Chinquapin

Volume 29 (3) Southern Appalachian Botanical Society Newsletter Fall 2023

Earl Core Award Student Research Reports

This year there were three awards for 2023.. Congratulations to Hale Clayton, Devani Jolman, and Megan Gauger. Two of the reports are included in this issue. SABS is proud of their accomplishments. Supporting student research is one of the goals of our society.

Hybrid highbush blueberries: Virginia's hardest game of hide and seek.

Devani Jolman, Old Dominion University

Highbush blueberries, *Vaccinium* spp., simultaneously provide humans with a tasty summer treat and taxonomists with a pounding headache. The taxonomy of section Cyanococcus has been debated for years because of its wide and complicated variation. Camp (1945) recognized an astounding 24 species in section Cyanococcus, but 40 years later in Maine, Vander Kloet (1980) found overlap in traits and redefined the section into 9 species. Most notably, he lumped 12 of Camp's species into one, highly variable "compilo-species" - *Vaccinium corymbosum.* Due to its simplicity, this definition is commonly used in agriculture and horticulture, generating confusion in the literature. Working in Virginia, Uttal (1987), redefined the section into 16 species, splitting *Vaccinium corymbosum* again into multiple species. This taxonomic back-and-forth has resulted in a messy nomenclature that has only begun to be teased apart with modern molecular tools and wild population studies. Weakley (2020) noted that "failure to recognize multiple entities within the highbush blueberries results in the taxonomic homogenization of the diversity of the group and obscures important phytogeographic patterns."

One reason for the extreme diversity observed in section Cyanococcus may be frequent hybridization. Hybridization is well-known to botanists as a creative evolutionary force that generates new biodiversity. Two native highbush blueberries in Virginia, *Vaccinium fuscatum* Ait. and *Vaccinium formosum* H.C. Andrews, are suspected to hybridize throughout the Coastal Plain and Piedmont. Their hybrid, *Vaccinium* x *marianum* Wats., is prevalent but difficult to key to as it presents varying trait intermediacy. My project has focused on studying variation in *V.* x *marianum* relative to its purported parent species. I'm seeking to clarify whether there are morphological distinctions between these taxa, and to determine how their functional traits vary across habitat types. With my results I expect to update the complicated taxonomy of *Vaccinium* ; additionally, I aim to understand if hybrids differentially impact their surrounding communities. With the changing climatic conditions increasing hybridization rates, it is essential to understand the impact of hybridization on future biodiversity.

With funding from the Earl Core Student Research Grant, I visited 13 sites across the Coastal Plain and Piedmont of Virginia. Of the 13 sites, nine were included in the final dataset because four sites had a low prevalence of berries and long-term collection concerns. At most sites, 15 plants each of *V.* x *marianum*, *V. fuscatum*, and *V. formosum* were located and sampled. With dedicated field exploration, morphological and functional trait data were collected from 402 highbush blueberry plants (140 *V.* x *marianum*, 136 *V. fuscatum*, and 126 *V. formosum*). Various traits were collected either in the field or in the lab at Old Dominion University (ODU). Along with field data, over 2,000 leaves and 3,000 berries have been individually processed in the lab for various traits; data collection of these samples is ongoing. Additionally, all plants will have new specimens added to the ODU Herbarium and biodiversity databases, contributing to updates of the Virginia flora.

Habitats between sites varied drastically; highbush blueberries were found in oceanside sandy dune

(continued on page 4)

The Botanical Career of Frank Gilbert and the and the Founding of the Marshall University Herbarium: Part One

Douglas Tuers

In 1938 no less a botanical luminary than Edgar Wherry had occasion to visit Huntington, West Virginia while travelling through the state. Wherry writes, "On our arrival in Huntington, Dr. Frank A. Gilbert kindly guided us to the newly discovered Wayne County station for *Trichomanes boschianum*."(Wherry 1939, p.1) At that time Frank Albert Gilbert(1900-1989) had been in the botany department at Marshall College for over a decade. That Frank Gilbert was sought out by Edgar Wherry testifies that Gilbert was well respected in botany. However, there has been very little written about Frank Gilbert and his botanical career. Such attention would be especially deserving as it offers an exemplar of a twentieth century botanist and the uses to which society put botanists.

