



## News from Our Summer Interns



Our summer internship with the Herbarium has gotten off to a busy start! On June 2, we were invited to provide an introduction to the diversity of plant physiology and ecosystem dynamics for a group of students at Tracy City Elementary School. The students were attending Camp Discover—a two-week summer camp designed to strengthen friendships and community, help kids discover their hometown's natural and historical stories, and build a stronger sense of place.

Using specimens from the donated Vanderbilt rare species collection, we demonstrated the vast variety of adaptations that plants have developed in response to environmental challenges. Little did we know that we would soon find ourselves racking our brains and questioning the ways we think about plant morphology and function as we experienced a deluge of creative questions from the students! The children's excitement did not end there though, as we also saw a lot of engagement with the leaf rubbing activity that we planned. We provided a good variety of local tree leaves, but everyone went all around the outdoor classroom, looking for more leaves to make rubbings.

To see so much engagement with plants was refreshing to say the least. It can be very hard at times to get someone engaged with plants, to get someone to see what makes them so amazing: to let them see what we see. Because of this difficulty, it felt all the more wonderful to have children who immediately saw the appeal, who would hug us as thanks for showing them. We cannot think of a better or more enjoyable audience to spread plant awareness to!

In addition to our outreach work, we are working with Dr. Evans on a number of projects relating to plant conservation this summer. We have been working on a long-term vegetation monitoring project for the Domain, which involves a reevaluation of the plots used in the Vascular Flora of the Domain study that were established by Dr. Evans more than a decade ago. The goal of this project is to detect long-term changes in the plant biodiversity of the Domain that may be caused by threats such as deer overbrowse and invasive species. We have been locating these plots, recreating their boundaries, and surveying the plant communities to see what has, and has not, changed.

So far, we have seen a general increase in cover, which could mean the deer population management is working well. However, two invasive species—Nepal grass and Japanese spirea—were found to have shown up in several of the plots over the 10 years since they were last surveyed. While most invasives tend to be restricted to bright, disturbed areas, these two are notable for their ability to colonize healthy, deep forest habitats. This is concerning, but with this knowledge we can adjust land management practices to better combat the spread of invasives.

We have also begun work restoring a sandstone outcrop that serves as habitat for a rare prickly pear cactus—right here on campus behind Fulford Hall! Students in Dr. Evans's Conservation Biology class mapped this population last fall. The area is almost entirely overgrown with invasive species, including wisteria, oriental bittersweet, multiflora rose, Chinese privet, tree-of-heaven, non-native sedum, Japanese spirea, English ivy, and both bush and vining honeysuckle—an impressive array of almost every non-native invasive on the Domain. The area has been neglected and used mainly as a dumping site and as a smoking

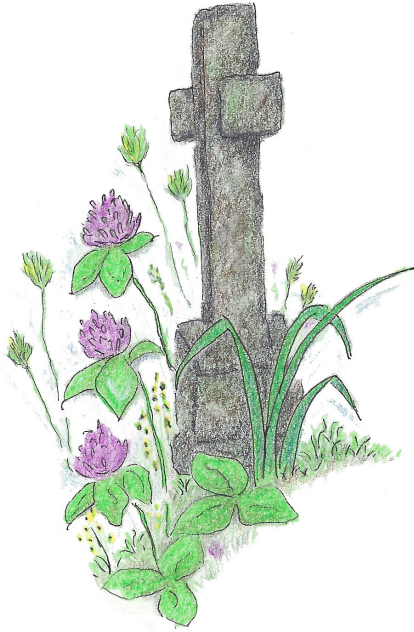
and graffitiing area by students with the rare cactus getting trampled in the process. We plan to clear the area of invasives, rebuild native habitat, and use this site as an opportunity to increase plant awareness on campus. The project is a collaborative effort involving the Herbarium, Friends of Abbo's Alley, and Facilities Management.

Later this summer, we will be working with the Tennessee Plant Conservation Alliance and the Tennessee Natural Heritage Program on a number of plant conservation projects in middle Tennessee. We have a lot on our hands this summer, to say the least. But, after being unable to do much of anything with anyone for over a year, the abundance of projects feels like a great problem to have; it is just so nice to see the Herbarium active again. We look forward to seeing what all we can get done!

