

THE PLANT PRESS



Volume VII, No. 4

Newsletter of the Friends of the Herbarium

Autumn 2003

Summer 2003 Herbarium Activities

Caitlin Elam returned for a second summer as a Herbarium intern, supervised by Yolande Gottfried. Caitlin graduated in May, 2003, and received the Young Botanist Award from the Botanical Society of America and the Jessie Ball duPont Award for her work in the summer of 2003 in helping to compile a checklist of the vascular flora of the Domain.

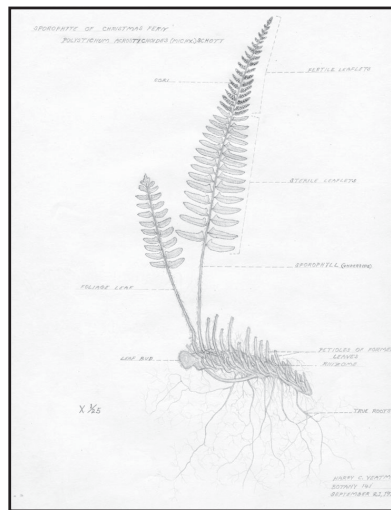
She also received a Yeatman Internship, which, in conjunction with funding from the Tennessee Wildflower Society, allowed her to continue to her work on the flora of sandstone outcrops as well as additional Herbarium projects as a summer intern. Caitlin appeared in an article on student research projects in the summer 2003 issue of *Sewanee*.

The sandstone outcrop study began during Caitlin's senior year under the direction of Dr. Jon Evans. She continued this study through the summer, first attempting to locate the sandstone outcrops in the study area using satellite imagery and, when this did not work, acquiring the geologic maps of the Sewanee, Alto, and Monteagle quadrangles.

She hoped to locate likely sites by identifying the underlying geologic substrate because the outcrops are usually exposed Warren Point Sandstone or Sewanee Conglomerate. Most of her work was done in the field using the GPS unit to record outcrop locations and noting the presence or absence of *Diamorpha smallii* Britt. ex Small (Elf Orpine) and *Talinum teretifolium* Pursh. (Quill Fameflower), both stone outcrop endemics and listed as rare in Tennessee.

Caitlin also began the work of locating on the map the major collection sites of Dr. George Ramseur from field trips with students during his teaching career. Some

readers may recall "Hwy. 56 roadside grassy clearing, 20 yds. W of hairpin curve near 'the Saddle', 3.6 mi. S of RR tracks" or "pipeline right of way, 1.3 mi. S of Grundy Co. HS, 20 yd. below edge of Fiery Gizzard Gorge". The Herbarium hopes to link this information with other GIS coverages from the Landscape Analysis Lab.



Christmas fern

Other projects included collecting leaves of witch hazel, sweet gum, and beech for DNA research being done by Sewanee alumna Ashley Morris and "test-driving" the keys for the plant families Fabaceae (pea), Ranunculaceae (buttercup), and Rosaceae (rose) for a book under preparation by the Tennessee Native Plant Society. Caitlin had the opportunity to accompany David Lincicome of the Tennessee Natural Heritage Program when he came to check the populations of *Silphium brachiatum* Gattinger (Cumberland Rosinweed) in the area.

The entire Herbarium staff, with biology professor David Haskell, Sewanee student Brett Scheffers, alumna and Herbarium

intern Caitlin Elam, and longtime Friend of the Herbarium Mary Davis, conducted a survey of the flora and fauna of a property below the plateau bluff in the Tracy City area. The survey resulted in a report to The Land Trust for Tennessee as a contribution to help them in their effort to put a conservation easement on this 180 A. cove property at the wish of the owners.

Highlights of the survey included seeing ginseng, *Panax quinquefolium* L., in fruit and three-birds orchid or nodding pogonia, *Triphora trianthophora* (Swartz) Rydberg, in bloom. The three-birds orchid only occurs in particularly acid soils, and its blooming behavior is erratic, depending on stored energy and fluctuations in the weather. Also, each bloom only lasts one day, so the group was fortunate to see so many plants in full bloom.