Frank Gilbert was born in 1900 and spent his early life in Wenham, Massachusetts.(Gilbert 6/20/1927) His bachelor's degree was earned at the Massachusetts Agricultural College, the forerunner to the University of Massachusetts at Amherst. Immediately after finishing his bachelors Frank Gilbert began his master's degree in botany at Harvard University. During summers Gilbert worked for the Massachusetts Department of Agriculture. Gilbert served as an agent in the fight against White Pine Blister Rust(blister rust). Blister rust was first discovered, in America, in New York state. (Maloy 1997) The disease had been known in Europe throughout most of the nineteenth century but had only come to America in the twentieth century. Gilbert's CV says that he served the cause from 1923 to 1926. According to Maloy(1997) these were the early years of the program. Fiscal support for blister rust eradication peaked in the mid-30's and late-40's. The blister rust contagion spread to white pine from certain species of *Ribes*. So, blister rust eradication meant eradicating these *Ribes* from the vicinity of stands of white pine. How far varied throughout the time of the program.

Gilbert served in the program for only two summers before completing his Masters in 1923.(Gilbert 6/20/1927) The next year Gilbert continued his studies at Harvard pursuing his PhD. in botany. During these years he taught at nearby Radcliff College and in the summer of 1925 joined M.L. Fernald on a botanical expedition to Newfoundland. Frank Gilbert finished his studies and graduated from Harvard with his doctorate in 1927.

Frank Albert Gilbert was hired as faculty in the department of botany at Marshall College in 1927.(Gilbert 7/15/1927) Gilbert spent the summer of 1927 ironing out the details of his employment. He was hired with the aim of filling the chair of the botany department. Appointment to this position caused pause for President Shawkey of Marshall College. The hesitation seems to have been a doubt about Gilbert's willingness to teach, "The chief question to determine now is whether or not a place where teaching predominates so largely

will appeal to Dr. Gilbert."(Shawkey 6/24/1927a) His teaching was mostly approved of by his Harvard references. E.C. Jeffery wrote, "He served as one of my assistants during two years and I found him very satisfactory as a teacher."(Jeffery 6/20/1927) W.H. Weston was less impressed with Gilbert's teaching acumen, "In assisting me he did not show great promise as a teacher, but I feel he may develop the qualities of a stimulating lecturer and be able to arouse the enthusiasm of students in time."(Weston 6/20/1927) Gilbert was ultimately hired and began his responsibilities that Fall.

There are a few points of interest from Frank Gilbert's time at Marshall College. Gilbert served as the first president of the Southern Appalachian Botanical Club from 1936 to 1940.(SABS 2023) Frank Gilbert also had an entrepreneurial streak. He invented a treatment for athlete's foot using the dye "Malachite Green," and was in correspondence with a patent attorney in Washington, D.C. named Munson Lane.(Lane 8/2/1937) It appears to have come to nothing. In a letter to Lane, Gilbert gave the recipe for his treatment:

> Malachite Green.....2%
> Carbolic Acid.....2%
> Benzoic Acid 1%
> Salicylic Acid.....1%
> In 100% of 50% ethyl alcohol
>
> (Gilbert 8/10/1937)

The treatment was named "Drytoe." It was natural to think that Malachite Green could be an effective treatment for athlete's foot. Gilbert likely came across the substance because of its use as a stain for microscope slides. Gilbert accumulated an immense slide collection while at Marshall College.(Boone 1965, p.127-128) A toxicological study of malachite green, Culp and Beland(1996), does not mention malachite green's use against athlete's foot but does mention its wide use as an aquatic antifungal. It was likely its antifungal property that made Gilbert think it could be a treatment for athlete's foot. Culp and Beland(1996) remark that:

Concern over exposure to malachite green is due to studies indicating that malachite green causes reproductive abnormalities in rabbits and fish (Meyer and Jorgenson, 1983) and enhances the formation of hepatic tumors in rats (Fernandes et al 1991), and because of its structural similarity to other carcinogenic triphenylmethane dyes (IARC 1978; Littlefield, 1985).(Culp and Beland 1996, p.234)

So perhaps it is best that Drytoe never appeared on market shelves. The episode does speak against the view of the academic botanist as wholly lacking in entrepreneurial spirit.

