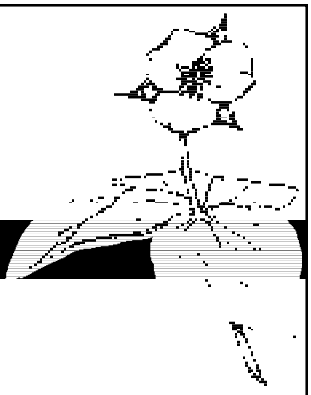
THE PLANT PRESS

Volume IV, No. 2 Newsletter of the Friends of the Herbarium Spring, 2000



The Plateau Forest: No Respect . . .

The oak-hickory forest of the Cumberland Plateau surface is an ecosystem that is misunderstood, undervalued, and currently facing dramatic changes as a result of industrial forestry operations and new housing developments.

The forest that is found on the Plateau provides a dramatic contrast to the forests of the adjacent coves, and it is perhaps this difference that serves as the basis for much of the misunderstanding. More than 75% of the Plateau flora is unique to the Plateau and not found in the coves. Unlike the tall, majestic trees that grow in moist, fertile soils of the coves, the trees on the Plateau are adapted for survival in the nutrient poor, highly acidic, drought prone soils derived from the weathered sandstone that underlies the Plateau surface. These growing conditions result in trees that are much shorter and less robust in stature. I found a pignut hickory on the Plateau that was only 50 cm in diameter but turned out to be over 200 years old! Prior to the advent of fire suppression in this past century, it is believed that the Plateau burned on a fairly regular frequency and as a consequence many of these same species are also well-adapted for fire conditions. Bottom line: survival as a plant on the Plateau is very difficult—ask anyone who has tried to establish a garden there. It is precisely for this reason that the Plateau was never cleared for agriculture like the surrounding Ridge and Valley and Highland Rim provinces so that today the Plateau is still characterized by large, contiguous tracts of its native forest. This forest provides tremendous ecological values including important neotropical songbird breeding habitat, watershed protection for the headwaters of many major Tennessee rivers, and a high mast (acorns and nuts) production that supports a diverse vertebrate community.

Given the tenacious and highly evolved nature of this flora and the ecological importance of the animal habitat it provides, it is amazing to hear this forest maligned so often as a "trash" forest full of "undesirable" species. From a botanical perspective, such a characterization is analogous to calling the arctic tundra a "weed lot." None the less, this line of thinking has provided justification in the minds of some for the removal of the Plateau forest and its replacement with planted pine. Such removal has been greatly facilitated within the past decade by the expansion of chip-mill operations in Tennessee.

This past summer at Sewanee, I brought together a team of researchers to examine the rate of native hardwood conversion to pine plantations on the Cumberland Plateau in Grundy County, TN. This team included Frank Perchalski, a remote sensing expert with Aerial Terrain Sciences out of Chattanooga, and Lynn Barrett, a GIS specialist with TN Wildlife Resources Agency. We were joined by two summer student interns: Sewanee biology major Kyle Warren and Tom Pate, an undergraduate at Trinity University. We used an annual aerial photographic archive produced by the USDA to create a year-by-year record of all changes in land-cover for the time period 1981-1998. Our results directly contradicted what the government was reporting for this region. Plot-based forest inventory data from the U.S. Forest Service for 1998 indicated that there were 0 acres of pine plantations in Grundy County, and state forestry officials had indicated that there had been no net loss of hardwoods in the region.

Yet, during the 18-year period studied, we found there was a 516% increase (13144 acres) in forest area cleared for pine plantations within the county and by comparison only an 8% increase in forest area cleared for agricultural and residential use (1161 acres). This overall forest conversion resulted in a 12% net loss of privately owned, native hardwood habitat. The greatest rate of hardwood conversion to pine has occurred within the last four years and appears to be representative for the region. Given this accelerated rate of forest loss, we can now predict that the once contiguous native forest cover of the Plateau will likely either be eliminated or heavily fragmented by the early part of the 21st century. Over 95% of this land-base is in private ownership, and there is currently no regulatory control of this forest removal activity. It is, therefore, only the marketplace that presently holds the key to the future viability of this ecosystem.

