

Chinquapin



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Mistletoe Haustoria as an Art Medium



Sections of a lignotuber. The host is black locust (*Robinia pseudoacacia*); most of the brown tissue is host xylem. The lighter tissue is

springwood (and mistletoe tissue?). Strands of the parasite, most evident as dark dots in right section, grow parallel with the stem. These produce sinkers which generally penetrate the heartwood following the rays and are evident in both sections. Sections prepared by David Carter.

We have been studying the biology of the common oak mistletoe (*Phoradendron leucarpum*, Viscaceae) in the Southeast including the haustorium, the specialized structure that forms the morphological and physiological bridge between the host and the parasite. These organs and the response of the woody host can have a profound effect on host morbidity and mortality which is most evident in the tree architecture in winter as hosts are deciduous.

Study of the morphology of host-parasite structures has been largely limited to tropical mistletoes of the Loranthaceae and little data are available on the specialized haustorium of *Phoradendron*. We have termed this structure a lignotuber. The lignotuber of oak mistletoe is a mixture of host and parasite tissue and can vary in structure among host species. As part of our research, we have sectioned lignotubers and were impressed at the beauty of the patterns.

Here we present one way of utilizing this widespread and often abundant parasite. For example, the production coasters (see figure) prepared as follows.

A chainsaw was needed to trim the lignotubers so they could be cut with a bandsaw (17 x 19 in). After cutting these samples to no more than 10 in long, a fence was used to cut the samples to a uniform thickness. Using a 16 in Fisch Bandsaw with a 5/16 in wide blade with 10 teeth .025 in thick, samples were sectioned from 1/8 to 3/8 in thick and from 2 to 5 1/2 in diameter. The blade used had very little set to avoid tearing tissue.

Pushing the sample through the blade without rotating the stock yielded samples that showed less blade lines and gave a better view of the sinker coming through the cambium and growing to the xylem in the vascular tissue. By pushing the stock without rotating the wrist and at a consistent rate through the blade (running the blade at 2300 rpm, slow speed) also reduces pinching of the blade thereby reducing burning of the tissue and yielding a clearer view of the sinker.

A 5 in finishing sander smoothed the surface and makes the growth rings clearer. Using a 100 medium coarse disc and then a 150 smooth disc yielded very smooth surfaces that appeared less porous and very clear.

The last step was to apply two coats of boiled linseed oil with a cotton jersey cloth. The oil was left to dry for 3 days in between coats. A 220 buffing pad was used in between coats, this increased the clarity of the tissue.

David W. Carter, Lytton John Musselman, Nicholas P. Flanders

Remembering Carl Taylor 1945-2025 and His Contributions to Southeastern Botany



Long time SABS member and world authority on quillworts (Genus *Isoetes*) Carl Taylor died earlier this year. A great deal of his field research was conducted in the Southern United States with the resultant recognition of many new taxa. For example, Radford, Ahles, Bell reported just three species for the Carolinas; that number is now fivefold, and new taxa are still being discovered. Not only did Carl carry out extensive studies he always encouraged and supported other workers to join in.

Field trips with Carl were memorable with no hindrances by water levels, recalcitrant landowners, terrain, barbed wire, or weather. In my decades of field work in the region, I stepped over—and almost on—more cottonmouths with him than on any other trips.

Personable, helpful, authoritative, Carl Taylor will be missed. He was always pleased to know that his study of a genus described as “interesting, provocative, and enigmatic” was receiving intensive study due in good measure to his encouragement and leadership.

For an exhaustive obituary see Robbin C. Moran. 2025. William Carl Taylor (1946-2025), A Remembrance. American Fern Journal 115(2) 159-167.

Lytton John Musselman

The Weakley Reader

The Sombrerillo of the Beach, *Hydrocotyle bonariensis* -- native or not?