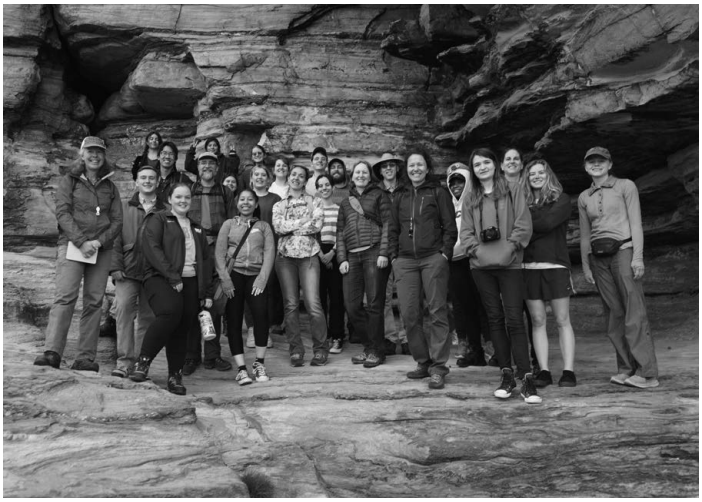
It has been reported in several places that the Marshall University Herbarium (MUHW) was founded by Frank Gilbert around 1930. (Puppo 2021; Puppo 2022; Index Herbariorum 2022) In a letter in 1978 Gilbert stated that he started the herbarium at Marshall University.(Gilbert 5/20/1978) However, in a letter dated June 24, 1927, President Shawkey of Marshall College wrote to Frank Gilbert, "Our Botany department is not developed very far. We have something of an herbarium of tristate flora, and I imagine the opportunities for work along this line are rather good." (Shawkey 6/24/1927b) At the time Gilbert was still being considered for the position at Marshall. There are several reasons to believe that MUHW predates Frank Gilbert's arrival at Marshall, beyond President Shawkey's letter. The 1896-97 University catalog states that, "Already arrangements are on foot for collecting a large School Herbarium for the convenience of students in the department of Botany." (Marshall University 1896, p.23-24) We can then say that at least the idea of an herbarium at Marshall College long predated Gilbert's time at Marshall College. Finally, it is worth pointing out that Weldon Boone's book *History of Botany in West Virginia* devotes over a page to Frank Gilbert. But in this coverage Boone does not say that Gilbert founded the herbarium but only that Gilbert "Built up the Marshall College Herbarium." (Boone 1965, p.127) This suggests again that the herbarium already existed when Gilbert arrived at Marshall College.

SABS Field Trip Report-Pilot Mountain.

Steph Jeffries, North Carolina State University

In April 2023, Dane Kuppinger (High Point University) and I (Steph Jeffries, NC State) led a SABS-sponsored field trip for the Association of Southeastern Biologists meeting at Pilot Mountain State Park (Monadnock Forests and Fire Ecology at Pilot Mountain State Park). It was a bit surprising to be offering the only field trip of the meeting, but we filled the trip early, then invited at least another dozen to join us at the meeting. What resulted was an outstanding group of folks eager to hike, share, and learn about fire ecology and history at Pilot Mountain.

The first part of our hike took us around Big Pinnacle, part of the 500+ million-year-old Sauratown range, and introduced the group to monadnocks, which are erosion-resistant (quartzite, in this case), isolated mountains. In the NC Piedmont, monadnocks house interesting plant communities, with many species that are more at home farther west. We saw combinations of pines, oaks, and heaths, and distinguished between Pine-Oak-Heath Forest (more frequent



(continued on page 5)

Earl Core Reports *(continued from page 1)*

swales, clay vernal pools, standing water cypress swamps, creek-side in upland forests, and more. This project not only reconfirmed the beauty and diversity of the Virginia landscape, but the ability of highbush blueberries to survive in challenging environments. Typically, plants were found near a water source, supporting the designation of highbush blueberries as an important wetland margin species. Anecdotal observations of bird and insect interactions and herbivory indicate highbush blueberries are influential in their communities.

