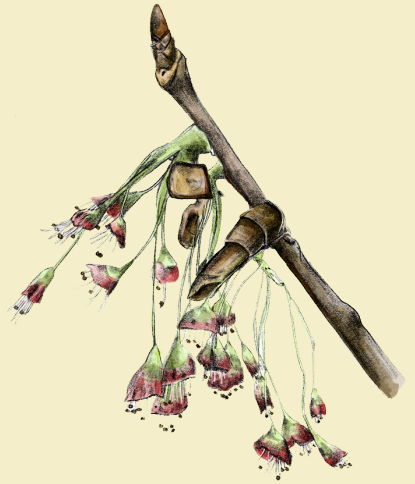
The eastern red cedar is located on the southeast corner of the library, just north of the John Roach Center Greenhouse.



## QUESTION:

THE BERRIES FROM JUNIPER TREES ARE USED AS A FLAVORING FOR WHAT TYPE OF ALCOHOL? IF YOU CAN FIND A BERRY, CRUSH IT BETWEEN YOUR FINGERS AND SMELL.

HINT: THIS ALCOHOL IS OFTEN MIXED WITH TONIC WATER AND LIME.



TREE #4

# AMERICAN ELM

*Ulmus americana*

This is the stately American elm. Notice how the branches arch upwards and then droop in a vase shape. Many cities in the east planted these trees densely along their streets, which created beautiful cathedral-like tunnels. Unfortunately, these tree populations were decimated by a fungal disease, in part due to the high density of their planting.

American elms were used by the Dakota people in the construction of lodges, as well as for making corn mortars and pestles. The Ojibwe used an infusion of root bark to treat venereal disease.

## DIRECTIONS:

To get to the elm, walk west along Summit avenue towards the Anderson Student Center. As you approach Anderson Student Center, look for the large elm located in the lawn at the eastern end of the building.



## QUESTION:

WHAT IS THE NAME OF THE DISEASE THAT HAS KILLED SO MANY ELM TREES?

HINT: THE FIRST WORD REFERS TO THE COUNTRY IN WHICH IT WAS FIRST IDENTIFIED; THE SECOND WORD IS 'ELM'.





TREE #5

# HACKBERRY

*Celtis occidentalis*

Hackberry trees are common in the Midwest and have simple leaves. The tree has a distinctive bark with a warty appearance. It produces inconspicuous flowers in the spring that ripen into small berries by fall.

Hackberry in the Dakota language is “Yamnumnugapi,” which is related to the verb ‘to crunch’. This is the sound animals make when crunching on the berries of the hackberry. Hackberry was used medicinally as a birth control mechanism as well as to soothe sore throats. The berry is also commonly eaten on its own since it has a sweet and pleasant taste.

## DIRECTIONS:

Walk a bit to the east of the elm tree and find a small Hackberry tree.

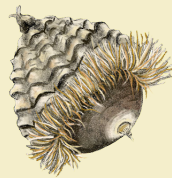


## QUESTION:

ANOTHER KEY FEATURE THAT IS USED TO CLASSIFY TREES IS THE LEAF ARRANGEMENT ON THE STEMS. BASED ON THE DRAWING.

ARE THE LEAVES ON THE HACKBERRY ALTERNATE OR OPPOSITE?







TREE #6

# BUR OAK

*Quercus macrocarpa*

The Bur Oak is known as “mitigomizh” to the Ojibwe, which means the wooden tree. The bark was used as an astringent medicine and as a splint for broken limbs.

Additionally, the acorns themselves were used by both the Ojibwe and Dakota peoples as a food source. Acorns contain a bitter alkaloid that must first be removed before consumption. This is done by soaking the acorns with a solution made from ashes of wood and water. This creates a basic solution that facilitates removal of the bitter tasting alkaloids.

## DIRECTIONS:

To find the bur oak, cross over to south campus at the southwest corner of Summit & Cretin and look for the tagged tree on the right side of the diagonal sidewalk leading to the O’Shaughnessey & Owens Science Buildings.



## QUESTION:

WHAT IS THE COMMON NAME OF THE SOLUTION MADE BY MIXING HOT WATER & ASHES?

HINT: IT IS ALSO USED IN SOAP-MAKING.



TREE #7

# BLACK WALNUT

*Juglans nigra*

The black walnut is strikingly beautiful and rich in history. Although it is best known for the nut it produces, the tree is also prized for its high-quality wood. The heartwood has a deep brown color and unique grain that make it valuable for furniture and cabinets.

The tree is characterized by its pinnate leaves that are about 2 feet long and consist of multiple leaflets. It has green fruits and deeply furrowed grey bark. The walnuts are found within the green fruits that fall from the trees in late October. The hull of the walnut contains a chemical (juglone) that can be used as a brown dye. In fact, if you try and remove the hull from the nut, it will stain your fingers. The nut itself is delicious and nutritious and has been an important food source for humans throughout history.

