



## Intergenerational Forest Research at Sewanee!



With an eye on the future, one of the first things I did in 1994 as the newly hired botanist at Sewanee was to establish long-term research plots in our surrounding forests here on the Mountain and on Saint Catherines Island on the coast of Georgia. These plots over the years have allowed my students and me to study forest dynamics and the unique

plant populations of the Cumberland Plateau and the Georgia barrier islands. Research plots that I established on the Domain have served as the basis for numerous publications with students over the years including studies of resilience in cove and upland forests, loss of dogwoods to an exotic fungus, persistence of chestnut oak populations, importance of agricultural legacies in forests found on abandoned farms, and most recently the spatial population genetics of sassafras and our native bamboo.

It is this long-term research that I am drawing upon again as I embark on my sabbatical year at Sewanee. I will be returning to places that I have gone back to year after year since the '90s and have meticulously recorded data in association with different hypotheses. I know these places and the plants that inhabit them intimately and so it's like spending time with old friends. In fact, it is also literally spending time with old friends because this year I get to revisit these places with my former students who are collaborating with me on this research. These are former students who helped me establish these plots when they were Sewanee undergrads and are now professors with students of their own who are involved with these projects. I call this intergenerational botanical research, and it is the legacy I am most proud of having created at Sewanee.

My longest running forest plot study is one that I inherited from Professor George

Ramseur. In 1976, George was hired by the Tennessee Valley Authority to study forest biomass as part of an ecosystem study of two forested watersheds on the Cumberland Plateau: one at Franklin State Forest, eight miles south of Sewanee, and one at Fall Creek Falls to the north. TVA surveyed and gridded off each of these watersheds into 100m x 100m plots, and George censused and mapped trees within five of these plots at both locations. In my first year at Sewanee, George found the original data sheets for these plots in his garage and graciously passed them along to me. In 1995, my students and I re-censused the plots in Franklin State Forest and have done so every 10 years since. Mary Priestley and Yolande Gottfried helped with some of those early surveys because we needed folks who knew how to identify the many species of plants found at these locations.

Each of the 10-year censuses was conducted in the summer with a whole crew of students, and each time there was one senior student or postbaccalaureate fellow serving as the crew chief. In the 2005 survey, crew chief was Sarah McCarthy, C'99 (now Sarah Neumann). Sarah earned a Ph.D. at Michigan State and then became a professor at Alma College, from which she and her students came back and helped with the census in 2016. Sarah and I collaborated on the recently completed study of climate change in the wetland forest at Sinking Pond on the Arnold Air Force Base.

Sarah is now a professor at Tennessee State University, and this year she and I received a research grant from the U.S. Department of Agriculture to study how mycorrhizal fungi influence the distribution and abundance of tree species in the long-term plots at Franklin State Forest and Fall Creek Falls. This summer we have embarked on a full re-census of the plots with student crews from both Sewanee and TSU. Our field crew leader is Izzy Schutte, Sarah's Ph.D. student, and I serve on her dissertation committee. The Sewanee crew are all Block Fellows: Oliver Hutchens, C'23; JT Michel,

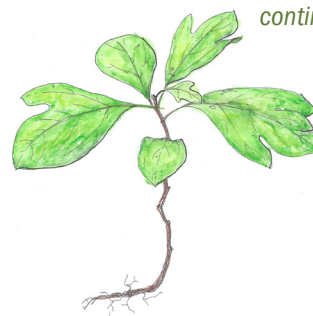
C'24; Rob Phillips, C'25; and Keegan Congleton, C'25.

My other sabbatical project involves a collaboration with another former student, Ashley Morris, C'97. Ashley and I share a common interest in the population biology of clonal plants. As an undergraduate, Ashley worked in my lab studying the pollination ecology of a clonal dune plant. She went on to get a Ph.D. at the University of Florida and is currently a professor in the Biology Department at Furman University. She and I have embarked on a number of studies using genetic analyses to examine the size and diversity of clones.