At most sites, I found a higher prevalence of hybrids compared to the parent species. *V.* x *marianum*, was widespread at each site, and most plants were found close one of the parent species. This suggests that hybridization between *V. formosum* and *V. fuscatum* is common, there is a continuous backcrossing with the parent species, or the hybrids are long-lasting at each site.

Preliminary analyses of the trait data show that *V. fuscatum* and *V. formosum* are morphologically distinct, whereas *V.* x [Note: this is multiplication sign, not an x] *marianum* has morphological intermediacy and is more variable than its parents. My findings support a taxonomy of separate highbush blueberry species, as opposed to a single *V. corymbosum*, while also highlighting the complicated diversity of the Cyanococcus group. In on-going analyses, I am exploring how groups of traits vary across these species and in relation to their environments and what this means for the function of hybrids in their natural communities.

This first field season allowed me to build the foundation of my dissertation; with it, I had the ability to travel to numerous sites across Virginia, find hybrids within highbush populations, and collect time-intensive data. The Earl Core Award gave me the opportunity to do what a botanist does best: get into nature to find and identify plants. For this, I am extremely thankful. With the work completed from this project, I will be able to pursue additional future projects. Currently, I am genotyping all sampled plants to better understand the ancestry of hybrids and the direction of hybridization between parental species. Additionally, I will be returning to the sites over the next two years to collect yearly trait data and observe pollinator interactions.

I am grateful to the Southern Appalachian Botanical Society for funding this research. I am excited to continue my relationship with the society over the upcoming years and look forward to sharing the results of my research.

Camp, W. H. 1945. The North American blueberries with notes on other groups of Vacciniaceae. *Brittonia* 5: 203–275.

Uttal, J. 1987. The Genus *Vaccinium* L. (Ericaceae) in Virginia. *Castanea* 52: 231-255.

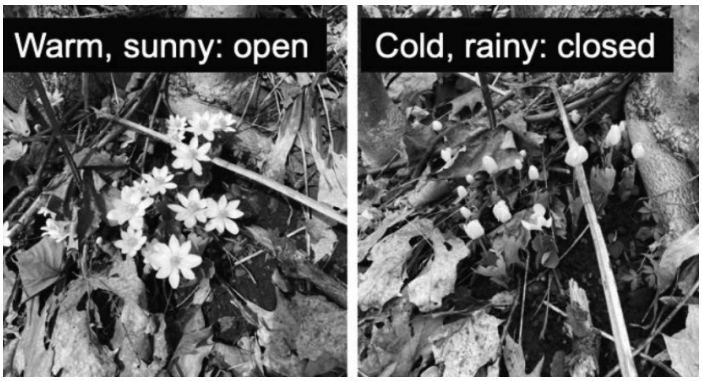
Vander Kloet, S. P. 1980. The taxonomy of the highbush blueberry, *Vaccinium corymbosum*. *Canadian Journal of Botany* 58: 1187–1201.

Weakley, A. 2020. Flora of the Southern and Mid–Atlantic States. University of North Carolina Herbarium, North Carolina Botanical Garden, Chapel Hill, NC.

Flowers sleep too! Investigating the phenomenon of Weather-induced Flower Closure in Spring Ephemeral Forest Wildflowers –

Megan Gauger, Carnegie Museum of Natural History

In the spring of 2023, I was awarded the Earl Core Student Research Scholarship which funded my project, "Weather-induced Flower Closure in Spring Ephemeral Forest Wildflowers." Receiving this award was an exciting part of my research journey and granted me the opportunity to use Go-Pros to capture footage of bloodroot (*Sanguinaria canadensis*), trout lily (*Erythronium americanum*), and spring beauty (*Claytonia virginiana*) flowers and track their petal opening and closing cycles.



I first noticed the phenomenon of petals opening and closing while working as a research technician with Dr. Mason Heberling during the spring of 2022 at the Carnegie Museum of Natural History. While doing field work, my coworkers and I noticed that many flowers would delay their petal opening or remain closed throughout the day during cold, rainy, or exceptionally cloudy weather. We believe that this mechanism is put in place to protect the flowers' pollen from damage due to excessive moisture or abrupt weather change.

