



Botanizing in the Appalachians

(Ed. Note: Caitlin Elam, C'03, earned an MS in botany at North Carolina State University. She has worked for the Florida Natural Heritage Program, the Florida Department of Environmental Protection, and Rancho Santa Ana Botanical Garden in Claremont, California. She currently works for the Tennessee Department of Environment and Conservation in the Natural Resources Unit of the Water Resources Division in Nashville. This past summer, she worked for NatureServe, documenting high elevation plant communities. As a historical note, these are the very ecosystems that Sewanee Herbarium Director emeritus Dr. George Ramseur studied when working on his PhD at the University of North Carolina.)

There is nothing quite like the Appalachian Mountains and there are so many ways to understand and enjoy them. Coming from a botanical and ecological background that began during my undergraduate years at Sewanee, I am fascinated by the plant species that live there and the unique natural communities those plants comprise and inhabit. So, when I was presented with the opportunity to conduct vegetation mapping along the Appalachian Trail I eagerly accepted.

I was hired by NatureServe, a non-profit scientific organization which fills the integral role of maintaining location, population, and historical data for rare species and rare natural communities across the country. NatureServe serves as the umbrella organization for each state's Natural Heritage Program. Knowledgeable biologists and ecologists who work for these programs conduct local inventories of rare plants, animals, insects, and plant communities. The first step in conservation is knowing what is there and where it can be found. These two organizations are currently systematically collecting and maintaining this information for generations to come. I was tasked to take part in a project that, in conjunction with the USGS and the National Park Service, involved mapping the vegetation along the entire Appalachian Trail to aid in oversight, management, and protection. My field partner, Brenda Wichmann, and I navigated to 500 points by day-hiking and backpacking both on and off trail from Erwin, Tennessee, to Grayson Highlands, Virginia, to document the composition and health of the habitats we found. We saw the aftermath of many changes that have been taking place within the plant communities along the trail including Hemlock die-off from the Hemlock Woolly Adelgid and Beech die-off from Beech Bark Disease. We also saw a great diversity of plant community types in one of the most diverse forests in America. Other teams handled equal sections above and below us to collect data from Springer Mountain, Georgia, to Mt. Katahdin, Maine. Having most recently been in Florida and Southern California I looked to knowledge of the

Eastern Tennessee flora that I gained during my undergraduate years interning with the Sewanee Herbarium and my graduate work at North Carolina State University as a foundation.

Some of the most compositionally, historically, and aesthetically fascinating plant communities we encountered were called "Grassy Balds". There are few known locations of true, natural Grassy Balds



of which Roan Mountain, Tennessee/North Carolina and Grayson Highlands, Virginia are two of the most dramatic. These mountaintop meadows furnish an open respite for trail hikers by providing spectacular views and dramatic wildflower displays. They can be found at summits and upper slopes of mountains and have naturally remained open for over 10,000 years. Some scientists speculate these areas were above treeline during glaciation and are undergoing a slow successional process back to Spruce-Fir forests. It is also thought that these areas remained open due to intensive grazing by mammoths and other pre-historic megafauna and that early Native Americans may have burned these areas regularly for hunting and scouting purposes. Many rare, endemic, and strange disjunct species inhabit these grassy openings. One interesting species is the green alder (*Alnus viridus* ssp.

crispa), an alpine shrub. The only other locations of this plant outside of Roan Mountain are in Minnesota, Wisconsin, the upper Atlantic Northeast, Canada, and Alaska. The most characteristic plants found on Grassy Balds include wispy bunches of mountain oat-grass (*Danthonia compressa*), dense green sedges (*Carex brunnescens* ssp. *sphaerostachya*, *Carex debilis* var. *rudgei*, *Carex pennsylvanica*), and colorful herbs such as three-toothed cinquefoil (*Sibbaldiopsis tridentata*). While

we were conducting our surveys the rare Schweinitz's groundsel (*Packera schweinitziana*) was in full bloom, covering these high elevation grasslands with golden aster-like flowers. Another charismatic rare species that speckles the landscape in spring is Gray's Lily (*Lilium grayi*), a tall lily that rises above the height of the surrounding vegetation to display a tier of large deep orange bell-shaped flowers, named for one of the most important early 19th-century botanists Asa Gray. Maintaining these unique communities now requires management which can take the form of mowing large tracts, mechanical weed removal, and the use of browsers such as goats on Roan Mountain and wild ponies in Grayson Highlands.

