



Webb Greenhouse Transformed into a Tropical Rainforest!



The Biology Department's Webb Greenhouse in Woods Labs is now home to a marvelous gift of over 200 species of tropical plants from the Vanderbilt University greenhouses formerly managed by Sewanee alum, Jonathan Ertelt, C'78. Jonathan was tasked with redistributing the plants when it was announced last year by the Vanderbilt administration that the greenhouse space would be eliminated, possibly for the creation of new science research facilities. Over the nearly 25 years that Jonathan managed the Vanderbilt greenhouses, he had acquired an amazing assortment of plants that he used to introduce Vanderbilt students to the wonders of the botanical world. In addition to the learning possibilities, many Vanderbilt students sought the greenhouses as a place to escape the pressures of campus life, and Jonathan propagated extra plants that students could take back to their dorms. The outpouring of hundreds of student testimonials that Jonathan received when he retired this year underscored the important role that he played during his years on campus.

The week before Christmas break, with the help of the herbarium fellows, we cleaned out the mostly empty Webb greenhouse and had Facilities Management check its climate control systems. They installed an online sensor for tracking temperature and humidity remotely and set up the ability for me to receive email notifications if it gets too hot or cold in there. Then the Herbarium rented a U-Haul truck and, with Jonathan's assistance, we moved plants from Vanderbilt during the unseasonably warm weather in the last week of December.

Given the variety of species that we received and the relatively small growing area in the Webb greenhouse, we had to be creative in establishing different types of growing conditions within

the space. Cacti and other arid-loving species were distributed onto the south-facing bench. This group featured an amazing assortment of succulents displaying a wide range of desert adaptations, including a small saguaro cactus. Some of the center benches were removed to accommodate several small trees including a bonsai'd baobab, as well as a cacao, mango, a papaya, a strangler fig, two tree ferns, and a large Davidson's plum from the rainforests of Australia. These trees created a canopy under which we



were able to distribute a large variety of smaller shade-loving species, including understory palms, wild ginger, and a large variety of Gesneriads (members of the African violet family), which are Jonathan's horticultural specialty.

Using metal strips placed over the bench frames, we created an overhead lattice, from which we suspended dozens of hanging baskets filled with orchids, bromeliads, ferns, pitcher plant vines, and other tropical epiphytes. More sun-loving species were concentrated on the south side with species preferring shadier conditions on the north side. Passionflower and Dutchman's pipevines were set loose to twine their way up the bench frames. Finally, we have a large titan arum just now starting to emerge from its enormous

pot in the corner of the greenhouse. Every few years, it produces the world's largest unbranched inflorescence which releases a powerful smell of rotting flesh—hence its other name, "the corpse flower."

With all this variety and structural complexity, the Webb greenhouse has now been transformed into a slice of rainforest and desert. The herbarium fellows, under the coordination of Lillian Fulgham, have been tasked with caring for the plants and creating a database of information about each species (a task started but not completed by Jonathan and several of his volunteers during his tenure at Vanderbilt). Unfortunately, this program was cut short by the COVID-19 crisis and so I have been managing the collection by myself since March. Every time I go into campus to water the plants, there is something new flowering filling the air in there with some different tropical fragrance! Recently, a spectacular *Laelia* orchid, began flowering at the end of its eight-foot long inflorescence stalk.

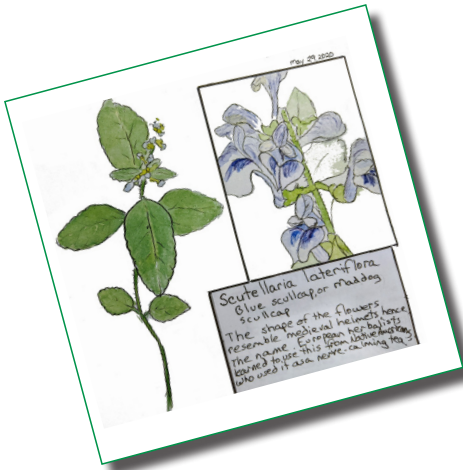
These 200+ species in the greenhouse added to the 1,130 species living naturally on the Domain make Sewanee truly an unparalleled academic destination for botanical diversity! I want to express my sincere thanks to Jonathan Ertelt and the Biology Department at Vanderbilt for making this botanical gift to Sewanee possible. I look forward to being able to incorporate these plants into my teaching program in the coming years, and I hope Sewanee students will come to appreciate them in the same way that Jonathan made them a part of student's lives at Vanderbilt. Jonathan and his wife Bonnie are making plans to move to Sewanee within the next few years, and we look forward to exploring opportunities for Jonathan to be able to continue sharing his horticultural knowledge with students in his retirement.

The Webb greenhouse is located on the south side of Woods Labs. It is currently not open to the public during the COVID-19 crisis, while the campus is shut down. We hope the Herbarium will be able to resume tours of the collection in the fall.

— Jon Evans

Nature Journaling

The Herbarium's nature journaling group continues to "meet," sometimes Zooming in, and otherwise gathering somewhere to sketch, socially distanced. Journalers have contributed the illustrations for this issue of the *Sewanee Plant Press*.



Sewanee Wildflowers, a Virtual Nature Journal



In response to the COVID-19 crisis, the Herbarium now has a virtual nature journal posted on our website. Consisting of more than 30 line drawings of local wildflowers, it is available to download and print.

After that, anything goes. Ideas might be to color a plant and then write down something about it, such as its habitat, pollinators, or medicinal qualities. A drawing might be the jumping-off point for a fantastic design. Add creatures, real or imaginary? Fairies? Include a quotation from a famous person? Maybe make up a story? Write a poem?