Hydrocotyle bonariensis (Dune Pennywort or Sombrerillo)

During fifty years of botanical and ecological beach life, I never doubted that *Hydrocotyle bonariensis* (Dune Pennywort or Sombrerillo) was a native component of the southeastern coastal dune community -- ubiquitous on dunes and sandy flats, from southeastern Virginia to southern Florida, and west to southern Texas, fitting in with *Uniola paniculata* (Sea Oats), *Croton punctatus* (Beach

Croton), and *Oenothera humifusa* (Dune Evening-primrose).

I think that my faith in its being native was partly due to fact that the flora that I "grew up on botanically", Radford, Ahles, & Bell's 1968 Manual of the Vascular Flora of the Carolinas, remarkably contains no routine information on native or non-native status of plants in the Carolinas -- particularly surprising given that Al Radford was fundamentally more of an ecologist and conservationist than a systematist or floristician.

But doubt crept in, and it hasn't taken me much effort to decide pretty definitively that *Hydrocotyle bonariensis* arrived from South America in the last few hundred years, likely in the ballast of sailing ships. This species was not included in Chapman's 1887 Flora, nor in Mohr's 1901 Flora of Alabama; Small's 1913 Flora states "in waste grounds and on ballast" as its habitat.

This strongly suggests that *H. bonariensis* is adventive from South America, and indeed it was first named by Jean Baptiste Antoine Pierre de Monnet de Lamarck in 1789 from a collection by Philibert Commerson from South America. In naming it, Lamarck gave it the common name "Hydrocotyl de Bonaire" (Hydrocotyle of Buenos Aires), with the epithet of *bonariensis*

('of Buenos Aires') and wrote "Commerson a trouvé cette belle espèce aus environs de Monte-Video, près de Buenos Ayres, dans les sables voisins de la mer" ["Commerson found this beautiful species near Montevideo, close to Buenos Aires, in sands neighboring the sea"].

This illustrates the sometimes difficulty in really knowing the nativity and past movements of plants in our regional flora. Hundreds of years of European movement of plants (some deliberate and purposeful, some accidental) occurred before there was much careful and relatively complete documentation of the plant life of the Southeastern United States, and some species may always remain uncertain as to whether they were in the Southeast prior to 1492; in a future column I plan to dig in further to definitions and issues with the terminology about "native" and "nonnative" species. There are at least two species named "*caroliniana*" that are pretty certainly not native on this continent -- *Modiola caroliniana* (also from Montevideo and Buenos Aires and likely introduced on ballast) and *Commelina caroliniana* (from south Asia, introduced as a contaminant in rice seed).

But this one is really quite clear -- missing from early Southeastern US floras and then tagged as late as the early 1900s as on ballast and waste areas. But "this beautiful species" found its way to "the sands neighboring the sea"... One supposes that dunes by the Atlantic at N 34 degrees latitude is pretty similar to dunes by the Atlantic at S 34 degrees latitude.

I'm also not convinced it's an invasive that is doing any real damage to native ecosystems (and it's not leaving the Southeastern Coast, regardless), so as we hit the Southeastern beaches this summer, let's just enjoy the Sombrerillo...

Alan Weakley

Botanical Brainteasers

Editor's note: Welcome to Brian Wheeler who is the new BrainTeaser contributor.

Upon hearing the botanical brainteasers section of this newsletter was in jeopardy, I was in something of a state of shock! The brainteasers are some of my favorite parts of the newsletter and are a great bit of fun. As an avid puzzler, I reached out and offered to give the format a shot. As I shout to you from the shoulders of these giants, I'd be remiss to not give credit to the amazing Dr. Joe Pollard (now on the west coast) for maintaining this format for so many years and for Dr. Lytton Musselman for saying yes to a random email several months ago. A bit about me for those whom I haven't run into on granitic outcrops: I hail from Barbecue, NC (home of 0 barbecue restaurants) and have degrees from both UNC-Chapel Hill and Western Carolina University. Currently, I am employed by North Carolina Botanical Garden working to conserve rare species across the southeast- come visit sometime! When not thinking about plants of the southeast, I am most often found thinking of plants of the California Floristic Province (my home for most of 2020), coffee, or riding my bike. Onto the brainteaser!