We have just completed a study looking at hillcane (native bamboo) populations where we found genetic individuals on the Domain to be hundreds of years old and spanning hundreds of acres. This summer, we are wrapping up a similar study on the Domain looking at sassafras populations. We believe that sassafras is a tree that exists in the forest as an enormous root system sending up thousands of short-lived shoots. On rare occasions, such as in response to a tree fall gap, shoots are able to grow up as trees into the forest canopy. Each genetically distinct root system may be extremely old and span large areas, like hillcane. Herbarium Block Fellows have extracted DNA from more than 400 shoots in a one-hectare, long-term plot that I have monitored on the Domain since 1999.

This year, Ashley's lab and the Sewanee Herbarium co-funded a postbaccalaureate fellow to complete this study. I will be working with Ashley this fall to write up our findings in a series of publications. We are also

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# Webb Greenhouse Sees New Life



The Webb Greenhouse stands on the south-facing wall of Woods Labs, a small structure often shaded by one of the campus's majestic white oak trees. Its construction in 1967 was provided for by a generous gift from Maria Tucker Webb, the widow of Botany Professor Waring Webb. Today, the place is a beehive of activity and draws visitors from this area and beyond. If only Professor and Mrs. Webb could see it now!

Waring Webb served on Sewanee's faculty for just over two years, as described by George Ramseur in the Winter, 1998, issue of the *Sewanee Plant Press* (Vol. II, No. 1): "In 1947 the botany program was strengthened by the arrival of Paul Hamilton Waring Webb (B.A., South Carolina; M.A., George Washington; and an almost completed doctorate in botany from UNC). He taught general botany, bacteriology, plant anatomy, plant pathology, and systematic botany. ...

"The biology department began the 1949-50 school year with [two assistant professors, including Webb, plus five instructors.] ... After an illness of only one week [polio], Waring Webb died on Nov. 22, 1949. His sudden death left the entire community in shock, but it was especially devastating to the biology department. To the trustees in June 1950, Vice-Chancellor Boylston Green reported, 'Because of the lamentable situation in the biology and botany classes, it has been resolved to completely reorganize that department.'"

Webb's untimely death left his widow with four children and a fifth one on the way. She remained in Sewanee, raising the children and serving as Sewanee Military Academy's nurse for more than 25 years, plus, for many years,

working as night nurse at Emerald-Hodgson Hospital. This writer knew her as a faithful member of Sewanee's Otey Memorial Parish (now the Parish of St. Mark and St. Paul) and the director for many years of its community outreach program, which serves economically disadvantaged members of the community. She died in 2009 at the age of 91.

From time to time, the greenhouse has housed experiments, delicate or fussy plants, and even overwintering houseplants. For several years, Sewanee's ROTC commandant kept his orchid collection there, and some years the greenhouse sat vacant.

That all changed in 2020 with the closure of the research and teaching greenhouses at Vanderbilt University. The greenhouse manager, Jonathan Ertelt, C'78, set about finding homes for the wide-ranging plant collection. Specimens went to the Atlanta Botanical Garden, Austin Peay State University, and the Nashville Zoo among others. And Ertelt helped Herbarium Director Jon Evans transport several truckloads of the beautiful and exotic plants to Sewanee. Suddenly the Webb Greenhouse was practically bursting at the seams with a huge array of exotic plants.

The following summer, one of the plants, an eight-year-old giant arum that Ertelt had grown from seed, decided to bloom. A native of Sumatra, the Titan Arum has the largest unbranched inflorescence in the world, sometimes reaching a height of seven feet.

The blooming got some good press—the University put a webcam on the plant. and *The Nashville Tennessean* ran an article (July 8, 2020). But because of COVID-19 restrictions that summer, Evans said, "It bloomed at the worst possible time." He would have liked to have been able to open the greenhouse to the public to see this infrequent and interesting phenomenon, but that was not to be.

Then this summer, just three years after that first bloom, Sewanee's own "rock star of the plant world" bloomed again. And this time, it got the attention that it deserved: Ertelt estimates that more than 1,000 people visited the greenhouse—and got to go inside this time—during the development of the bud and the three days that the inflorescence was in full bloom. Unfortunately, the attempt to pollinate some of the female flowers did not result in fertilization, "So we'll be back to the drawing board on this aspect in hopes of some fruit production with the next flowering," declares Ertelt.

