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Earl Core Student Report: Making Sense of Complex Variation in Stemless Blue Violets

By Jen Hastings, Ohio University

Viola is a moderately large genus containing between 580 and 625 species. Violet taxonomy has long been debated due to the ease with which many species hybridize and their apparent variability. The stemless blues, a subgroup of violets, show extensive morphological and ecological diversity. *Viola subsinuata* is a highly variable stemless blue violet. *V. subsinuata* has bluish purple flowers, and all leaf blades throughout the growing season are shallowly lobed to deeply divided (Figure 1). It is found throughout much of the eastern United States, especially in the Appalachian Mountain and eastern Great Lakes regions. *V. subsinuata* is not as common as some of its close relatives including *Viola sororia* and *Viola palmata* but is found in several counties of Virginia, where I performed my field work. The populations are mostly located in the western portion of the state, in the Appalachian Mountains. Not much is known about the habitat of this violet. My advisor, Dr. Harvey Ballard, had noticed the morphological variation in these plants over the range of the species during previous field work. A former MS student, Bethany Zumwalde, had begun studies on two other seemingly related species and a shale woodland violet in Virginia that ended up belonging in the *V. subsinuata* species group. No sophisticated studies have been performed on the other members of this group.

The purpose for sampling the *V. subsinuata* populations in Virginia was to determine if the different phenotypes were distinct in features over the whole plant body (flowers, leaves, fruits, and seeds) and whether they occupied different microhabitats (and which factors led to their different ecological niches). Four different phenotypes were identified; shallowly lobed *V. subsinuata*, "deeply lobed *subsinuata*", "Blue Ridge", and "*tenuisecta*". I sampled violet populations throughout the western montane portion of Virginia, including the Ridge and Valley province and the Blue Ridge province, with many populations falling within the boundaries of the Washington and Jefferson National Forest. In total, I sampled 28 violet populations. At each population, I made ecological observations to document differences in environmental traits such as slope grade, canopy cover, and litter depth. I also collected soil samples to bring back to the lab to detect differences in pH, soil texture, and organic matter. During my field studies, I observed another unique phenotype belonging to the *Viola palmata* species group.

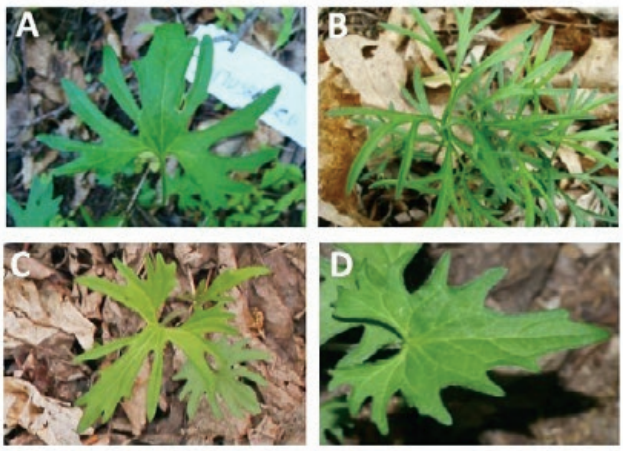

Figure 1. The four violet leaf phenotypes: A. "deeply lobed" subsinnuata*, B. "tenuisecta", C. "Blue Ridge", D.* V. subsinnuata*. Photos by Abigail Pidock and Bina Sitepu.*

The environmental work that I performed in Virginia last summer is part of a larger integrative taxonomic study of the stemless blue violets, including genetic, reproductive, and morphological aspects. These different lines of evidence will help determine if *V. subsinuata* is one species with vast phenotypic variation or if it should be broken up into several distinct species.