Four of these plants share some sort of connection, and one is an outlier! These plants are from the broad southeast, so forgive me for any that aren't from immediate Appalachia (but this first category proved to be harder to fit than I first realized). I've tried to keep things somewhat in the wheelhouse of possible to ID but head to the online Chinquapin archives for a vibrant color .pdf if you desire! The only hint is that I work with an obsess over rare species, so some of these may be somewhat narrow endemics! To compete, you'll have to provide the names (scientific or common) and the connection between the four related species! Please email answers to Brian Wheeler branwhee@unc.edu or send a postcard with your answers to Campus Box 3375 Chapel Hill, NC 27599-3375!



The Serviceberry: Abundance and Reciprocity in the Natural World.

Robin Wall Kimmerer. 2024. Scribner, New York, New York. Hardcover 978-1-6680-7224-0 (\$20.00); eBook 978-1-6680-7225-7 (\$7.49)

My career as a scientist, primarily as a botanist, was not born from a need to generate a system of beliefs by rational consideration of evidence. Though I have great respect for the methods by which we make scientific progress, as a kid I just liked to be in the woods. After all, the living things in the forest behind my house didn't have to make their beds, iron Sunday clothes, or cut the grass. They just *lived* without the boring nonsense of civilization. My guess is that many *Chinquapin* readers had the same experience. In school I liked science. I chose science as a career because I could earn a living surrounded by things that inspire and give me joy. Later, as I approached the age of 40 with a 401k, and the need (?) to save money for my daughter's education and my own senescence, I thought I should learn something about economics. I bought the book. I honestly tried to read them, but for me they were somber, stagnant, and dry. Today those books are used for collecting dust, though I'm considering repurposing them for pressing flowers from my garden.

Strangely, *ecology* and *economics* are parallel studies...or should be. Ecologists seek to learn how resources are distributed through biological systems, while economists predict how resources are distributed in human systems. The two words come from the same Greek root "oikos" meaning "home". A main theme of Robin Wall Kimmerer's *The Serviceberry* is that deep, parallel truths emerge from ecology and economics. However, the economic model dominating the developed world, the "market economy", devalues the lessons of the natural world. Further, she argues that ignoring these lessons is dangerous to the natural order, on which human flourishing depends.

The Serviceberry is a powerful argument for listening to the natural world when deciding how to share its gifts in something that is called the "gift economy", which stands in contrast to the "market economy". Market economies create value by manufacturing competition, scarcity, and the incentive to accumulate resources, thus depriving them from others. As I write this, billionaire Jeff Bezos has reserved the city of Venice for his wedding, while the majority of people in the Central African Republic, Madagascar, Somalia, and Haiti are undernourished, and the East Coast of the US is experiencing record temperatures because of global climate change; a catastrophe that won't find a solution unless someone can profit from it. The gift economy on the other hand, promotes abundance and the distribution of wealth through the "honorable harvest" practiced by indigenous

people—sustain what sustains you. In sharing abundance, we can create connection between the giver and the receiver—relationships that are reciprocal but without the tit-for-tat bean-counting required in the market economy. The gift economy recognizes the fragility of the web of reciprocity on which our lives depend and works to reinforce connection with the world. Because the market economy values ownership over connection, it is alienating to the individual, while the gift economy is centering.