## DIRECTIONS:

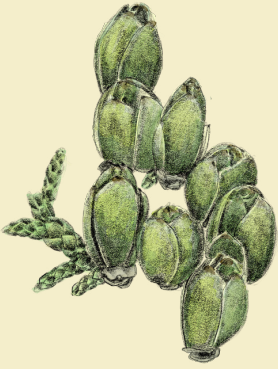
Look across the sidewalk from the bur oak to find the large walnut tree.



## QUESTION:

AN INTERESTING FACT ABOUT WALNUTS IS THAT THEY CONTAIN HIGH AMOUNTS OF A PARTICULAR FATTY ACID THAT IS AN IMPORTANT COMPONENT OF OUR DIET. WHAT TYPE OF FATTY ACID IS IT?

HINT: THIS NUTRIENT IS OFTEN OBTAINED BY EATING FATTY FISH.



TREE #8

# WHITE CEDAR

*Thuja occidentalis*

White cedar, also known as arborvitae (tree of life), is a member of the Cypress family and known as a long-lived tree with some specimens said to be more than 1000 years old.

White cedar had practical, medicinal and spiritual importance to the Dakota and Ojibwe people. The tree is sacred to the Dakota who believe the mythical thunderbird lives in a cedar in the western mountains. The Ojibwe used cedar needles and other sacred plants to prepare ceremonial spaces. The needles have a variety of culinary uses both fresh and dry. Cedar tea is used to help with coughs, regulating blood sugar, and to prevent colds, flu and infection.

## DIRECTIONS:

Continue along the diagonal sidewalk, past the science buildings, through the parking lot, & head to the west side of Cretin Hall. Go to the entrance on the west side of the building & look for the white cedar trees on either side of the doors.



There are also stories suggesting that the common name arborvitae comes from an incident where a 16th century French explorer, on the advice of Native Americans, cured his crew of scurvy by preparing a tea made from cedar leaves which are rich in a particular vitamin.

## QUESTION:

WHAT VITAMIN IS PRESENT IN HIGH AMOUNTS IN CEDAR LEAVES?





TREE #9

# EASTERN WHITE PINE

*Pinus strobus*

Minnesota is on the western edge of the native range of the white pine, which can be identified by its long thin needles.

The white pine was of high value to the Ojibwe people for several purposes. The leaves could be dried, powdered and used as a reviver inhalant. The bark and cones also had medicinal uses. The sap or resin from this tree was boiled to produce an agent that could be used for caulking and waterproofing. Additionally, the male cones were cooked for food and were often stewed with meat.

The white pine played a central role in the lumber industry of Minnesota and was the most commonly harvested tree for 250 years. Pine is still an important source of lumber from managed forests due to its uniform texture and ease of use.

## DIRECTIONS:

Walk south to the area between Cretin & Grace Halls where you will find a magnificent white pine tree.



## QUESTION:

TAKE A CLOSE LOOK AT THE PINE NEEDLES AND NOTICE THAT THEY OCCUR IN SMALL CLUSTERS OR BUNDLES. HOW MANY NEEDLES IN EACH BUNDLE?





TREE #10

# GREEN ASH

*Fraxinus pennsylvanica*

Green ash is a widely distributed species that is an important tree in Minnesota forests. The trees are dioecous, which means some produce only male flowers and others only female flowers. The flowers are wind pollinated and mature into small flat fruits called samaras which are also distributed by the wind.

The wood of green ash was used extensively by both the Ojibwe and Dakota people. The Dakota used the wood to make bows, pipe stems, and arrow shafts. The Ojibwe also used it to make cradle boards, snowshoe frames, and sleds. Additionally, the inner bark was used as a tonic, and could also be scraped into long fluffy layers and cooked (it is said to taste like eggs).

Green ash, like all the ash species, is susceptible to the invasive emerald ash borer which has decimated ash species across the United States and in Minnesota. The trees can be treated with a pesticide, but if untreated the insects consume the inner bark and kill the tree.

## DIRECTIONS:

Continue walking south-west to a large and beautiful tree in the center of the quad.



Simple



Pinnately Compound



Palmately Compound

## QUESTION:

ANOTHER KEY FEATURE OF TREE ID IS WHETHER LEAVES ARE SIMPLE OR COMPOUND. THE IMAGE SHOWS THREE TYPES OF LEAVES. WHAT LEAF TYPE IS THE GREEN ASH TREE?



TREE #11

# BOXELDER

*Acer negundo*

Interestingly, the boxelder is a member of the maple genus, although its leaves are strikingly different from a classic maple leaf. Like all maples, the boxelder does produce a sugary sap solution that can be tapped in the spring and has been used in this way by humans since before recorded history. This tree's common name is due to the fact that boxelder bugs lay their eggs on the tree.

## DIRECTIONS:

Walk to the northwest, past the terrace with the statue of Jesus, to the far corner of the black fence above the grotto. Look for the boxelder behind the fence.