During our work for NatureServe we saw many other beautiful and unique plant communities. Botanists are describing newly discovered species in the Southeast as you read this. Remnants of formerly expansive special and unique plant communities like Grassy Balds are found on private and public lands throughout the country. These special places and the unique stories that surround their existence are all around us if we know where to look, which is why it is so important to know what we have and care that we have it. You can begin by contacting your local Natural Heritage Program or herbarium to learn more about the natural world that makes where you live so unique and by passing that wonderment on to your own future generations.

—Caitlin Elam C'03

Herbarium to Publish *Fiery Gizzard, Voices from the Wilderness*

A new book about nearby Fiery Gizzard is due for release this fall. Authored by herbarium curator Mary Priestley, *Fiery Gizzard, Voices from the Wilderness* is a series of essays about a section of the South Cumberland State Recreation Area that includes and surrounds the Big Fiery Gizzard Creek, its tributaries, and the waters that it feeds. The essays follow the natural and cultural history of the gorge and the people who have lived there.

The Gizzard is a narrow canyon, hemmed in by sandstone cliffs that were formed more than three hundred million years ago. Ecologically, it is a refugium, a place where northern plants, forced south during the most recent ice age, found a home. These, plus southern plants that have migrated northward into the protected gorge, have resulted in the extensive biodiversity of the Gizzard.

For thousands of years, Woodland Indians hunted and camped here. Then European explorer-botanists came through, followed by settlers who arrived in the eighteenth century to farm. The discovery of coal in the 1850s brought prosperity for some, misery for others. Entrepreneurs built an experimental blast furnace and named it after the creek.

During the Great Depression, a group of Tracy City businessmen purchased 211 acres at the head of Big Fiery Gizzard Creek and donated it to the State of Tennessee for use as a Civilian Conservation Corps camp. That land plus two parcels owned by the Tennessee Valley Authority—Foster Falls and Little Gizzard Creek small wild areas—were the first properties in the Gizzard set aside for conservation and recreation. When the South Cumberland State Recreation Area was established in the 1970s, these lands were included.

Fiery Gizzard is a favorite destination for many who live on or visit the plateau, including Sewanee faculty and students. The hike to Sycamore Falls for a splash in the

swimming hole is an experience shared by hundreds of people who cherish Sewanee and its environs.

— Ed.

A Review

Embedded in the ecological tapestry of the Cumberland Plateau are special, tucked away places that seem lost in time. These are unique spots whose flora reflect an era when massive glaciers extended south from

FIERY GIZZARD VOICES FROM THE WILDERNESS



Mary Patten Priestley

Canada and where northern plant species like striped maple and yellow birch were able to persist long after the glaciers melted away and populations were able to migrate back north. These ecological time capsules take on new meaning today as climate change accelerates and species re-assort themselves once again in unpredictable ways.

The Fiery Gizzard Gorge is one of these special places of the plateau, and Mary

Priestley has done a splendid job serving as its interpreter in her recently completely thesis and soon to be published book: *Fiery Gizzard: Voices from the Wilderness*. In wonderfully accessible writing, Mary conveys not only the deep ecological history of the gorge, but also its fascinating human history, starting with the days of Native Americans and early explorers through to the dark era of coal mining, blast furnaces, and railroads, giving us the meaning behind a “fiery gizzard.” She then carries us forward to the present time of public land acquisition and conservation success.

This is a place that Mary knows well, having lead many a hike into the gorge representing the Sewanee Herbarium or the Friends of South Cumberland State Park. Both are programs that have benefitted greatly by Mary’s generous donation of time and effort over the years. It is not easy to convey a sense of place through one’s writing. How do you communicate the rich smell of a hemlock forest, the sound of a waterfall, the excitement of plant discoveries, the lore of human history, and the many other things that collectively define one’s sense of place? Mary has this gift, and through her narrative and marvelous illustrations, the Gizzard comes alive. After reading this book you are compelled to go find this place and explore it for yourself. I believe that was Mary’s intent in sharing with you her sense of this special place.

