

Bootlegger's Run – Creve Coeur Park

December 9, 2024

	BOTANICAL NAME (with genus pronunciation)	FAMILY [CC] = Coefficient of Conservatism	COMMON NAME
<input type="checkbox"/>	<i>Acer saccharum</i> (AY-sr)	Sapindaceae [CC5]	Sugar Maple
<input type="checkbox"/>	<i>Ampelopsis cordata</i> (am-pel-OP-sis)	Vitaceae [CC3]	Raccoon Grape / Heartleaf Peppervine
<input type="checkbox"/>	<i>Asimina triloba</i> (uh-SIM-in-uh)	Annonaceae [CC5]	Pawpaw
<input type="checkbox"/>	<i>Asplenium platyneuron</i> (uh-SPLLEE-nee-um)	Aspleniaceae [CC4]	Ebony Spleenwort
<input type="checkbox"/>	<i>Borodinia laevigata</i> (bor-o-DINN-ee-uh)	Brassicaceae [CC6]	Smooth Rockcress
<input type="checkbox"/>	<i>Carex albursina</i> (CARE-x)	Cyperaceae [CC9]	White-Bear Sedge
<input type="checkbox"/>	<i>Carex muskingumensis</i> (CARE-ex / muss-KING-goo-MEN-sis)	Cyperaceae [CC9]	Palm Sedge / Swamp Sedge
<input type="checkbox"/>	<i>Diospyros virginiana</i> (dee-OSS-pr-us)	Ebenaceae [CC3]	Persimmon Tree
<input type="checkbox"/>	<i>Elephantopus carolinianus</i> (el-eh-fan-TOE-pus)	Asteraceae (Vernonieae tribe) [CC3]	Elephant's Foot
<input type="checkbox"/>	<i>Lindera benzoin</i> (lin-DEER-uh)	Lauraceae [CC5]	Spicebush
<input type="checkbox"/>	<i>Lonicera maackii</i> (lo-NISS-r-uh)	Caprifoliaceae [introduced]	Bush Honeysuckle
<input type="checkbox"/>	<i>Parthenocissus quinquefolia</i> (parth-in-o-SISS-us)	Vitaceae [CC3]	Virginia Creeper
<input type="checkbox"/>	<i>Perilla frutescens</i> (pr-ILL-uh)	Lamiaceae (Nepetoideae subfamily) [introduced]	Perilla
<input type="checkbox"/>	<i>Phlox divaricata</i> (FLOCKS)	Polemoniaceae [CC4]	Woodland Phlox
<input type="checkbox"/>	<i>Platanus occidentalis</i> (PLATT-tuh-nuss)	Platanaceae [CC3]	Sycamore
<input type="checkbox"/>	<i>Polystichum acrosticoides</i> (po-LISS-tick-um)	Dryopteridaceae [CC5]	Christmas Fern
<input type="checkbox"/>	<i>Quercus alba</i> (KWERK-us)	Fagaceae [CC4]	White Oak
<input type="checkbox"/>	<i>Quercus rubra</i> (KWERK-us)	Fagaceae [CC5]	Northern Red Oak
<input type="checkbox"/>	<i>Sassafras albidum</i> (SASS-uh-frass)	Lauraceae [CC2]	Sassafras
<input type="checkbox"/>	<i>Tilia americana</i> (TILL-ee-uh)	Malvaceae (Malvales) [CC5]	Basswood
<input type="checkbox"/>	<i>Toxicodendron radicans</i> (TOCK-see-ko-DEN-dron)	Anacardiaceae [CC1]	Poison Ivy
<input type="checkbox"/>	<i>Trametes (Coriolus, Polyporus) versicolor</i> (tra-ME-teez)	Polyporaceae (Basidiomycota) [fungus]	Turkey Tail Mushroom
<input type="checkbox"/>	<i>Verbena alternifolia</i> (vr-beh-SEE-nuh)	Asteraceae (Heliantheae tribe) [CC4]	Yellow Wingstem
<input type="checkbox"/>	<i>Woodsia obtusa</i> () (WOOD-see-uh)	Woodsiaceae [CC5]	Bluntlobe Cliff Fern

NOTES

WHERE WE WALKED: We met at the Bootlegger's Run Trailhead, but we didn't walk the entire 4.7 mile trail. Rick Armstrong knew the area well and gave us options at every trail junction. It worked out perfectly!

COTYLEDONS

We weren't far into our walk when John announced that he was looking for some *Tilia* (Basswood) cotyledons to show us. What? Cotyledons? At this time of the year? It's both too early and too late! The seeds of the summer plants won't germinate until spring, and the seeds of the winter annuals germinated way back in late summer and early fall. Surely they wouldn't still be wearing their cotyledons (seed leaves) now with the snow blowing. And yet we found them – not the distinctive ones that John was looking for – but the common, indistinguishable ones straight out of Central Casting. What are these cotyledons doing here along the Bootlegger's Run Trail in December? Were they tricked by our warm snap? Will these naked cotyledons perish when "real winter" gets here? Or are they always here in December but we just never stopped to consider them?