During the trip I collected leaf tissue samples from ten plants at each population. Back at the lab, I extracted the DNA from that leaf tissue and am currently using microsatellites to determine if genetic variation exists between the different phenotypes. Primers were previously developed for eleven loci in stemless blue violets. I brought five plants from each population back to grow in a common garden to collect seed and further examine plant habit. During summer I observed reproductive behavior (fertility) and collected seeds from living plants cultivated in our violet garden to examine seed traits. These analyses are still in progress. I am currently waiting for these plants to bloom later in the spring to complete studies on their floral characteristics. I pressed leaf samples in the fruiting state on these plants and will examine flowering leaf morphology this spring. In addition, I pressed a specimen from each population to add to the herbarium at the Virginia Polytechnic Institute.

My ongoing studies of the *Viola subsinuata* species group are showing that the phenotypes have distinct morphological features, especially details of the leaves and mature seeds. They are all fully

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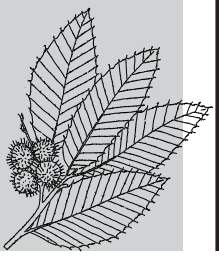

From The Editor's Desk:

Joe Pollard, Newsletter Editor

To me, the BIG NEWS in this newsletter is that we are have 44 new members in SABS! Wow – that's a fantastically high number. The majority of them are students and that's a good thing too, because students are the future of our society and the future of botany as a discipline. So to all our new members, both students and others, let me say on behalf of the society that you are very welcome here – we're really glad to have YOU as a member of the Southern Appalachian Botanical Society! We hope you'll find it to be a friendly and supportive group, united by our passion for studying the plant life of this wonderful region.

But now, a sobering dose of reality. There's always a pulse of new members at this time of year, although this was a bigger pulse than usual. Many people join to compete for SABS grants and awards, and others do it on a whim at the SABS booth at our annual meeting. Many never renew their membership, or they stay for only a few years. We know this because the Council has just completed a survey that asked people why they joined SABS, and – if they didn't renew – why they left. We plan to publish a complete analysis of the survey results in Chinquapin later this year. But it doesn't take a genius to figure out the big picture: many new members just don't see the value in continuing to pay for SABS membership, even though the dollar amount is modest.

So, to all our long-term members, I issue a challenge. Let's try to make that value proposition more obvious to our new recruits. Sure, we can list off the tangible things. Members are eligible for awards like Earl Core research grants, conference presentation and poster prizes, conference travel support, and the new John Fairey scholarship supporting study at biological field stations (see the list of new award-winners in this issue). Members enjoy free access to excellent articles in Castanea and subsidized page-charges if they publish their own work there. And of course, members receive the most *intoxicatingly* fascinating society newsletter in the universe (but I'm biased). However, there needs to a personal dimension too. Before we were SABS we were SABC – the Southern Appalachian Botanical Club – and I think it would be good thing to invigorate that club spirit. Professional botanists and those training for the profession make up a relatively small group, so networking among us is essential. To me, the most important reason to be a member of SABS is the sense of connectedness and mutual support with other far-flung botanists across our region. So look at that list of new members, find a familiar name, and communicate with them. Participate in SABS social media (search Facebook for Southern Appalachian Botanical Society). Contribute your time and ideas to improve SABS.

And in that last vein, we're also happy to welcome new faces to the SABS Council. In the last election cycle, Tom Diggs and Shawn Krosnick were elected as Members at Large. They replace Lisa Wallace and Steph Jeffries whose 2-year terms just finished, but Lisa will be stepping up to the newly-created position of Vice-Treasurer, helping Pum Grubbs manage our finances (and making sure that more than one person knows where all the money is hidden). Brian Keener has completed his year as President-Elect and begins his 2-year term as President, while Charlie Horn transitions into the role of Past-President. All these folks – along with the other officers and members of council listed at left – work hard to keep the society running. They would also welcome ideas and input from all members of the society. As our website URL suggests, SABS is US!

