

# Cliff Cave County Park

January 27, 2025

	BOTANICAL NAME (with genus pronunciation)	FAMILY [CC] = <a href="#">Coefficient of Conservatism</a>	COMMON NAME
<input type="checkbox"/>	<a href="#">Acer negundo</a> (AY-sr)	Sapindaceae [CC1]	Boxelder
<input type="checkbox"/>	<a href="#">Ailanthus altissima</a> eye-LAN-thus	Simaroubaceae / Sapindales [introduced]	Tree of Heaven
<input type="checkbox"/>	<a href="#">Baptisia alba</a> (bap-TIZZ-ee-uh)	Fabaceae [CC6]	White Wild Indigo
<input type="checkbox"/>	<a href="#">Cercis canadensis</a> (SR-siss)	Fabaceae (Caesalpinioideae subfam) [CC3]	Redbud
<input type="checkbox"/>	<a href="#">Fraxinus pennsylvanica</a> (FRAX-i-nuss)	Oleaceae [CC2]	Green Ash
<input type="checkbox"/>	<a href="#">Ilex decidua</a> (EYE-lex)	Aquifoliaceae [CC5]	Possumhaw / Deciduous Holly
<input type="checkbox"/>	<a href="#">Juniperus virginiana</a> () (joo-NIPP-pr-russ)	Cupressaceae [CC2]	Redcedar / Red Juniper
<input type="checkbox"/>	<a href="#">Paulownia tomentosa</a> () (pow-LO-nee-uh)	Paulowniaceae / Lamiales [introduced]	Empress Tree
<input type="checkbox"/>	<a href="#">Platanus occidentalis</a> (PLATT-tuh-nuss)	Platanaceae [CC3]	Sycamore
<input type="checkbox"/>	<a href="#">Populus deltoides</a> (POP-yoo-lus)	Salicaceae [CC2]	Eastern Cottonwood
<input type="checkbox"/>	<a href="#">Pyrus calleryana</a> (PY-rus)	Rosaceae [introduced]	Callery Pear
<input type="checkbox"/>	<a href="#">Quercus bicolor</a> (KWERK-us)	Fagaceae [CC7]	Swamp White Oak
<input type="checkbox"/>	<a href="#">Robinia pseudoacacia</a> (ro-BIN-ee-uh)	Fabaceae (Faboideae subfamily) [CC6 or intro]	Black Locust
<input type="checkbox"/>	<a href="#">Tilia americana</a> (TILL-ee-uh)	Malvaceae (Malvales) [CC5]	Basswood
<input type="checkbox"/>	<a href="#">Ulmus alata</a> (UL-muss)	Ulmaceae [CC4]	Winged Elm

## NOTES

### WHERE WE WALKED:

We met at the lower parking lot, then walked up to the overlook. Along the way we took a small loop that bordered the river. After being cooped-up for several weeks because of the weather, it was a relief to be out walking again. We weren't expecting the trails to still be so icy. Evidently the County Parks Department doesn't budget for snow removal. But this is probably their premier park, so if there's still snow and ice here, there's surely snow and ice at all the others too. Although we weren't able to focus as much on the plants, everybody seemed happy to be out in nature once again.

### LIMESTONE:

The "Cliff" part of "Cliff Cave" got lots of attention from us. We looked up at the cliff when we were still in the parking lot and then looked down from its 150' crest when we reached the Overlook.

We should probably be used to limestone by now. Calcium carbonate. CaCO<sub>3</sub>. We see it almost every week on our walks. But for some reason limestone still holds a fascination. It's composed of tiny organisms and has different forms. It effervesces quite enthusiastically with a couple drops of 10% hydrochloric acid. When it's heated (to over 1,500°F) it releases CO<sub>2</sub> and forms Calcium Oxide (CaO). When heated even more (to over 4,300°F) it emits an intense glow – the famous "Limelight" that was used as lighting for theatrical productions during Charlie Chapman's time. Limestone is used in everything from steelmaking to making pickles. It's full of surprises.

Limestone usually forms in shallow, warm saltwater because the depositing organisms need that kind of sunny environment. So how did all this limestone end up in St. Louis? There was a huge span of time when the North American plate was near the equator, and much of the United States was a shallow, warm, saltwater sea.

John mentioned that “Indiana Limestone” is highly regarded because of its whiteness. Indeed the City of Bloomington’s website boasts that their limestone was used to build the Empire State Building, the Lincoln Memorial, the Pentagon, and 27 U.S. state capitols!

Well, Missouri limestone falls a bit short of that. No famous buildings. In fact our limestone is mostly used (*gulp*) to make cement. Still, the Missouri Limestone Producers Association (MLPA) reports that limestone is mined in 92 of Missouri’s 114 counties and that the industry employs more than 2,500 people.