— Jon Evans

Fiery Gizzard: Voices from the Wilderness, published by the Sewanee Herbarium, will be available at the University Bookstore and on amazon.com by early November. Proceeds go to support the work of the Sewanee Herbarium.

Check out our blog , sewaneherbarium.wordpress.com, for news of the video about Hail Steinmann’s research and the release of Mary Priestley’s book.

Autumn Calendar of Events

Lake Cheston

Sat., October 11, 1:30 p.m.

Yolande Gottfried

Some of the last wildflowers to bloom are found around our lake shores, such as ladies' tresses and perhaps turtlehead. In any case, fall color should be starting to reflect in the water. Meet at the picnic pavilion for this easy one-hour walk.

Abbo's Alley

Sat., October 18, 7:45 a.m.

Dr. George Ramseur

A Family Weekend tradition! Meet at the corner of University and Georgia Avenues for this one-hour easy walk in the Abbott Cotten Martin Ravine Garden. The Garden is a lovely mix of native and cultivated plants, and the ravine is steeped in Sewanee history. There are a surprising number of things to see and learn on this familiar trail.

Mountain Goat Trail

Sun., Nov. 9, 2 p.m., Yolande Gottfried

The original paved part of the Mountain Goat RR Biking/Walking Trail is a good spot to walk any time of the year. Meet in the parking area where the Gardener's Market is held, just past Hawkins Lane, for this easy 2-hour walk. Mtn Goat Trail Alliance president Janice Thomas and board member Patrick Dean will accompany us.

Nature Journaling

A group coordinated by Mary Priestley meets for nature journaling Thursday mornings 9-11. Come try it out—stick with it if you like. Bring an unlined journal (or a few sheets of unlined paper) and a pen or pencil. No experience needed. In nice weather, the group gathers at Stirling's Coffee House; otherwise, they meet in the Herbarium, Spencer Hall room 171.

All times are CST or CDT.

Wear appropriate shoes on all of these walks. Risks involved in hiking include physical exertion, rough terrain, forces of nature, and other hazards not present in everyday life. Picking flowers and digging plants are prohibited in all of the above-mentioned natural areas.

For more information on these events, call the Herbarium at 931-598-3346. Directions are available at the Herbarium website, <http://lal.sewanee.edu/herbarium>.



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Illustrations, by Mary Priestley, are of some plants of high-elevation grassy balds: green alder, Gray's lily, mountain oat-grass, Schweinitz's groundsel, and three-toothed cinquefoil.



Friends of the Sewanee Herbarium

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.

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Student Botanical Research

Botanists like Caitlin Elam (see her article on page 1) often get the “research bug” as undergraduates. Caitlin, for instance, worked on a floristic study of Bluebell Island for the South Cumberland Land Trust and helped produce the first comprehensive list of plants of the Domain while she was here at Sewanee.

Currently, several students have interesting botanical projects in the works. Hali Steinmann (Ecology & Biodiversity C’15) had a summer internship with the herbarium two years ago, continuing Caitlin’s work toward completion of a flora of the Domain. She has also spent two summers on St. Catherines, a barrier island off the coast of Georgia where Sewanee’s Island Ecology Program takes place. This past summer, she worked with forestry professor Dr. Ken Smith and fellow senior Elise Landreaux to study the ecology of the native redbay (*Persea borbonia*) and

pignut hickory (*Carya glabra*) and to work on the island’s herbarium. Hali and Elise’s work is the subject of a short video by university videographer Stephen Garrett, soon to be posted on the Sewanee webpage.

Callie Oldfield (Biology C’15) and Herbarium Director Dr. Jon Evans just completed a manuscript on a novel farming mutualism involving two invasive species, yellow nut sedge (*Cyperus esculentus*) and wild hogs on St Catherines Island. Back on the Domain, her main research this year is the analysis of Evans’s 18-year chestnut oak population data.

Thomas Walters (Ecology & Biodiversity C’15) is studying the clonal structure and growth response to fire in upland cane (*Arundinaria appalachiana*). He and Evans are interested in the spatial dynamics of these ancient clones on the plateau relative to topography and disturbance. Theirs is the

first ecological study of this newly named species.

Callie and Thomas have promised to write up their work for us, so look for more information about these on-going projects in upcoming issues of *The Sewanee Plant Press*.

—Mary Priestley



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