SABS Welcomes Our New Members

Evelyn Abraham	Megan Haffuer	Kelder Monar	John Shelton
Karla Alvardo	Zach Irick	Ashleigh Nelson	Bina Sitepu
Isaiah Amos	Sarah Johnson	Jacob Peters	Cassie Stone
Calvin Andries	Lisa Kolgan	Whitney Pitman	Brook Thompson
Carlo A. Balistrieri	Jennifer Koslow	Caleb Powell	Emily Ulman
Zoe Bergman	Julia Krebs-Moberg	April Punsalan	Ella Vardeman
Barbara Blonder	Kylie Lawrence	Ellen Quinlan	Destiny Waag
Claire Ciafre	Carmella Lombardi	Emily Riffe	Andy Warren
Tallis Donnelly	T. Warner Lowry	Lee Rumble	Joseph White
Francisco Garcia	Anna McCormick	Marietta Day Shattelroe	Grant Wood
Taylor Gray	Mandi Miller	Samantha Shea	Noah Yawn

Plant Hunting along the Vietnam-China Border: Dr. Short, Maxim, and Me

By L. L. Gaddy, President – terra incognita

In 1839, Dr. Asa Gray of Harvard University ran across an unidentified plant (in fruit) in the herbarium of the Museum of Natural History in Paris. It had been collected in the late 1700s "in the high mountains of the Carolinas" by Andre Michaux, a French botanist-explorer and sometime resident of Charleston, South Carolina. Gray did not recognize the plant and named it *Shortia galacifolia.* "*Shortia*" in honor of Dr. Charles W. Short, a medical doctor and botanist in Kentucky, and "*galacifolia*" because its leaves resembled galax [*Galax urceolata* (Poiret) Brummitt], an evergreen Appalachian ground cover. He (and others) then proceeded to search the Appalachians for the plant unsuccessfully for nearly 40 years. It was not until the late 1800s that George Hyams, the 17-year old son of a North Carolina plant collector found *Shortia galacifolia* Torrey & Gray in the Catawba River drainage about 75 miles northwest of Charlotte. The plant was growing at less than 2000 feet in elevation, not in the "high" mountains. Gray finally saw the plant in the wild in 1879; he is said to have gotten down on his knees and wept when he encountered it.

Subsequent to the discovery and naming of *Shortia galacifolia* in the Carolinas, a similar species was found in southeastern China not far north of the Vietnam border by William Hemsley, an English botanist, and was named *Shortia sinensis* in 1899. Furthermore, two additional species had been described from Japan and one species was found in Taiwan, making a total of five species known worldwide for the genus *Shortia.* The genus, in the family Diapensiaceae, was, therefore, until recently, known from North and South Carolina in the southern Appalachians, Japan, Taiwan, and southeastern China.

I knew the beautiful *Shortia galacifolia* (commonly called "Oconee" bells because of its abundance in Oconee County, South Carolina) well, but, despite having made several botanical excursions to China, I had never seen *Shortia sinensis.* Seeing Chinese shortia in the wild eventually made it to the top of my bucket list. Few Chinese botanists and practically no foreign botanists had visited its remote habitat in a subtropical mountainous region in southeastern China. I had planned to journey there and see it in 2017. While preparing for my trip, I was reviewing what I could find on the species (little or nothing) and the region (along the Chinese border with north Vietnam, just north of Fan Xi Pan, Vietnam's highest point) when I happened upon a paper published in an Austrian journal by one Maxim S. Nuraliev, a Russian botanist. The paper described the location of a new record for *S. sinensis* in Vietnam (the first record of the species for the country), and included excellent images of the flowers of the plant found. Although I had never seen *S. sinensis* in the wild, I had seen drawings of the species, and the plant documented in Nuraliev's paper did not look like it. After some research, I sent an email to Dr. Nuraliev, professor at Moscow State University in the Russian capital. The text of the email was essentially a bad news/good news message. I told him I thought he had misidentified the plant and it was not Chinese shortia (bad news), and (good news) I thought it might be a new species. He was excited, of course. To prove that I was right, I needed to see his plant and then compare it to the plants less than 100 miles to the north in China that were known to be *Shortia sinensis* Hemsley. I had to change my itinerary to include northern Vietnam; my trip was going to be much more complicated than I had previously thought.