—Lillian Fulgham, C'21  
Oliver Hutchens, C'22



# The University Cemetery—Plants Among the Dead



The University Cemetery is probably not the first place that comes to mind for a botany field trip, but the Ferns, Forbs, and Fungi class of the Tennessee Naturalist Program, for example, has indeed used it as such. This is possible because it is being maintained in a way different from the more common “lawn” types of cemeteries. Dr. Gerald Smith, professor emeritus of religion at the University of the South and now self-styled “Dean of the Dead,” is currently overseeing the cemetery. He works with several historical societies, old churches, and other groups (including being a traveling lecturer for the Smithsonian on cemeteries) about maintaining and preserving old cemeteries. He writes, “The wide current idea in America, for instance, is that cemeteries should be places of neatly mowed grass. In fact, most rural cemeteries were once not grassed nor mowed at all and were covered in the imported plant, vinca. You may notice now that we are not mowing (except twice a year) in University Cemetery. The damage to stones from mowing (not to say the damage to trees and soil) amounts to many thousands of dollars. University Cemetery is now becoming an open canopy cemetery because the large trees have aged out and are dying and 75 years of mowing has totally destroyed any replacement seedlings that might have grown up to replace aging trees.”

Vinca, as Dr. Smith notes, was the common ground cover in rural cemeteries, even known as cemetery grass. It works very well in crowding out other plants, is shade-tolerant and low-maintenance, and remains green in the winter. In fact, it is an excellent “indicator species” of old and perhaps abandoned cemeteries. This plant has a long history of being associated with death and was sometimes worn by those about to be

executed. There are some remnants left in the University Cemetery, but mowing practices of the last decades have made it hard for the vinca to survive.

Another indicator of old cemeteries is yucca which, unlike vinca, is a native plant of the Southern coastal plain, though it is widely cultivated and has extended its range. It also is an evergreen, shade-tolerant, and persistent. There is at least one yucca in the University Cemetery, partially hiding a gravestone that must be that of a child—a lamb is distinguishable but not the name and dates.

Some of the diversity that used to exist in the cemetery consisted of non-native plants. Dr. Smith writes, “Once common cemetery plants such as mint, ivy, *Euonymus fortunei*, Lenten rose (hellebore), iris, peony, daffodils, a lily of the valley, among others are easily destroyed by weed-eaters; in University Cemetery several clumps of Lenten rose were recently destroyed by weed-eater maintenance, and the local mint that once characterized the grave site of Gen. Kirby-Smith is no longer growing there. As this destruction accumulates, the original, if artificial, biodiversity of the cemetery is diminished.” There is one area in the contiguous St. Mark’s Cemetery where some of these plants survive—a gravesite that has been neglected and therefore, ironically, has become a refuge for some of the previous diversity.

To combat this loss of diversity, a new maintenance regimen began about five years ago, with mowing occurring twice a year, once the week after Commencement and once in the late summer to early fall.

A survey of herbaceous vascular plants this spring in the cemetery resulted in a list of around 50 species. Many of them are native wildflowers, especially members of the aster family. A casual visitor will be impressed first of all with the great number of Robin’s plantain, probably the best place in Sewanee to see this plant. There are also colonies of pussytoes, both male and female because the genus is dioecious, and both species, singlehead and plantain-leaved. Bright spots of color are provided by two-flower dwarf dandelion, butterweed, and rattlesnake weed. Another member of the aster family, Philadelphia fleabane, is also numerous. Then there are members of other plant families that may also be seen on a more typical spring wildflower walk: bluets and summer bluets, blue-eyed grass, lyre-leaf sage, yellow wood-sorrel, cinquefoil, violets, and sweet cicely—even some Virginia bluebells that may have escaped from some planting on a grave. Of course, quite a number of the species that make up the list are non-native plants such as are often found in lawns and open areas, such as clovers, buttercups, vetch, daisy,

veronica, plantains, field garlic, and chickweed. Among the graminoids are wood-rush, path rush, Bosc’s rosette grass, and the abundant but non-native sweet vernal grass.

As the season progresses and the second mowing is deferred until the late summer or early fall, other wildflowers will bloom. Many are, again, in the aster family, such as prairie fleabane, lion’s foot, Tennessee leafcup, elephant’s foot, and white snakeroot. Other families are represented by St. Andrew’s cross, bedstraws, black snakeroot, common yarrow, pencil flower, skullcap, and pipsissewa. Among the non-natives are common selfheal, stonecrop, and cat’s-ear.

With all the stonework of monuments and walls, the University Cemetery is a great place to find ferns, mosses, liverworts, and lichens, especially lichens. Besides the “flat” lichens that cover much of the stonework, there are patches of reindeer moss, which is a *Cladonia*-type lichen. There are also patches of hairy-cap or star moss, along with other types of mosses. There is an unusually conspicuous and large patch of liverwort near the stone arch entrance to the cemetery, very handy for botanical field trips. Ebony spleenwort, a fern, seems especially fond of the wall that extends from that arch.