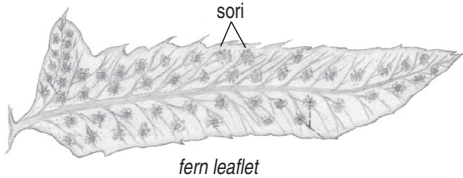
A major ongoing effort of the Herbarium is to expand the preliminary checklist of the vascular flora of the Domain prepared last summer. Caitlin and Yolande made several field trips to some of the outer reaches of the Domain in search of new species and found a few: *Eryngium yuccifolium* Michx. (Button Eryngo or Rattlesnake Master) by the dam of Chestnut Lake, *Bartonia virginica* (L.) BSP (Yellow Screwstem, in the gentian family) by Old Bushy Lake, and *Glyceria striata* (Lam.) A.S. Hitchc. (Fowl Manna Grass) down the Solomon's Temple Trail.

Others, less exciting, come from weedy areas along Tennessee Avenue and by the Cross: two more species of *Desmodium* (Tick-Trefoil) and *Acalypha rhomboidea* Raf. (Common Three-Seed-Mercury). The search will continue through the fall, when a number of grasses and sedges are likely to be found to add to the list.

—Yolande Gottfried

Ferns of Sewanee

“God made ferns to show what He could do with leaves.” — Thoreau



Here we are, in the midst of the fall floral and leaf display, perhaps an unusual time to think about ferns. But after our exceptionally rainy summer, ferns are thriving everywhere—both the herbaceous species that will die back to the ground in a few weeks, and the evergreen ones that will soon provide some of the few green spots in the forest.

Recently, Dr. Harry Yeatman, Sewanee professor *emeritus* of biology, showed us pencil drawings of ferns that he had done as a graduate student at Chapel Hill, NC, in the 1930s. We have scanned these exquisite renderings, and they provide the inspiration for this article. A few are used here as illustrations.

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WEB SITE

[http://www.sewanee.edu/
biology/herbarium](http://www.sewanee.edu/biology/herbarium)

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Drawings by Dr. Harry Yeatman

Ferns are most common in moist habitats: woodland ravines, crevices of rock bluffs, and margins of ponds and streams. But there are many exceptions. Bracken, the most common fern worldwide, much prefers sunny, dry habitats. And resurrection fern, which curls up and looks dead when it dries out then greens up after a good rain, is usually found on tree trunks and branches. A healthy population grows on a white oak between All Saints' Chapel and University Avenue on campus.

The only part of a fern plant that extends above the ground is the frond (leaf). The underground stem, called a rhizome, may be oriented vertically in the case of vase-like plants such as Christmas and cinnamon ferns. In others, single fronds seem to emerge randomly from the horizontal-growing rhizomes. New York and common polypody ferns are examples.

To most observers, the intricacy and variety of fern fronds set them apart from other plants. Unfurling as a fiddlehead or “crosier” in the spring, a frond’s fragile appearance belies its biochemical strength. While some fiddleheads are edible, most are at least somewhat toxic to humans and many other animals. Several potent medicines, including effective anti-tapeworm concoctions, have been made from them.

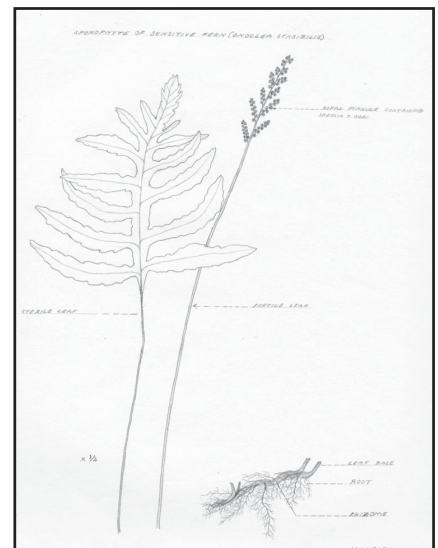
Botanically, the characteristic that distinguishes ferns from most other plants is their mode of reproduction. For centuries people believed that fern flowers existed but were for some reason undiscovered. Some suggested that fern seeds were invisible, and that they could even confer invisibility on those who snared them. William Shakespeare refers to this in *Henry IV*: “We have the receipt of fern-seed, we walk invisible.” Actually, ferns produce neither flowers nor seeds. Rather, their reproductive propagule is the spore, a single-celled dust-like particle, too tiny to be seen with the naked eye.