I arrived in Hanoi in early January of 2017 and, after a few days of rest, took a night train up the Red River Valley to Lai Cai on the Chinese border. I journeyed by car to Sapa, a little alpine town on the border of Hoang Lien (Son) National Park, which was to be my base for a week. After hanging around Sapa for a day and buying trinkets and scarves from the local Hmong girls (who had learned English on the town square), I was ready to set out for the deep gorge below Thac Bac (Silver) Falls where the strange *Shortia* was to be found, according to my Russian colleague Maxim.

Maxim had emailed me the latitude and longitude of the population of *Shortia* he had found, and I had plotted the site on a Google Earth map of the area. I hired a driver to take me up to the gorge each morning and pick me up at five or so in the afternoons. After three days of meetings with montagnards and their water buffaloes in the gorge, I had still not found *Shortia.* Some areas of the gorge were inaccessible due to high waterfalls and cliff faces; was the plant hidden away in the deepest portion of the gorge? On my fourth day in the upper gorge. I finally found a small colony of plants, only one of which was in flower. They did not look like *Shortia sinensis.* Unfortunately, as I would later learn, this plant usually flowered from late November to the end of December. I had arrived at the end of its blooming period.

Figure 1. Shortia *plants from northern Vietnam, proposed as a new species* - Shortia rotata. *Left: Plant habit (photo by B. Wynn-Jones). Right: Flower with cylindric tube and rotate lobes (photo by M.S. Nuraliev). Reproduced from Wulfenia vol. 24, p. 54.*

But I had found one of gorge's populations and had seen a flower in the wild (Maxim had a good collection of images from 2009), accomplishing my mission. I also had made a lot of Hmong and Vietnamese friends. I was ready to set off toward Pingbian, a small Chinese mountain town at the base of Da Wei Shan, a large mountain ("shan" is mountain in Chinese) massif and a Chinese national park. There, I was told – in emails from Chinese botanist Yu-Min Shui – *Shortia sinensis* was abundant on wet cliff faces at six to eight thousand feet in elevation, was in flower in January, and was easy to find (he was right on all counts).

I was to enter China through Hekou, a relatively small border town on the Red River. Sometimes there were visa problems at such smaller towns. And, because I had flown into Vietnam, I did not have either a round trip ticket or a ticket out of China on me, one of which is often required. Things went smoothly, however, and I was on a train to Pingbian, only about 50 miles from the Vietnamese border, in no time.

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Plant Hunting *continued from p. 3*

Pingbian was a clean, valley town of around 10,000, surrounded by forested mountains. January mornings were rainy and chilly, but afternoons were sunny and mild (Pingbian sits on latitude 22°N, about the same latitude as central Cuba). I checked into the Business Traveler's Hotel, on the advice of my taxi driver. A heated room was two dollars extra per night, so I opted to go all out, knowing that I would be cold and wet when I came down from the mountains at the end of each day. Access to the national park was carefully controlled. The first day I bussed to the top of Da Wei Shan and walked all the way back to town (about eight and half miles); on subsequent days I was able to hire drivers to drop me off and pick me up.

On my first trip to the top of the park, I thought I had seen some white flowers on the cliffs from the window of the moving bus. On the way down (on foot), I was proven to be right. From 6000 feet down to about 4000 feet, I found several good populations of *Shortia sinensis* on cliffs and rocky road-cuts. It was spectacular, very similar to our southern Appalachian *Shortia galacifolia*, and very different from the Vietnamese plants. I now knew that I was correct in concluding that the Vietnamese plants were a new species of *Shortia.* I collected many images and emailed them to Maxim at once.

