

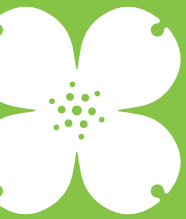
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Citizen Science at the Herbarium

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The University of North Carolina at Chapel Hill Herbarium is no stranger to citizen scientists. I'd guess that 10% of our vascular plant specimens were collected by people who are not botany graduate students, professors of taxonomy, or scientists with state or federal agencies. What we today call a "citizen scientist" in the past may have been called "a talented amateur" or "a keen observer of the local flora." While some of our Citizen Scientist Collectors have jobs with nothing to do with science, many have jobs that use botany in very practical ways – forestry, horticulture, or gardening.

Henry Ashby Rankin

One "keen observer" was Henry Ashby Rankin, born in Fayetteville, North Carolina in 1872. He owned a sawmill and plywood business. Rankin never attended college and it's not known how he came by his love and knowledge of botany. In a letter to William Chambers Coker, founder of the Herbarium, Rankin wrote, "I am not a botanist, but am much interested in the flora of the section." Rankin's letter to Coker dated 8 October, 1929, continues, "Last fall I sent Dr. Small of the N.Y. Botanical Garden, specimens of *Parnassia* about which he became rather excited. [Small] said it was the original *P. caroliniana* found by Michaux on the Carolina coast... and I am sending you specimens from Hallsboro [Columbus County, NC] and would like to know – well

I'm just wondering if perhaps [Small] is a little too enthusiastic about multiplying species." French botanist Andre Michaux (1746-1802) found and named *Parnassia caroliniana* from a vague locality in the Coastal Plain of "Carolina." Throughout much of the 19th and early 20th centuries, taxonomists assumed the "coastal plain" locality was erroneous, as *Parnassia* is a plant of cool habitats. However, 120 years later, citizen scientist H. A. Rankin had found Michaux's Carolina Grass-of-Parnassus in the steaming savannas of the Carolinas!

Coker replied in a letter two days later, "I am much pleased to get your specimen of the plant [*Parnassia caroliniana* found near Hallsboro]; it will prove a valuable addition to our herbarium... I would like to get acquainted with you, and suggest that you take some opportunity to run up to Chapel Hill and see our herbarium and Arboretum. I would be much pleased to entertain you while in town." The Herbarium in Chapel Hill curates about 54 vascular plant specimens collected by H. A. Rankin.

Terry Holdsclaw

Jumping forward about 100 years, we continue fruitful collaborations with citizen scientists. In 2002, Terry Holdsclaw, resident of Catawba County, called wanting to compare some plants he'd pressed with specimens in

Left: Grass of Parnassus, *Parnassia caroliniana*, rediscovered in the savannahs of North Carolina by citizen scientist Henry Ashby Rankin in 1929.

the Herbarium. I asked why he doubted his identifications, and he mentioned that the Manual of the Vascular Flora of the Carolina, published in 1968, had not documented the plants from the counties where he had found them. “I remember you telling me,” said Terry, “the Herbarium will take a specimen of anything that does not have a county dot in the Manual. Years ago, I was an undergrad at NC State University ... majoring in Forestry, though I’ve never worked in that field... I ended up in horticulture, landscaping, and the nursery business.” When asked about the most exciting plant he’d found, he answered, “Prairie trillium, *Trillium recurvatum*. But actually, my uncle, Billy Holdsclaw was the one who noticed it first. He noticed that it did not look right for Little Sweet Trillium, *Trillium cuneatum*. I was very excited when it keyed easily to Prairie Trillium – a state record.” Over the past 23 years, Holdsclaw has deposited over a thousand specimens in the Herbarium in Chapel Hill – many of them county records – from Alexander, Catawba, Iredell, and Lincoln counties.

Thomas Jones, Jr. and Mary G. Douglass

Today, fortuitous meetings are facilitated by iNaturalist and Facebook. In October 2022, Thomas Jones, Jr. and Mary G. Douglass posted a photo of *Spinulum annotinum* on Weakley’s Flora of the Southeastern United States Facebook page, seeking confirmation of their identification. Why were they unsure? Stiff clubmoss had never been proven to occur in North Carolina! Within hours their post garnered a flurry of “surprised face” icons and comments such as, “This would be significant if verified – it sure does look to be *Spinulum*,” by Tom Govus and “Wow!!!! What a rediscovery for the region! Last seen in Tennessee on Thunderhead Mtn in the late 1880s,” by Dwayne Estes, and “What a great find!!!! Michaux points awarded! North Carolina distribution added to the Flora of the Southeastern United States... It would be great to get a specimen for the University of North Carolina at Chapel Hill Herbarium (NCU) as documentation,” by Alan Weakley.