To test the idea that flowers will remain closed to protect their pollen, I set up multiple Go-Pro cameras throughout the forest at

the Barking Slopes Conservation Area in Plum, PA (about 20 miles northeast of Pittsburgh along the Allegheny River). This site is known for its wildflower biodiversity and has an abundance of spring ephemerals. I set up these cameras to shoot a picture of my chosen flower species every thirty minutes. Along with the camera footage, I collected local temperature, leaf wetness data, and recorded the time of day that each photo was taken. All of these data were collected in early April, during the peak season for spring ephemeral flowers.

In addition to collecting camera footage, I also wanted to know what would happen if the flowers were unable to close their petals. As global temperatures continue to rise, we imagine that these flowers will remain open longer; some studies show that this petal opening is powered from cell expansion as a result of change in temperature (Doorn and Meeteren 2003). To test what would happen in a scenario where the petals could not close, I set up four study groups – one unmodified flower group, one where the petals were trimmed, another where petals were fully removed, and a group where petals were damaged but remained attached to the flower to account for the effects of petal damage. I allowed these flowers to continue to grow as normal and collected the ripe fruit. By collecting the fruit, I was able to measure differences in fruit mass and size and seed production. These data will allow me to quantify whether the floral movements improve reproductive success.

Since conducting the experiment this past spring and summer, I have been actively reviewing my camera footage and beginning analysis. I've gone through some of the Go-Pro data to draw preliminary conclusions, specifically on a subset of trout lily flowers. While these flowers are most beautiful at peak opening, they can take a while to fully wake – no flowers were fully open before noon, with flowers being most showy between noon and 2pm. My data show these flowers avoid cold weather, as none were open when the local temperature was below 48°F. They prefer warmer temperatures around 68°F, but would begin to open at any temperature above 55°F. And, as we imagined, these flowers avoid rain as best as they can – no flowers were open when the measured leaf wetness was above 4%. Along with providing an abundance of qualitative data, the use of Go-Pros made for a very unique data collection experience. Once the time-lapse footage was fully assembled, I was struck by how beautifully each of the flower species moved in relation to the sun. In particular, the Virginia spring beauty seemed to follow the sun's path throughout the day, with the entire plant shifting to follow its rays. Although most people use trail cams to follow animal movement, using these cameras to track the movement of flowers has provided mesmerizing footage that has been wonderful to share.

As we slowly approach spring ephemeral season once more (it will be here before we know it!), I hope to continue observing these flowers and potentially identify more ephemerals with the same mechanism. I plan to build upon the study next spring by collecting pollen instead of ripe fruit for analysis. By collecting pollen, I hope to observe how much damage occurs from the prolonged petal opening.

The experience of developing and completing this project would not have been possible without the support of the Southern Appalachian Botanical Society. Being able to carry out this project has enabled me to learn many things about field work, data analysis, and what it means to develop an independent project and share new findings. Since beginning the project, I've been able to share what I have learned to the broader public through events held at the Carnegie Museum of Natural History (including sharing time lapse footage with museum visitors!). I was also able to share my project and first results with other botanists at a student poster session for the Pennsylvania Botany Symposium this past fall, a biennial gathering of amateur and professional botanists across the region. Both experiences have helped me to grow both professionally and personally as I continue to learn more about research in the field of Botany. I am extremely grateful for the support of the Southern Appalachian Botanical Society and am excited to continue developing this project.

Wouter G. van Doorn, Uulke van Meeteren, Flower opening and closure: a review, *Journal of Experimental Botany*, Volume 54, Issue 389, 1 August 2003, Pages 1801–1812, https://doi.org/10.1093/jxb/erg213

Field Trip *(continued from page 3)*

fire, more pines) and Chestnut Oak Forest (Dry Heath Subtype) (less frequent fire, more oaks). Dane talked about the 2013 and 2021 fires at Pilot Mountain and his dendrochronology research with Virginia pine. We looked for pine regeneration following the most recent fire and talked about adaptations to fire for Table Mountain pine (*Pinus pungens*) and pitch pine (*Pinus virginiana*). A few species highlights included the state-listed endangered bear oak, *Quercus ilicifolia*, and the lovely mountain andromeda (*Pieris floribunda*) in full flower.