Figure 2. Shortia sinensis *from Da Wei Shan, China. Left: Plant habit. Right: Campanulate flower with short tube and erect lobes. Photographs by L. L. Gaddy. Reproduced from Wulfenia vol. 24, p. 57.*

He, of course, was very excited. We immediately started putting together a scientific paper on the new species. We had found one specimen of the plant that had been filed with plants of the primrose family. Its flowers did resemble those of primroses (*Primula* spp.). I, therefore, wanted to name it *Shortia primuliflora* (not particularly good Latin). Maxim, however, prevailed with the name *Shortia rotata*, due to its rotate (wheel-shaped) or sub-rotate flowers. *Shortia rotata* Gaddy & Nuraliev, it would be—the sixth species of the genus *Shortia.*

The story does not end here. Nature is full of twists and turns and surprises. There are more botanical mysteries along the Vietnamese-Chinese border—and one may involve the genus *Shortia*. I recently discovered an herbarium specimen of another purported new species from a high mountain about 75 miles due east of Da Wei Shan. Unfortunately, no one has ever collected images of its flowers, which are absent from the specimen. More fieldwork to do. I would like to go back and find the plant (in flower), and I would also like to meet Maxim along the way somewhere. We have never met. All of our communication has been via email.

References

Nuraliev MS. 2010. *Shortia sinensis* Hemsley (Diapensiaceae): A new species and family for the flora of Vietnam. Wulfenia 17:25-27.

Gaddy LL, Nuraliev MS. 2017. *Shortia rotata* (Diapensiaceae), a new species from Vietnam. Wulfenia 24:53-60.

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Earl Core Student Report *continued from p. 1*

fertile, as shown by living plants I have cultivated in our violet garden. They also occupy different microhabitats and are rarely in immediate contact with each other. The only instance of phenotypes occurring at the same site was found between the deep lobed and shallowly lobed *V. subsinuata* phenotypes near Mountain Lake Biological Station. My results have documented several environmental factors separating the phenotypes, including elevation, slope grade, pH, and soil texture. These results suggest that ecological differentiation is part of the selective process that maintains the distinctness of these phenotypes, perhaps even resulting in speciation. I will have comprehensive results on Virginia's members of the *Viola subsinuata* species group shortly.

The trip supported by the Earl Core grant award allowed me to make critical field observations and collect the study materials I needed to perform my research. I am grateful to have this opportunity to perform field work and I would like to thank the Southern Appalachian Botanical Society for their support of this project.

Jen Hastings is a Master's student in the Department of Environmental and Plant Biology at Ohio University (Athens, OH) advised by Dr. Harvey Ballard

Figure 2. The author conducting fieldwork.

Edible Wild Plants:
Gathering Greens

by Lytton John Musselman, Old Dominion University

The advent of spring heralds the beginning of field activity for wild food foragers. Autumn provides a bounty of starch sources that were essential for indigenous peoples' winter food security. These foods include the tasty turions of arrowleaf, *Sagittaria latifolia*; live oak, *Quercus virginiana*, with the best tasting of any of our native acorns; and perhaps the most delicious starch source -- the tubers of groundnut, *Apios americana*. But not spring -- it is the season to turn from starches to greens.

Many wild plants both native and introduced provide delicious greens. My favorite is the young shoots and leaves of stinging nettle (*Urtica dioica*). Less tasty than its European relative, in my opinion, is the native wood nettle (*Laportea canadensis*). Amaranth (species of *Amaranthus*) and goosefoot (*Chenopodium album*) are delicious but are not typically ready for collecting in early spring. So what is available in early spring?

Perhaps the most surprising source of edible greens is the well-known Devil's walking stick, *Aralia spinosa.* Devil's walking stick is not a name conjuring up thoughts of haute cuisine. This relative of ginseng is more than the best-armed stem and largest-leafed shrub in our flora. The very young leaves are easily harvested, simple to prepare, and have a unique taste.

Find a population of this denizen of moist woods and plan to collect the material just as the terminal bud is breaking and the expanding leaves are five inches long or less (about the first week of April in southern Virginia). The young leaves and base of the bud will easily snap off the stem. This stage of harvesting, however, is evanescent and must be done before the prickles mature on the leaves.