As Jesse Shaver explains in *Ferns of Tennessee*, “The things in life that are important have names. They must be talked about and written about, and names are needed.” Spores occur in organs called sporangia, which are usually grouped into clusters called sori (sorus, singular). In most ferns sori are located on the underside of the fronds. They may be covered by the edge of the frond or by a membranous indusium, or they may not be covered at all. To identify ferns, one must become familiar with this somewhat esoteric botanical terminology.

If one were to select a group of plants to “know,” ferns would be a good choice because there are relatively few species. About 10,000 fern species have been discovered worldwide, as compared to a quarter of a million species of flowering plants. In the United States there are just over 400 species of ferns, and to date only 27 species, representing 10 families, have been found in Sewanee. One can easily encounter a number of them along most of Sewanee’s woodland trails.

This fall, the Herbarium is offering a fern walk in Abbo’s Alley. (See Autumn Calendar of Events.) If you would like to learn more about fern identification, morphology, and lore, please try to join us.

—Mary Priestley



Sensitive fern

Autumn Calendar of Events

Sewanee's Wildflowers . . . the Search Continues

A talk by Mary Priestley, co-sponsored by the Sewanee Garden Club
Mon, Sept. 22, 1:30 p.m. at the home of Milly Dodd in Sewanee.

Fern Walk

Sat., Sept. 27, 10 a.m. Mary Priestley

Meet at the South Carolina Avenue entrance to the Abbott Cotten Martin Ravine Garden (Abbo's Alley) for an easy walk to learn more about Sewanee's native ferns.

See Sewanee's Big Trees

Sat., Oct. 4, 1 p.m., Sandy Baird and George Ramseur

Join the leaders of Sewanee's Big Tree Project for a visit to some of the champions already documented in the Sewanee area. Meet at the Sewanee Market to carpool for this easy trip.

Homecoming Open House

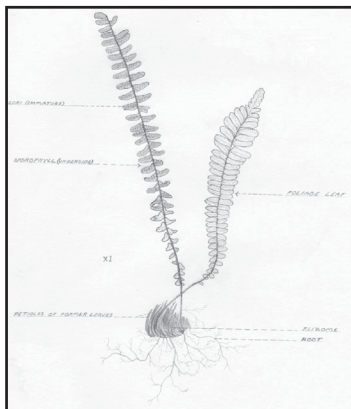
Fri., Oct. 10, 4-5 p.m.

Meet the Herbarium staff and enjoy refreshments while learning about our latest projects. We are located on the ground floor of Woods Labs science building, near the greenhouse.

Grundey County Great Outdoor Weekend Hikes

Sat., Oct. 18, 10 a.m. George Ramseur, Yolande Gottfried

The Herbarium is sponsoring two hikes at South Cumberland State Park in conjunction with the Great Outdoor Weekend. Both hikes leave from the Collins West trailhead



Ebony spleenwort

at 10 a.m. For George's strenuous 5-mile roundtrip hike to Horsepound Falls, take lunch and allow five hours. Yolande's moderate hike, which will head up the trail toward the head of Collins Gulf, is planned to take two hours. Take plenty of water on both hikes. For more information about the Great Outdoor Weekend, see www.greatoutdoorweekend.com. For

directions to the trailhead, contact the state park at 931.924.2980.