Following lunch (courtesy of SABS) in the picnic area and goodbyes to those who needed to head home, a smaller group made the trek down the 3 mile, blue-blazed Grindstone Trail, socializing and botanizing. It was a great day with fellow plants-people!

Thanks to McCoy Kerriga for the images.

Connections: Southeastern Bogs and the Dambos of South-Central Africa.

Mac Alford, Southern Mississippi University

Imagine that you are in a wet savanna rich in *Drosera*, *Utricularia*, *Lycopodiella*, *Xyris*, *Eriocaulon*, *Eleocharis*, *Cyperus*, *Lobelia*, *Habenaria*, grasses of the Andropogoneae, and herbaceous, pink-petaled melastomes. You might think that you are in a wet savanna or bog in the southeastern United States. If I continued the description to include *Gnidia* (Thymelaeaceae), *Commelina* with apricot-colored petals, and *Gardenia* subshrubs that transition to drier areas with treelets of *Ochna* (Ochnaceae), *Combretum* and *Terminalia* (Combretaceae), *Anisophyllea* (Anisophylleaceae), and *Vitex* (Lamiaceae), you know that the place is not in the United States. If I further add that the wooded areas are home to *Protea* and *Faurea* (Proteaceae), *Monotes* (Dipterocarpaceae), *Phyllocosmus* (Ixonanthaceae), and many species of leguminous trees (*Brachystegia*, *Julbernardia*, *Albizia*, *Pericopsis*, and more), you might guess Africa. Indeed, you would be correct.

The kind of savanna described above is called miombo woodland, and it is common across south-central Africa, from Angola to Tanzania and Mozambique, between the drier *Acacia* (now *Senegalia* and *Vachellia*) savanna/grasslands and the wetter rainforests of the Congo basin. The miombo woodland is a matrix of wooded areas, some dense and some sparse, with interspersed wet grasslands called *dambos*, which resemble our bogs. "Miombo" is one of the common names for species of *Brachystegia* (Fabaceae), a genus of trees which is abundant there in terms of both species and numbers of individuals.

We normally don't think about connections between our flora and the flora of south-central Africa. Perhaps we think far back in time—a land connection to the Uwharrie Mountains of North Carolina, for example, in pre-vascular plant times—or we think of staples of Southern cuisine, many of which were brought by enslaved peoples from Africa in very recent times, such as okra, sorghum, black-eyed peas, and watermelons. But do we think of *Drosera* and *Xyris* and *Lycopodiella*? I certainly don't.

So, what are the connections between this miombo woodland

and the longleaf pine savanna of the southeastern United States? First is the obvious physiognomy: both are savannas, grassy woodland ecosystems, sometimes with plenty of woody plants but other times fairly open and usually with a rich herbaceous layer dominated by grasses. The soils are generally nutrient-poor, and the plants are adapted to fire and large herbivores. Thus, they look vaguely similar and function in similar ways. Second, as we pictured together at the beginning of this essay, is a list of shared genera, but these genera are almost exclusively found in the dambos, not among the trees and shrubs of the wooded areas.

If you search for literature connecting or comparing these ecosystems, you will find very little. Even in the famous Raven and Axelrod paper on biogeographic patterns ("Angiosperm biogeography and past continental movements," *Ann. Missouri Bot. Garden* 61: 539–673, 1974), the connections between North America and Africa are limited to a few sentences of a single paragraph in a section entitled "Connections of Africa with Other Continents," "other" meaning anywhere except South America. More recent studies (*e.g.*, Lavin and Luckow, *Amer. J. Bot.* 80: 1–14, 1993; Lavin et al., *Syst. Bot.* 25: 449–467, 2000; Davis et al., *PNAS* 99: 6833–6837, 2002), albeit still very few in number, have considered the relationships of African plants through more lenses: not just ancient Gondwanaland vicariance but also more recent boreotropical vicariance and long-distance dispersal, the so-called "nuisance parameter" (Harris et al., *J. Syst. Evol.* 56: 430–448, 2018).