Figure 1. Aralia spinosa*, Devil's walking stick, in the Great Dismal Swamp, Virginia in early April. Twigs with encircling leaf-scars bearing sharp prickles are diagnostic. All of the green parts are edible.*

My favorite way of preparing these is to sauté them in olive oil. For five clusters like that in Figure 1, I use two tablespoons of olive oil and salt to taste. The flavor? My unbiased jury of family described it having an asparagus/parsley flavor with a hint of bitterness. Leaves can also be chopped and prepared as a potherb (an unfashionable but useful term for greens boiled in water). Cooked this way, they have a broccoli rabe flavor.

A more widespread woody plant for greens is the basswood, *Tilia americana*. The young leaves are edible and a large number can easily be collected for greens (Fig. 2). The flavor? Thunderously underwhelming.

Figure 2. Basswood at ideal stage for harvesting. Rice Creek Biological Station, State University of New York, Oswego, New York in mid-May.

One group of herbaceous plants available in early spring are violets, species of the genus *Viola*. All violets are reported to be edible. I have tried some of the species with thicker leaves like *V. sororia*. The common name is common blue violet and common also describes the flavor. Virtually all species can be prepared as potherbs. I find the taste of most species underwhelming. No problem. At least one species has a distinct taste.

Figure 3. Viola tricolor *in weedy agricultural field, Suffolk, Virginia.*

This is the often abundant annual known as Johnny jump-up, *Viola tricolor*, that frequently forms large populations in lawns and agricultural fields (Fig. 3).

Plants can be prepared as a potherb but I prefer them candied. Harvest about fifty of these delicate plants, remove the roots and wash thoroughly. Prepare simple syrup by dissolving one cup of sugar in a cup of water. Bring the solution to a boil and put in the violets for one minute. Remove immediately from the solution to avoid overcooking and a mushy texture. Spread on a cooling rack to dry.

This species contains wintergreen oil. While the wintergreen flavor is much weaker than that found in our native wintergreen (*Gaultheria procumbens*) or several of our species of birches (genus *Betula*) the Johnny jump-up candied violets are pleasantly flavored and a good—and unique—snack.

"Carrying their flints and torches, Native Americans were living in balance with Nature—but they had their thumbs on the scale. Shaped for their comfort and convenience, the American landscape had come to fit their lives like comfortable clothing. It was a highly successful and stable system, if 'stable' is the appropriate word for a regime that involves routinely enshrouding miles of countryside in smoke and ash."

– Charles C. Mann, 1491: New Revelations of the Americas Before Columbus. Knopf, 2005.

Botanical Brainteasers

By Joe Pollard and Janie Marlow

Our winter Brainteasers [Chinquapin 25(4)] had two species in every picture: (A) *Adiantum pedatum*, Northern Maidenhair Fern and *Maianthemum racemosum*, False Solomon's Seal; (B) *Amaranthus hybridus*, Smooth Pigweed and *Ipomoea hederacea*, Ivyleaf Morning Glory; (C) *Liquidambar styraciflua*, Sweetgum and *Ipomoea pandurata*, Manroot; (D) *Rudbeckia hirta*, Black-eyed Susan and *Ipomoea pandurata*, Manroot; (E) *Fatoua villosa*, Crabweed and *Ipomoea hederacea*, Ivyleaf Morning Glory. The odd one out was A, as it was the only photo with no *Ipomoea* (or any other vine) in it. Showing ten plants must have been scary; not many people sent in entries, but the first and best was from Sam Pratt.

Sam is one of our most regular contestants, and so once again he has the highest point total for the year. Congratulations, Sam! The prize for 2017 will be a copy of Richard Fortey's book "The Wood for the Trees" (Joe chose this well-written book of natural history, because it describes a beech-wood in the Chiltern Hills near his temporary home of Oxford, England.)