## QUESTION:

PRACTICE YOUR LEAF ID SKILLS AND SELECT THE CORRECT ANSWER TO DESCRIBE THE BOXELDER LEAVES & THEIR ARRANGEMENT ON THE STEM.



alternate, simple



opposite, simple



alternate, compound



opposite, compound



TREE #12

# COTTONWOOD

*Populus deltoides*

Cottonwoods are massive trees that have distinctive deeply ridged bark and perhaps are best known for the copious amounts of fluffy seeds that fill the air during spring.

The cottonwood had many important uses for Native people. The cotton itself was used as an absorbent for open sores by the Ojibwe and as a chewing gum by the Dakota. The buds, seed capsules, and the inner bark are edible and are said to have a pleasant taste.

Additionally, the cottonwood is a sacred tree in the Dakota tradition. The tree is a symbol of fidelity and is used in an important religious ritual that involves dancing around a cottonwood item for several days.

## DIRECTIONS:

To the right of the boxelder is the giant cottonwood tree.



## QUESTION:

WHAT DAKOTA RELIGIOUS RITUAL INVOLVES THE COTTONWOOD TREE?

HINT: USE THE QR CODE FOR INFO ON THIS







TREE #13

# SLIPPERY ELM

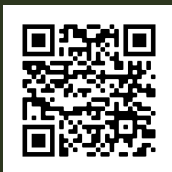
*Ulmus rubra*

The slippery elm is similar to the American elm but is less statuesque and was therefore not planted as extensively. The tree is also susceptible to Dutch elm disease but was less impacted as individual trees were not planted close together.

This tree is notable for its important medicinal uses, from which it derives its name. The inner bark contains a sticky slime that has mucilage properties (making it slippery) and can be purchased as a supplement. The inner bark has been used to treat dry sore throats, as the mucilage helps coat inflamed tissues and reduce irritation. It has also been used as an external application for wounds and burns.

## DIRECTIONS:

Turn to your left and head toward Brady Education Center, past the Jesus statue and the curving stairs. Go down the second set of stairs that run along Brady. The slippery elm is on the right, halfway down the stairs.



Both elms have simple, alternately arranged leaves with asymmetric leaf bases and doubly toothed leaf margins. In one species the upper leaf surface is rough with a sandpapery feel, while in the other the upper leaf surface is smooth.

## QUESTION:

IS THE UPPER LEAF SURFACE OF THE SLIPPERY ELM SMOOTH OR ROUGH?



TREE #14

# AMERICAN BASSWOOD

*Tilia americana*

American basswood trees have simple heart-shaped, alternately arranged leaves. The trees have nectar-producing flowers in the spring, which are an important food source for local pollinators. The fragrant flowers ripen into distinctive fruits that help with identification of this tree. The flowers can be made into a tea for human consumption.

The name basswood comes from the word “bastwood” which refers to the tree’s inner bark (the bast). Basswoods produce strong fibers that were used to create string and cords that were important in the construction of buildings.

Another common name for basswood is linden, which was the name used in England for trees in the *Tilia* genus.

## DIRECTIONS:

Down past the slippery elm you will find some American basswood trees.



## QUESTION:

BASSWOOD IS SOFT AND EASY TO USE IN WOODWORKING. USE THE QR CODE TO FIND AN EXAMPLE OF A PRODUCT COMMONLY MADE OUT OF BASSWOOD BY A MINNEAPOLIS-BASED COMPANY.



TREE #15

# SUGAR MAPLE

*Acer saccharum*

Sugar maple trees are well known for their colorful autumn foliage and as the source of maple syrup. The maple's distinctive leaf serves as an icon for Canada, gracing its national flag.

Maple trees produce a sugary sap within their woody tissues in the spring when the trees are remobilizing sugars stored in their roots to assist with growth. This sap is under positive pressure, and upon making a small hole in the tree, the sap will dribble out into collecting buckets. This sap has been harvested by people for centuries, and the harvesting and consumption of maple sap has been and continues to be an important component of life for people living in areas with maple trees.

## DIRECTIONS:

Just down the path from the basswood you'll find the final tree in our tour, on the left.



## QUESTION:

ON AVERAGE, HOW MANY GALLONS OF SAP ARE REQUIRED TO PRODUCE ONE GALLON OF FINISHED MAPLE SYRUP?





# ANSWER PAGE

1. canoe
2. pinnate
3. gin
4. Dutch elm
5. alternate
6. Lye
7. Omega
8. C
9. 5
10. pinnately compound
11. opposite compound
12. Sun Dance
13. rough
14. prosthetic limbs
15. Approximately 40 gallons







REFERENCES USED FOR THE INFORMATION IN THIS BOOKLET ARE AVAILABLE ON THE ST.  
THOMAS TREES WEBSITE:


<https://stthomastrees.wordpress.com>


# ACKNOWLEDGEMENTS


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