Here, the likely explanation is dispersal, not even *long-distance* dispersal, as a possible vector of these mostly wetland plants is birds. Eurasia and Africa have not been far apart since the end of the Cretaceous, and many species of birds migrate seasonally between Eurasia and Africa today, just as many birds of North America migrate to the West Indies and Central and South America in our hemisphere. Many wetland plants are cosmopolitan, but somehow Africa—at least in my mind—got left

Botanical Brainteasers

By Joe Pollard and Janie Marlow

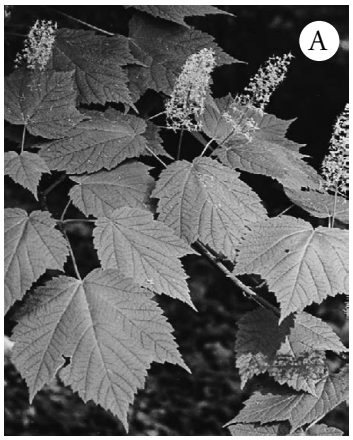
Our Brainteasers in the last issue [Chinquapin 29(2)] were: (A) *Pinus strobus*, eastern white pine; (B) *Fraxinus pennsylvanica*, green ash; (C) *Ailanthus altissima*, tree of heaven; (D) *Acer negundo*, boxelder; and (E) *Liriodendron tulipifera*, tulip tree or yellow poplar. All would be easy to identify, except that we cropped the photos so you couldn't see the leaves and had to identify them based on their reproductive propagules. What they all have in common is wing-like structures for wind dispersal as "helicopter seeds". But as the clue hinted, this puzzle hinges on plant anatomy. Plants B through E are all angiosperms, and the photographs show their winged fruits (samaras), with the wing derived from the fruit wall (pericarp). Being a gymnosperm, pine doesn't have fruits at all: these are winged seeds. The wing is an extension of the seed coat (testa), so the term samara does not formally apply. White pine is the odd one out.

We received four entries this time. The first one to arrive was from Jim Hull, and it was almost perfect except he chose *Acer saccharinum* - a good guess as it also has big samaras with wavy margins. Because we were sneaky and hid the leaves, our instructions said that the genus was good enough for full credit, so we declare Jim to be the winner! A close second place goes to Donna Ford-Werntz, whose response arrived three days later, but was perfect. Donna was also the winner of the contest in issue #1, so she's in the lead going into third (and final) issue of the year.

Here is the third Brainteaser for 2023. Five pictures. You'll need to give us both the scientific name and the common name of each plant. Some of the identifications might be difficult, but once you get a few of them you'll probably figure out the common thread. As usual, one plant doesn't belong with the other four, and you need to tell us which is the odd one out. And as always, there will be partial credit for close answers.

Chinquapin is now publishing three issues a year, so after this round we'll total the points and announce the 2023 champion, who will receive a copy of Jim Costa's new book, *Darwin and the Art of Botany: Observations on the Curious World of Plants*. Send your answers by email to joe_pollard@att.net (that's an underscore character between first and last names).

[Photo credits: A–D by JK Marlow; E by Gill Newberry]



Send your answers to: **joe_pollard@att.net** (that's an underscore character between first and last names). Color photos that you can enlarge for a closer look are posted online at https://sabs.us/publications/#chinquapin.

Connections *(continued from previous page)*

out of that cosmos. Travel, of course, is a learning experience, and spending 10 months in Zambia as part of the Fulbright Scholar Program allowed me to walk through and survey many dambos and helped me make connections that may be missed if one only looks at the woody plants.

Editor's note. Mac has organized a workshop at the 2024 ASB meeting for anyone—faculty or students- interested in the Fulbright Program. In addition to Fulbright awardees, he has arranged for a representative of the Fulbright program to participate. Check the ASB website for details.

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Smoky Mountain Spring Wildflower Pilgrimage

Join members of the Southern Appalachian Botanical Society (SABS) for the 74th Annual Spring Wildflower Pilgrimage and experience the botanical wonder of the Great Smoky Mountains National Park like never before! Connect with fellow nature enthusiasts at this annual nonprofit event, sponsored by SABS, featuring professionally guided walks that explore the region's rich natural and cultural resources.

Save the dates
May 1-4, 2024

Register this spring at

www.wildflowerpilgrimage.org.

We hope to see you there!

Be a *Chinquapin* contributor!

Contact the editor at lmusselm@odu. edu with your ideas. Deadline for submitting material for the winter issue is 12 February 2024.