So now it's time to kick off the 2018 competition with the first Brainteaser of volume 26. The five plants pictured here seem very diverse, but if you can identify them all you will find that they all have something in common – almost! As usual, provide scientific and common names, and tell us which is the odd one out. All these plants could occur or be planted in the southern Appalachian region, broadly defined. Some of them are native to the low-country rather than the mountains, but that's NOT what the puzzle is about. It's something much more straightforward than that.

Send your answers to joe_pollard@att.net (that's an underscore character between first and last names). Email is strongly preferred. Color photos will be posted online at http://sabs.us/publications/chinquapin-issues. Images are ©JK Marlow unless otherwise noted.

Image © Ben Geer Keys

Botanical Excursions

Witch's Broom

By George Ellison (www.georgeellison.com)
Artwork by Elizabeth Ellison (www.elizabethellisongallery.com)

Let's suppose you're walking a woodland trail and happen to look up and see a sizeable roundish cluster comprised of what might be leaves or sticks or both attached to a tree limb up high above your head. It's sort of curious looking so you pause to consider what it might be.

— Squirrel's nest? Nope. They're usually more compact and are definitely leafy in appearance.

— Broad-winged hawk's nest? Nope. They're usually somewhat flattened in appearance.

— Hornet's nest? Nope. They're usually more stylish in appearance and aren't comprised of leaves

— Mistletoe. Nope. They display evergreen leaves in all seasons.

So you get along home … enter descriptions in google.com pertaining to what you saw … and just as you are about to give up … there it is in all its glory: Witch's Broom! Having never heard of it you decide to conduct a bit of low-tech research to find out more about your strangely named find. At the web site of the Missouri Botanical Garden[1] you'll discover that, "Witches'-brooms occur on a number of conifers and deciduous tree species. They are caused by a number of factors that result in a great proliferation of shoots with short internodes that can look like a bundle of twigs or witch's broom. In other cases they appear as a ball-shaped dwarf plant growing in a tree. [They] are caused by a number of factors, including infection by fungi or phytoplasmas (a wall-less single celled organism with an unorganized nucleus), infestation of mites or dwarf mistletoe, genetic mutations, or adverse environmental conditions that kill the terminal bud of shoots. Those caused by genetic mutation may be stable allowing for them to be propagated as dwarf cultivars."

Elizabeth Ellison's watercolor of Witch's Broom

At the web site for Minnesota Public Radio[2], an article titled "Plant fanatics climb up trees hunting for 'witch's brooms'" provides another sort of information:

On a frigid January morning, Rich Larson scales a big tamarack tree, breaking off branches as he climbs towards his target. About 30 feet high, as the wind swirls around him, Larson, 59, spots what he's looking for: a small, tightly woven mass of branches called a "witch's broom" — the genetic source of many landscape plants and shrubs sold at nurseries.

"Hey I'm moving around pretty good up here!" he exclaims as the tree swayed back and forth in the wind

Larson, a nursery manager from Newark, Ohio, is one of nine men who came to northern Minnesota from across the Midwest and as far away as Europe to hunt witch's brooms in mid-January.

After managing to reach the broom and cut it from its branch, he tossed it to the ground where Dennis Hermsen, a nursery owner from Farley, Iowa, grabbed it.

"You don't have to be crazy to do this," Hermsen said, "but it does help!" After inspecting the broom's tiny needles, he explained that they're so crowded together that the twigs look like short braids of evergreen. The dense broom only grows about the length of his fingernail every year.

Hermsen hopes that by grafting a piece of the broom to an already established stem and roots, he can produce a unique species of dwarf conifer. It will likely only grow to 1/10th or 1/20th the size of its parent tree. In two or three decades it might only be knee-high.

Hermsen and Larson are part of a tiny group of plant fanatics — they estimate number about 200 nationwide — who traipse through forests collecting witch's brooms. The term, which dates to the Middle Ages, refers to tree mutations made up of dense masses of shoots growing from a single point. They look like balls of twigs woven together and can grow to several feet across. Each is the only one of its kind in the world. They are genetically unique.

All this because you happened to look up rather than down.