Watercolor Workshop

Sat., Oct. 18, 10 a.m. Margaret Smith Woods Laboratories room 121

Back by popular demand. Participants in this hands-on workshop will focus on using watercolors to depict a patch of the fall forest floor. Space is limited, so contact Yolande Gottfried at 931.598.3346 to sign up and learn about the particulars.

Gardening with Native Plants

Mon., Nov. 24, 1:30 p.m., Blackman Auditorium

Margie Hunter, author of *Gardening With the Native Plants of Tennessee*, co-sponsored with the Sewanee Garden Club

Ms. Hunter will give a talk and slide presentation entitled "Between a Rock and a Hard Place: Tough Plants for Tough Sites" for the Garden Club and all interested community members. Blackman Auditorium is in Woods Labs on the Sewanee campus, across from the Library.

Phone Yolande Gottfried at 931.598.3346 for more information about any of these events.



Membership Application/Renewal

The Friends of the Sewanee Herbarium support the work of the Herbarium: education, research, and conservation. A \$10.00 annual contribution would be very much appreciated. The date of your most recent contribution is printed on your address label.

Name and Address (if different from that on the mailing label on the back):

Amount Enclosed: \$10.00 Other: \$ _____

Please make check payable to The University of the South. Gifts are fully tax deductible. Send to:

Sewanee Herbarium
c/o Mary Priestley
735 University Avenue
Sewanee, TN 37383



Others who might like to receive *The Plant Press*: _____

Fall Creek Falls Collection

The Sewanee Herbarium has recently received a collection of plant specimens from Fall Creeks Falls State Park (Van Buren and Bledsoe Counties) representing about 750 species. Chris Fleming with the University of Tennessee Herbarium gave the collection to us. Chris recently completed his M.S. thesis on the vascular flora of the Park under the guidance of Dr. Eugene Wofford.

Chris documented the occurrence of 883 plant species within the Park, with 300 of these species being county records for either Van Buren or Bledsoe Counties. He found that Fall Creek Falls had one of the highest concentrations of plant diversity in Tennessee. Using land use maps for the Cumberland Plateau generated by Sewanee's Landscape Analysis Laboratory, Chris also examined the encroachment of pine plantations and commercial development on the Park. He found that

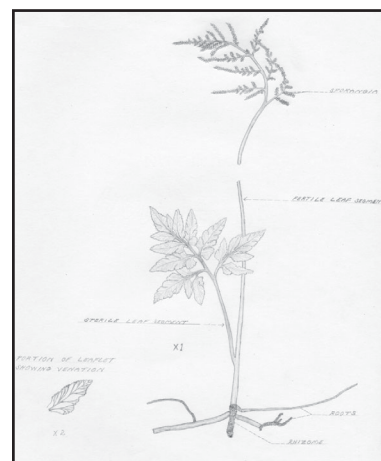
this hot spot of plant biodiversity was rapidly becoming an island in a sea of development.

We have incorporated Chris's Fall Creek Falls flora into a synonymized plant database that we have created for the southern Cumberland Plateau in Tennessee. This database also integrates published floras from Savage Gulf State Natural Area (Grundy County), Wolf Cove (Franklin County), Fiery Gizzard (Grundy County) and the University of the South Domain (Franklin County).

The database includes over 1350 vascular plant species documented for this region and contains ecological, taxonomic and conservation-related information that is used extensively by biology classes at Sewanee. In comparing these five floras, Fall Creek Falls contains the largest number of plant species and the greatest number of unique species (not found in

the other four locations). Chris's work highlights how much we still have yet to discover about the biological treasures of the Cumberland Plateau.

—Jon Evans



Grape fern

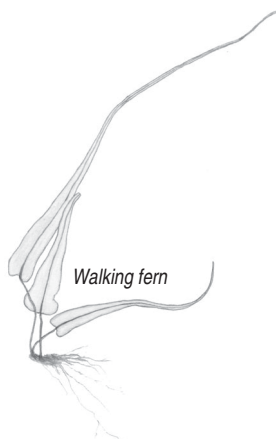
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