There are 2 types of cotyledons. We were looking for plants that show their cotyledons. These kind of plants are said to have "EPIGEAL (above earth) germination". Their cotyledons get pushed above the ground by an elongating hypocotyl (the stem below the cotyledon). These "look at me" cotyledons are more vulnerable to predation, so the plant's strategy is to produce lots of them without investing much in their nutritional quality. It's quantity over quality. These plants are found in nutrient-rich soils at sunny locations so they can quickly get their photosynthesis up-and-running.

But not all flowering plants show their cotyledons. Those that don't are said to have "HYPOGEAL (below earth) germination". Their cotyledons don't get pushed-up by the stem below them. Instead the stem *above* them (the epicotyl) pushes up the embryonic plumule (which will develop into the true leaves). These underground cotyledons tend to be fleshy and nutrient-rich, but the plant can't afford to produce lots of them. It's quality over quantity. With such rich cotyledons, they're able to grow in nutrient-poor soils and in places with less sunlight (such as the woods).

Trivia: We know that some plants (like the grasses) only have one cotyledon (the "monocots"), while most other flowering plants have 2 cotyledons (the "dicots"). But some of the conifers have quite a few more cotyledons (which, by the way, form an attractive umbrella-like whorl). Richard Abbott called them "polycots".

Another piece of trivia: not all cotyledons are ephemeral. Some can persist for a long time.

How does "endosperm" fit into the story? Endosperm seems to serve the same purpose as cotyledons – to give the developing embryo a healthy start in life. Endosperm is a big deal (although the non-endospermic orchids don't seem to think so). Endosperm is famously triploid. It got its start in life from a sperm – one of the 2 sperms that the pollen grain delivered to the embryo sac during the "double fertilization" event. But despite its textbook-worthy early story, the dicot's endosperm later plays a supportive role to the cotyledons, even transferring nutrients to them.

Speaking of endosperm, many of the monocots have been cultivated to produce great quantities of endosperm for us. It's the wheat flour that we make bread from. It's the sweetness that squirts out when we take a bite of corn-on-the-cob. It's both the milk and the white solid part of the coconut. All endosperm.

Finally, as if things weren't confusing enough, "*Cotyledon*" is also the name of a plant genus. They're attractive succulents in the Crassulaceae (Stonecrop Family). Not counting the Kalanchoe plants that we might have growing at home in pots, *Cotyledon*'s only St. Louis relative is *Sedum ternatum* (Woodland Stonecrop). Mr. Mutinus (the malcontent botany teacher appropriately named after a stinkhorn fungus) once gave his class a twisted exam question about the cotyledon of a *Cotyledon*. He chuckled when everybody failed.

It's rather exciting to see with new eyes something that we used to take for granted. Both Kathy Bildner and George expressed interest in creating a reference book of cotyledon photos. One thing for sure: no matter where we walk from now on, "cotyledons" will always be on our radar.

SHORT OBSERVATIONS:

Except for the cotyledons, we could pretty-much identify everything we saw. There's nothing especially new in the species list above. We only listed the plants that John or somebody else commented about. Here are a few of the ideas that were expressed:

- Pawpaw – the younger trees seem to have more of a planar architecture than the older ones
- Spicebush – the bark is covered with "goosebumps"
- Sawtooth Oak – recently we've been seeing more of these non-native trees than we have of our native chinkapin. We noticed that the *Quercus acutissima*'s chinkapin-like leaves have a whitish underside.
- Turkey Tail – the outer margin is whitish and its underside is light and porous

- Red Oak – ski tracks up the bark
- Sycamore – eagles like to build nests on its highest branches
- Sassafras – the big old one we stopped to examine had orange bark beneath its dark bark
- Smooth Rockcress – after their silique fruits dehisce, this and many other Brassica species retain the tissue-like membranes (replum) that once separated their 2 valves. They dangle from the plant like Christmas-tree tinsel.
- Palm Sedge – Laura identified this with some surprise in her voice
- White Bear Sedge – named after White Bear Lake in Minnesota. It's the widest-leaved sedge in Missouri.
- Basswood – David was the first to find a basswood (which he recognized by its bark alone!). Although we looked for its unique cotyledons that John had hoped to find, we couldn't find any.
- Virginia Creeper – this caught our attention because it was climbing up a tree – a rather uncommon sight
- Poison Ivy – this was climbing the same tree as the Virginia Creeper. We mention it here because the vine has hairlike adventitious roots that stick out in every direction. John always jokes that the *Euonymus fortunei* (Wintercreeper) vine is smarter because its adventitious roots latch directly onto the bark.
- Persimmons – at the end of our walk we saw a large patch of persimmon trees with their distinctive bark

PARTICIPANTS:

There were 15 of us botanists today, who are (in alphabetical order):

Rick Armstrong, Prem Barton, Renee Benage, Kathy Bildner, Jerry Castillon, Wayne Clark, June Jeffries, Michael Laschober, Len Meier, Burt Noll, John Oliver, David Steinmeyer, Kathy Thiele, George Van Brunt, and Laura Yates