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[1] http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/help-for-the-home-gardener/advice-tips-resources/pests-and-problems/diseases/witches-broom.aspx

[2] https://www.mprnews.org/story/2013/01/29/human-interest/witchs-brooms-collectors

[*Editor's note: Readers interested in witches' brooms may also want to look at the article by Bob Gilbert in Chinquapin 20(4), winter 2012. Back-issues are archived at http://sabs.us/publications/chinquapin-issues/*]

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Breaking News from the 2018 Annual Meeting

RICHARD AND MINNIE WINDLER AWARD

Two awards are presented annually; first for the best systematic botany paper, and second for the best ecological paper, both published in *Castanea* during the previous year. Each award comes with an honorarium of $500 for the author(s).

Systematics: **John H. Wiersema, Piero G. Delprete, Joseph H. Kirkbride Jr. and Alan R. Franck** (2017) A new weed in Florida, *Spermacoce latifolia*, and the distinction between *S. alata* and *S. latifolia* (Spermacoceae, Rubiaceae). *Castanea* 82(2):114–131.

Ecology: **Shannon N. Grover, Jesse E. D. Miller and Ellen I. Damschen** (2017) Indirect effects of landscape spatial structure and plant species richness on pollinator diversity in Ozark Glades. *Castanea* 82(1):24-31.

STUDENT PRESENTATION AWARDS

$300 awards were presented for the best poster presentation and the best oral presentation by SABS student members.

Oral presentation – **Tesa Madsen-McQueen** (Appalachian State University): Environmental niche divergence in Southeastern *Kalmia* species; integrating phylogeny, community composition and ecology.

Poster presentation – **David Lee Rumble** (Middle Tennessee State University): Measuring spatial and temporal shifts in forest structure and composition post-beech bark disease in Great Smoky Mountains National Park.

EARL CORE STUDENT RESEARCH AWARD

This year two proposals were funded, both for the total requested amount. (Maximum grant is now $1200).

Nicholas Flanders (Old Dominion University; advisor Dr. Lytton Musselman): Effects of environmental conditions on early survival of a bird-dispersed mistletoe, *Phoradendron leucarpum*. Award = $761.21.

Jonathan Kleinman (University of Alabama; advisor Dr. Justin Hart): Trait-based plant response to wind, logging, and prescribed fire in *Pinus* woodlands. Award = $1,120.

JOHN FAIREY BIOLOGICAL FIELD STATION SCHOLARSHIP

This award, presented for the first time in 2018, supports a student wishing to attend a botanical course or workshop at a biological field station, and commemorates the career and service of Dr. John E. Fairey III.

Emily Ulman, an undergraduate from North Carolina State University, was awarded $700 to take a lichenology workshop at Highlands Biological Station in summer 2018.

STUDENT CONFERENCE SUPPORT AWARDS

The following students were awarded $300 to offset costs of attending the annual meeting:

David Bailey (Winthrop University), **Taylor Gray** (Western Carolina University), **Anna McCormick** (Western Carolina University), **Ashleigh Nelson** (Abraham Baldwin Agricultural College), **Ellen Quinlan** (Western Carolina University), **Emily Riffe** (Appalachian State University)

ELIZABETH ANN BARTHOLOMEW AWARD

The society presents this award in memory of Elizabeth Ann Bartholomew's untiring service to the public, to plant systematics, and to the organization. The award is presented to individuals who have also distinguished themselves in professional and public service that advances our knowledge and appreciation of the world of plants and their scientific, cultural, and aesthetic values, or exceptional service to the society. *There were no timely nominations and thus no award in 2018. Members – please remember to nominate an outstanding botanist next year!*

ELECTION RESULTS

The SABS Council will be joined by the following newly-elected officers and members:

Vice-treasurer: **Lisa Wallace**

Members-at-large to Council: **Tom Diggs** and **Shawn Krosnick**

The Treasurer's Report and Minutes of the Annual Business Meeting will be distributed in Chinquapin 25(2).