Besides the arum, there's plenty going on in the greenhouse. Student Herbarium Fellows have started caring for the plants under

Evans's and Ertelt's guidance. The Fellows have reached out to the University community, hosting Plant Fridays and offering tours of the greenhouse, with themes such as Carnivorous Plant Friday, Epiphytic Plant Friday, and House Plant Friday.

Herbarium Fellow Oliver Hutchens, C'23, who has spent many hours working in the greenhouse, recently won a scholarship in conservation horticulture from the Garden Clubs of America. His current work in a pilot partnership between Sewanee and the Atlanta Botanical Garden will strengthen the foundation in conservation horticulture that he established at Sewanee.

Evans uses the greenhouse collection in nearly all his courses and in different ways. "Whether I am teaching plant ecology and need a carnivorous plant; or teaching ethnobotany and need tropical food plant examples; or need a rare species for a plant conservation lecture; or I just require a flower for an introductory biology lab in the winter, the 200+ plant specimens in the Webb Greenhouse provide an amazing array of living examples for my students to experience."

This summer, University Art Professor Jessica Wohl brought her drawing class to the greenhouse for a morning. After a short introduction to the herbarium and greenhouse, the students spread out in the greenhouse. Each student found an interesting greenhouse inhabitant to spend some time with and create a contour drawing. Wohl plans to make more use of the greenhouse for instruction and art projects in the future.

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# Friends of the Sewanee Herbarium

The Friends of the Sewanee Herbarium support the work of the Herbarium: education, research, and conservation. A \$10 annual contribution would be very much appreciated. The date of your most recent contribution is printed on your address label.

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## Webb Greenhouse Open Hours

**S**tarting toward the end of this month, Jonathan Ertelt, C'78, herbarium associate, is going to have open hours for the community to come and see what's happening in the Webb Greenhouse.

Wednesday, July 26, 2-5 p.m.  
Saturday, July 29, 9 a.m.-noon  
Wednesday, Aug. 23, 2-5 p.m.  
Saturday, Aug. 26, 9 a.m.-noon  
Wednesday, Sept. 20, 2-5 p.m.  
Saturday, Sept. 23, 9 a.m.-noon

The greenhouse is located on the south side of Woods Labs Science Building. All are welcome. Be sure to bring your camera.

The Herbarium-sponsored nature journaling group meets Thursdays, 9-11 a.m., usually on the porch of Stirling's Coffee House. Join us! Email [mpriestley0150@gmail.com](mailto:mpriestley0150@gmail.com) for more information.



### THE SEWANEE PLANT PRESS

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*Drawings by members of the nature journaling group:  
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### HERBARIUM PUBLICATIONS

*Fiery Gizzard: Voices from the Wildmess*  
*What If Trees Could Walk?*  
*Trail Guide to Shakerag Hollow*  
*Sewanee Wildflowers in Watercolor*

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## Forest Research, continued from page 1

collaborating on the purple phacelia project that we established in Shakerag Hollow in 2021. Current Block Fellow JT Michel, C'24, was funded by the Garden Club of America this year to work in both of our labs to help us determine if we have discovered a new species of plant and to understand its curious distribution on the Domain.

It is a joy to see my current students being mentored by my former students and even by their students. Intergenerational forest research is alive and well at Sewanee!

—Jon Evans



## Webbs Greenhouse, continued from page 2

Meanwhile, Ertelt has moved to Sewanee with wife, Bonnie, and son, Sam. As our newest herbarium associate, Ertelt is back engaging again with the plants he once tended at Vanderbilt! He sees uses for the greenhouse in various fields—ceramics, for example. “The greenhouse is like a forest. The designs and aesthetics of plants offer endless possibilities. Not only art and English classes should be making use of it. But others as well. How about history? Plants can take you anywhere.”

For the Sewanee community in general, Ertelt would like to have the greenhouse open to the public at least twice a month. “There’s always something blooming. There’s an epiphytic ginger blooming now. The flowers are fragrant, and the fruits are drop dead gorgeous.” In another year, Evans and Ertelt have discussed the possibility of the Herbarium offering public workshops in horticulture and botany.

We tip our hats to Professor Webb and his foresighted wife as we declare, “Stay tuned, fellow plant enthusiasts—the future of the Webb Greenhouse is rosy!”

—Mary Priestley