If you use Google Maps to view Bloomington Indiana, you’ll notice a couple of bright white splotches ([HERE](#)) west of the city. As you zoom in, you’ll see that those splotches are quarries. Now if you do the same and view Cliff Cave Park, you’ll notice a huge splotch ([HERE](#)) immediately north of the park. That’s Bussen Quarry. It would be a stretch to call it “white”. It’s more of a gray. Why isn’t our limestone as white as Indiana’s? John suggested that our location might have been near a shore when the calcareous little creatures deposited themselves. Wave action against the land would have stirred-in some impurities.

Wait a minute! Isn’t “marble” a type of limestone that’s gone through some tough times? Well, the exterior of our Missouri State Capitol is made of Missouri Limestone Marble from Carthage (near Joplin)! So are the floors of all the corridors, the rotundas, and the treads of the stairways. Marble outranks limestone any day. So don’t be so snobby, Indiana!

### IMPRESSED BY THE EMPRESS:

Because of the icy walkways, we weren’t able to meet many trees today. So *Paulownia* came up to the bridge to meet us instead. John asked us: “How old do you think this tree is?” It’s the same question he asks when we meet a *Sideroxylon lanuginosum* (Gum Bumelia) tree. But the correct answers to each are in totally opposite directions.

*Paulownia* is an extremely fast-growing tree. And that means money. Growing *Paulownia* is big business (as this 5-6 minute [VIDEO](#) shows). There are plantations all over the world. The *American Paulownia Association* claims that it’s both the lightest and most dense of any wood in the world. They claim that it is tolerant of pollution and can grow in any type of soil. They claim that it is hydrophobic (therefore resistant to rot) and fire resistant (with an ignition temperature of 840°F).

Why do people choose to grow Empress Trees? As a yard tree, it’s hard to resist those large, fragrant purple flowers that come out in May before the leaves emerge. Years ago we used to hear about them on late-night infomercials (as this 2-minute [VIDEO](#) shows). Climate scientists might be attracted to its carbon-capture potential. Farmers might be interested in it as an income-producing lumber crop. There’s a strong market for Empress Tree wood in Japan. Although *Paulownia* is native to Japan, the tree is now nearly extinct there because of a pathogen. The wood is an iconic emblem of long life and prosperity. Its wood is used for culturally rich items, such as amulets for newborns, ceremonial rice bowls, and coffins.

The wood of the Empress Tree is very light and soft. Its Janka hardness value of 300 shows it to be softer than all our other St. Louis trees. It’s also attractive. Usually soft hardwoods (like Balsa or Basswood) don’t show much grain. But boards of *Paulownia* look strong with their conspicuous grain patterns. Martial Arts instructors often have their students break boards of *Paulownia*. It’s good theatre and it surely gives the students a feeling of accomplishment and pride. As for its taxonomy, *Paulownia* belongs to its own family, the Paulowniaceae. It’s in the mint order (Lamiales). Its large, heart-shaped leaves might be mistaken for *Catalpa* (also in the mint order), and its flowers resemble foxglove *Digitalis* (also in the mint order). There’s more than one species of *Paulownia*, but the wild *Paulownia tomentosa* is the only one we ever see. A hybrid has been developed named “Shan Tong” that is said to grow even faster and larger – plus it’s sterile!

The Empress Tree has a bad reputation in many parts of the world where it is invasive. But since that doesn’t seem to be a problem here in St. Louis, we can sing its praises without feeling too guilty.

### SHORT OBSERVATIONS:

- Everybody was happy to see Sebastian again. He’s back from his travels – this time in Alaska! Sebastian mentioned that he now works at “Glorious Gardens” ([HERE](#)) and enjoys having his hands in the dirt again. So if any of us need professional garden work, we now know that there’s a company that hires brilliant people.
- The short loop along the Mississippi River features some massive and magnificent Cottonwood trees (*Populus deltoides*). They’re in the Willow family. We noticed that their huge trunks did not flare at the bottom. It’s as if

some giant had just pushed them into the earth. Burt suggested that soil had been deposited around them by the river. (“Hmm... that makes sense!”) Fifteen minutes later we came upon a couple of Possumhaw trees (*Ilex decidua*). We couldn’t figure out why one tree had red fruit (drupes) while the other had yellowish fruit. Burt suggested that the yellowish fruits were once red but had faded. (“Hmm... that makes sense!”). It’s always good to have somebody who thinks outside-the-box.

By the way, why is there still fruit on the trees? Possumhaw’s Wikipedia article mentions that the bitter fruit doesn’t become a favorite food of birds and mammals until spring, after it’s been exposed to many freezing and thawing cycles.

- The Winged Elm (*Ulmus alata*) that we found was really wingy! It was ready to fly away. Many of us had never seen such conspicuous wingedness. John mentioned that when the leaves return in 10 weeks or so, we should take note that the leaf bases tend to be symmetrical (unlike the other elms), and the terminal leaves tend to be larger than the more interior leaves (unlike most other plants).

#### PARTICIPANTS:

There were 12 of us botanists today, who are (in alphabetical order):

Kathy Bildner, Tom and Eileen Buescher, Jerry Castillon, Wayne Clark, Sebastian Forward, Michael Laschober, Burt Noll, John Oliver, David Steinmeyer, Kathy Thiele, and Laura Yates.