While this may seem like pie-in-the sky wish-thinking, Kimmerer, an accomplished ecologist and scholar, relies on her own experiences as a person on the land and a scientist as well as the wisdom of other economists to ground her argument. She demonstrates that increasing the role of the gift economy in our lives is not only beneficial but is not inherently difficult. Gift economies exist everywhere if you look for them. For example, gift economies thrive whenever market economies are disrupted by natural disasters—people following their own natural intuitions share readily even when there *is* scarcity. What's more, gift economies are also institutionalized in economic structures such as public libraries, parks, and recreational areas. With these examples, she dismantles the myth of the "Tragedy of the Commons", and argues that rather than commoditize the things we all need to survive (like clean air and water), we should establish systems of sharing and sustaining them. I must confess that I am a total fanboi of the author. I reserved *The Serviceberry* months before its release. As in her previous books, *Gathering Moss*, and *Braiding Sweetgrass*, Kimmerer's writing conveys her love for the non-human people of the world. The part of me that is trained as a scientist is given to bridle over folk-wisdom. Yet, examples from indigenous science given in *The Serviceberry* are in harmony with the rapidly developing scientific view that the natural world is dominated more by cooperation than competition. As the book begins, "All flourishing is mutual".

At a little more than 100 pages, *The Serviceberry* is a quick but transformative read that I'll likely return to in these times of fractious uncertainty-- if not always for comfort, for both moral and evidential clarity. I would also recommend the audiobook, narrated by the author herself. Kimmerer's recitation is deliberate and measured and yet her enjoyment of earthly gifts, her sincerity, and commitment to teaching is evident in her voice.

Chris Randle

A Guide to the Wildflowers of South Carolina,

by Patrick D. McMillan, Richard D. Porcher Jr., Douglas A. Rayner, and David B. White, 2022, University of South Carolina Press.

This is a timely, thoroughly updated field guide that incorporates more than two decades of advances in plant taxonomy, ecology, and field botany. This fully revised and expanded edition treats 997 species of native and naturalized wildflowers found in South Carolina. Each account provides a detailed description of diagnostic characters, flowering period, and habitat preferences, along with special comments about the plant, accompanied by a county-level distribution map based on over 200,000 herbarium specimens and high-quality photographs that highlight key traits for rapid identification.

The book opens with extensive introductory chapters covering the state's geology, climate, conservation issues, and three physiographic provinces - Blue Ridge Mountains, Piedmont, Coastal Plain Sandhills, Inner and Outer Coastal Plain, and Coastal Plain Maritime Strand - providing essential context before species treatments begin. Topics include the nature and rarity of South Carolina's flora, the impacts of agriculture and fire, and the ecology of carnivorous plants, native orchids, succession dynamics, and unique habitats such as Carolina bays and Atlantic coastal plain pocosins. This rich natural history overview grounds users in the landscapes they will explore.

Following the introductions, species are organized by habitat and natural community rather than alphabetically or strictly taxonomically.

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A Guide to the Wildflowers (continued from page 3)

Grouping plants according to natural communities mirrors South Carolina's physiographic diversity and makes field identification and learning the local flora more intuitive. This community-focused framework, drawn from the authors' deep field experience in the region, is ideal for independent naturalists, college flora courses, and conservation planning, streamlining habitat-based fieldwork. Accessible to amateur botanists, educators, and professional ecologists alike, the guide also includes a pronunciation key for scientific names and concise notes on each species' ecological role, toxicity, medicinal uses, horticultural value, and conservation status. Unlike technical floras such as *Flora of Virginia* or *Weakley's Flora of the Southeastern United States*, this guide lacks dichotomous keys, relying instead on photo matching and habitat clues for identification. While this approach is user-friendly for beginners and casual naturalists, advanced botanists may find the absence of

technical keys limiting when working with challenging genera like *Carex* or complex families such as Asteraceae. Additionally, at 615 pages, the book's substantial size and hardbound format make it less portable than compact alternatives, though this heft reflects its comprehensive coverage. A spiral-bound or digital edition would enhance field usability, allowing botanists to reference the guide more easily while examining specimens in the field.

Suman Neupane

Chinquapin is the newsletter of The Southern Appalachian Botanical Society (SABS) and is published three times a year. Contents include articles and notes of general interest on the botany of the Eastern United States such as unusual plants, poetry, ecology, ethnobotany, field trip reports, and more. Regular features include The Weakley Reader, Botanical Brainteaser, and SABS student awardee reports. Beginning with this issue SABS book reviews will be published in *Chinquapin*. Contact the editor if you are interested in doing a review.

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