The woody plants are perhaps the most affected by past mowing regimens. Dr. Smith notes that there are no trees younger than about 80 years old when the mowing regimen started. The medium sized and large trees currently in the cemetery include white oak, post oak, black oak, red maple, sugar maple, hickory, tulip poplar, sweetgum, black cherry, Eastern red-cedar, Eastern white pine, and Eastern hemlock. The mowing did not allow seedlings and

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## University Cemetery, continued from page 2

saplings to become established to eventually replace aging trees. Now those aging trees are failing and dying, creating a more open canopy that allows the establishment of grass rather than moss or vinca, and the grass in turn needs to be mowed to be maintained.

Dr. Smith writes, "University Cemetery is a traditional Rural Cemetery (this is a specific technical term denoting a style of cemetery organization). It was not laid out to be maintained with mowers. . . . Our goal is to restore an ecologically sound and somewhat historically accurate form of landscaping in University Cemetery and to use a balance of best methods for tree and plant care, surface management, and stone preservation so that the cemetery will remain sound as well as attractive for decades to come."

—Yolande Gottfried

### References:

Evans, Jonathan P., Callie A. Oldfield, and Mary P. Priestley, eds. *Vascular Plants of the Domain*, 2nd ed. 2019, Sewanee Herbarium.

Smith, Gerald L. personal communication.

Smith, Gerald L. *The War in the Grass*. 2013.

## Nature Journaling Invitation

The world is opening up. Come explore with us! The Herbarium's nature journaling group meets Thursday mornings 9–11, usually at the Lake Cheston pavilion. For more information, email Mary Priestley.



## THE SEWANEE PLANT PRESS

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*Illustrations by members of the nature journaling group.*

## HERBARIUM PUBLICATIONS

*Fiery Gizzard: Voices from the Wilderness*

*What If Trees Could Walk?*

*Trail Guide to Shakerag Hollow*

*Sewanee Wildflowers in Watercolor*

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## Connecting with Skullcaps



**E**arly most Sunday mornings, if I'm lucky, you can find me hiking with a couple of friends to Bridal Veil Falls, via a three-mile loop from the Lake Cheston parking lot. One of the most interesting waterfalls on the Domain,

Bridal Veil pops out of the side of the plateau, cascades about 25 feet down a limestone cliff, drops another 25 feet into a sinkhole, and disappears.

"Wait. The same hike every week?" you say. That's right. And for a botanist, one benefit of hiking the same route year-round is witnessing seasonal changes in the flora. Though it doesn't boast the display of spring wildflowers that we find in Shakerag Hollow, Bridal Veil's trail has plenty to see through the seasons. This past May and June, we've been admiring several populations of two species of skullcap—Southern showy skullcap (*Scutellaria pseudoserrata*) and heart-leaved skullcap (*S.*

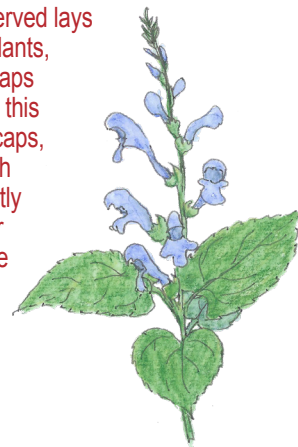
*ovata*)—blooming all along the western leg of our hike.

Skullcaps bear the characteristic features of the mint family: stems are more or less square, leaves opposite, and flowers bilaterally symmetrical; that is, each flower has a distinct "top" and "bottom," and only one plane will divide it into two equal halves. Members of this family include several culinary herbs, including rosemary, lavender, marjoram, basil, sage, thyme, and of course mints. The distinguishing feature of skullcaps is the scoop-shaped crest on the calyx, which I suppose someone thought resembled a little round cap.

Along our trail, white-flowered Southern showy skullcap was first to bloom. Its common name is apt: the flowers, each more than an inch long, are arrayed on racemes, held erect above dark green toothed leaves. I assumed that all the patches of skullcap were of this one species, but a week after the first white flowers appeared, my alert hiking buddy spotted a few smaller, darker blue flowers of the heart-leaved skullcap among the white. These, too, are borne on terminal racemes, and for a week or

so we enjoyed an abundance flowers of both species, growing together, abuzz with hungry bumblebees going after the nectar and pollen.

Farther up the trail, we came upon an orange-patched smoky moth, *Pyromorpha dimidiata*, nectaring on and possibly pollinating a four-leaf milkweed, *Asclepias quadrifolia*. Milkweeds, as we know, are key to the life cycle of monarch butterflies. A little research revealed that the moth that we observed lays its eggs on mint plants, such as the skullcaps so common along this trail. So, the skullcaps, in hosting the moth larvae, are indirectly doing their part for the monarchs. The bumblebees are helping too, for that matter!



—Mary Priestley