Mary Douglass and Tom Jones retired to Buncombe County, North Carolina, about ten years ago, and they have a goal to hike all the sections of the Mountains-to-Sea Trail (MST) in that region. “We’re always looking at plants and insects, anything really, as we hike,” says Mary. Though both studied botany as undergraduates, neither was ever employed in that field. “Both of us have worked for the Animal and Plant Health Inspection Service with the US Department of Agriculture,” says Mary. They met in the 1970s as members of the South Carolina Association of Naturalists (SCAN). Both credit SCAN with expanding their knowledge of natural history and natural places in the Southeast. “During the winter,” says Tom, “I pick a group of plants to study. It is appealing to pick a group that’s not too large and with species that we’ve not yet seen. Last year, it was the clubmosses. I went to Weakley’s Flora



Citizen science duo Thomas Jones, Jr. and Mary G. Douglass

and took notes so I’d be more aware of them.” That day on the MST, Tom was not feeling well, so as Mary hiked ahead, he rested on a rock. “As I sat there, I noticed the *Spinulum* and thought, Wow, isn’t that the clubmoss that isn’t supposed to be here? I took some photos, and when we got home, I showed them to Mary. She was NOT happy that she’d missed seeing this plant!” Mary responded, “I was the one who insisted that he post it on Weakley’s Flora of the Southeastern United States Facebook page, as it certainly looked right to me but we wanted confirmation. We were so pleased when the Herbarium in Chapel Hill asked us to revisit the mountain to collect a specimen. We are proud to see our names associated with this state record. Academics do not always appreciate citizen scientists, but we have found that Keith Bradley (South Carolina Heritage Trust Program) and Alan Weakley (University of North Carolina at Chapel Hill Herbarium) are open to our observations.” Tom and Mary’s *Spinulum* specimen was accessioned into our collection in October 2022.

Becky Dill

iNaturalist has proven to be fertile ground for the Herbarium to discover talented botanists. Ecologist Julie Tuttle was intrigued by plants found in Anson County, North Carolina by “gillydilly”: “I’ve been using iNaturalist for about three and a half years,” says Becky Dill, a.k.a. gillydilly. “My husband, Gene, and I retired to Anson County about 15 years ago. In college I majored in livestock production, though many of my electives were plant related. My husband and I both worked in Standardbred horse racing, and I’ve always enjoyed... looking at wildflowers. In Pennsylvania, I was a master gardener, but when we moved to Anson County, I

encountered many unfamiliar plants. I love to pull over on a rural roadside and take flower photos on my phone, and sometimes I could get an identification using Petersons wildflower guide. Eventually my phone got so full of flower photos it wouldn't function! I found iNaturalist, and when I saw that National Geographic was a developer, and that they stored your photos on their servers (freeing up space on my phone!), and that you could get help with identifications, I looked no further. I started posting and iNat user "jtuttle," whom I now know is Julie Tuttle, was so helpful with identifications. She invited me to join her NC Piedmont Roadside Native Plants project." Tuttle explains, "The purpose of the NC Piedmont Roadside Native Plants project is to document native plant species on high-quality roadsides and powerline rights-of-way... [which] tend to harbor sun-loving native species that historically thrived in open, prairie-like or woodland sites."

Becky Dill continues, "I was startled to find rare plants and plants that hadn't been documented from Anson. In the spring of 2022, I got instructions from the Herbarium on how to collect and press plants, so I've been prioritizing plants that have not been documented from Anson County. I find nc-biodiversity.com to be so useful to determine which plants need documenting. For example, I know a place in neighboring Richmond County where giant ironweed, *Vernonia gigantea*, grows, so in August I went to collect it for the Herbarium. However, the Department of Transportation had graded and cleared the roadside, so the plant was gone. On my way home on a rural roadside I saw a tall aster with yellow flowers on naked stems, and my wildflower-identification-at-45mph was *Helianthus atrorubens*. I stopped, and upon looking closer I realized it was, prairie dock, *Silphium terebinthinaceum* – a county record! I posted it on iNaturalist, the botanists at the NC Natural Heritage Program saw it, and they contacted Bruce Sorrie, who asked if I could take him to the site." Bruce Sorrie wrote of their September 2, 2022 foray, "As some of you may know, Becky Dill discovered a new pop [population] of *Silphium terebinthinaceum* earlier this week. It piqued my interest so met her today in the Triassic Basin portion of the county. This healthy roadside pop harbors at least 40 flowering plants plus other individuals with just



Herbarium specimen of muck sunflower (*Helianthus simulans*) collected by citizen scientist Becky Dill.

basal leaves. As a follow-up we walked to the nearby powerline where immediately we were surrounded by *Tridens stricatus* (!), "longspike tridens, last seen in North Carolina in 1957 and known only from four counties. We estimated >250 culms without having traveled very far into the powerline. Other county records included *Hypericum virgatum*, sharp-leaf St. John's-wort, and *Lechea tenuifolia*, narrowleaf pinweed... Obviously this area of mafic soil needs additional fieldwork and Becky will return again soon."

"What are my goals for 2023?" said Becky Dill when we chatted in early January 2023. "Let's see. Collect *Carex vestita* in Anson County. UNC-Chapel Hill grad student Eric Ungberg alerted me to this species as he'd found it in Montgomery County. I think I have found it in Anson County, but I need to get a good specimen. And who knows what else is in Anson County, waiting to be found – that's what keeps me exploring the beautiful roadsides of Anson County"

The Herbarium always has and always will depend on volunteers, students, citizen scientists, and botanists to continue our mission to document and conserve the plants and natural places which sustain us.

IN THE GARDEN SHOP

Stop by the shop to get your 2023 NC Wildflower of the Year t-shirt featuring an illustration by Dot Wilbur-Brooks! Every year, Dot brings a new perspective to our Wildflower of the Year with a stunning illustration, and this year's is a real showstopper! Show your pride in our native plants by wearing a t-shirt featuring buttonbush!