Or ... just color. It's fun, relaxing, and an easy way to get to know Sewanee's beautiful wildflowers. Whatever you do, it's yours! Enjoy!

Check it out: the nature journal is located at evanslab.org/virtual-nature-journal.

—Mary Priestley



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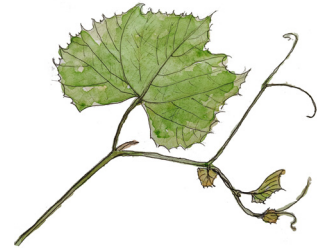
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Fine Vines

As we get back on the trail after the glory of spring wildflowers, it seems sometimes that the woody vines have taken over. Poison ivy, catbrier, even grape and Virginia creeper seem to dominate. Many of these have interesting features, however, and are worth a closer look.

Don't look too closely at poison ivy, of course, and be aware of its hairy stem climbing a tree. These structures are adventitious roots, which allow it to climb to reach more sunlight. It is a member of the same family as the cashew, and indeed, though we eat properly prepared cashews, many parts of the plant have an oil similar to that of poison ivy which can produce a severe allergic reaction. And poison ivy fruits, though inedible by humans, are an important wildlife food source, especially to many species of birds. Indeed, the brilliant red-gold color of the leaves in the fall serves to attract birds to the small whitish fruits. Poison ivy is part of a group of plants of eastern North America, including among others tulip-poplar and mayapple, that have their only close relatives in eastern Asia.

Another hairy-looking vine that may be climbing that tree is Virginia creeper. A closer look will show that the creeper is climbing by means of tendrils with adhesive discs. These tendrils are not roots but modified

flower clusters, which are modified shoots. The discs only form when the tendril touches a support and then they attach by secreting a cement-like substance. This substance is so strong that five tendril branches attached by these discs can support 10 pounds! Virginia creeper is in the same family as the grape, but its fruits are not edible by humans and can even be fatal. Like those of poison ivy, they are eaten by birds and also by some mammals such as striped skunks and red foxes. It also turns red in the fall, perhaps to attract the birds to its fruit, as in poison ivy.

There are a number of species of grape on the Domain: summer, graybark, muscadine, and frost grapes. Like their relative, Virginia creeper, they climb by tendrils, but their tendrils do not attach but rather wind around a support. Folks on a wildflower walk are sometimes amazed at the size of grape vines lying on the ground or hanging in loops from trees. Grapes are, of course, edible for humans as well as wildlife, but they vary greatly between and within species and in different seasons as to how palatable they are.

Catbrier, or Smilax, is the only woody vine in the northeastern United States that has both thorns and tendrils. In Smilax, the tendrils are modified stipules. They occur in

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Illustrations are by these members of the herbarium's nature journaling group: Laura Blackman (pineapple, barren strawberry), Latham Davis (Solomon's plume), Margie Gallagher (Ox-eye daisy and hairy vetch), Jim Poteet (wild ginger), Teesha Tiller (oak seedling, blue-eyed grass, and pitcher plant), and Deb Tucker (skullcap and grapevine).

HERBARIUM PUBLICATIONS

Fery Gizzard: Voices from the Wilderness

What If Trees Could Walk?

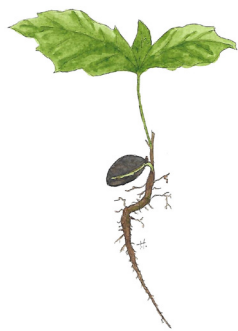
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pairs attached to the base of the leafstalk and have an interesting structure, a spiral at the base followed by a straight section and terminating in another spiral that twists in the opposite direction as the one at the base. The thorns contribute to such names as hellfetter, blasphemy vine, and tramp's troubles. The fruits are eaten by wildlife late in the season when other foods are not available. Humans can eat the young shoots and tendrils of the vines in the spring.

In areas where non-native woody vines have gotten a foothold, they can create a veritable jungle. The Tennessee Invasive Plant Council lists Asian bittersweet, winter creeper, English ivy, Japanese honeysuckle, and Chinese and Japanese wisteria as established threats. Several of these, it may be noted, have names indicating an origin in Asia. The similarity in climate and topography between parts of Asia and North America allows some plants imported from Asia to thrive here (and possibly vice

versa). However, the lack of their native diseases and predators that would provide a check on their growth allow them to thrive overabundantly in many cases. Non-native woody vines can have a particularly great impact on native plant communities due to their ability to climb, sometimes even into the canopy, blocking sunlight from the trees and plants below. Their weight can even bring down trees.

It should be noted that in some cases native woody vines can do this, too. The recent edition of *Smokies Life Magazine* has an article about montane grape openings or grapeyards. Where an opening has been created in the forest, grape vines can grow faster than the young trees, reaching sunlight and eventually overwhelming the trees. An ice storm, wind event, or heavy snow can then bring down the trees allowing the grapes to take over the entire area. "Invasives" may not always be exotics.

—Yolande Gottfried

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Eastman, John. 1992. *The Book of Forest and Thicket: Trees, Shrubs, and Wildflowers of Eastern North America*. Stackpole Books.

Kemp, Steve. "The Wrath of Grapes." *Smokies Life*, Vol. 14, Number 1, p. 70.

Radford, Albert E., Harry E. Ahles, and C. Ritchie Bell. 1968. *Manual of the Vascular Flora of the Carolinas*. The University of North Carolina Press, Chapel Hill.