—Jon Evans

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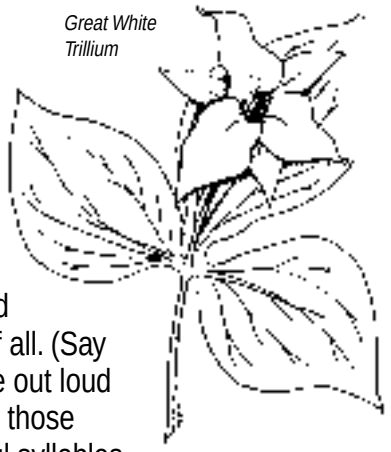
New Contributing Members

John Cappelman
Edward W. Chester
Tom and Becky Dolan
Al and Christine Good
Jane Janeway
James Stevenson
Marleen Allen Varner

Dr. Chester sent us a wonderful "in kind" contribution: six copies of his new book, *Wildflowers of the Land Between the Lakes*, second edition. Thanks to all of our contributing members, new and renewed! We depend on you.

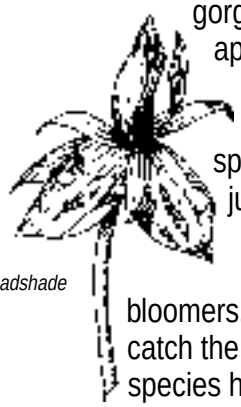
Sewanee's Trilliums


Great White Trillium

Name that Plant:

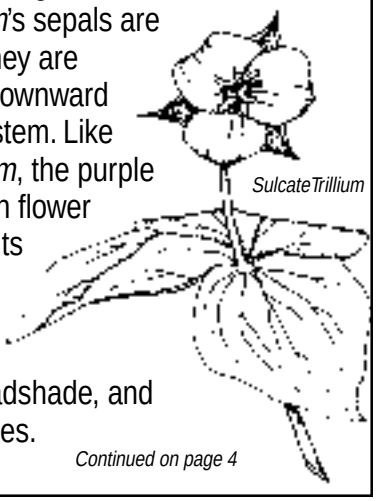
- It's one of the showiest of spring wildflowers. Thousands of admirers hit the trails each spring to get an eyefull of its splendid blooms.
- Taxonomy students love it for its unerring pattern of threes: three petals surrounding three pollen-receiving stigmas and two-times-three pollen-producing stamens. Three sepals are positioned below the petals and above the three leaves.
- Its colorful common names include: stinking Benjamin, toadshade, whip-poor-will flower, bloody butcher, wake-robin, sweet Beth, sweet Betsy, and bloody noses.

Of course, you already know this is trillium, the woodland plant whose gorgeous blooms appear well into spring. If you mistake early spring warmth for just another winter thaw and miss the earliest bloomers, you can still catch the trilliums. Three species have been found on the University Domain: *Trillium cuneatum* Raf., *T. grandiflorum* (Michx.) Salisb., and *T. sulcatum* Patrick. Other species that inhabit this part of the Cumberland Plateau include *T. catesbaei* Ell., *T. pusillum* Michx., and *T. recurvatum* Beck. Now, which is which?


Toadshade

Actually, these six species are fairly easy to distinguish. *Trillium cuneatum*, our most common trillium, is the easiest. It has a variably-colored (purple to green or yellowish) sessile flower, one that rests directly on the mottled leaves. And what a collection of common names it has: toadshade, bloody butcher, and sweet Besty. *Trillium grandiflorum* is the biggest and possibly the best known and loved trillium of all. (Say the name out loud and hear those wonderful syllables roll off your tongue!) These large, white blooms turn to dark pink as they age, making a hillside covered with a population of mixed-aged flowers a sight to behold. Common names include large-flowered trillium, great white trillium, and white wake-robin. *Trillium sulcatum* (sulcate trillium, Barksdale trillium) has dark, velvety red-maroon flowers and purple to green sepals. The sepals have up-turned edges, making them appear boat-shaped (sulcate), hence the name.

Trillium catesbaei, Catesby's trillium, is named for Mark Catesby, an Englishman who botanized in the American colonies in the 18th century. It is our only local trillium whose stalked flower "nods" below the leaves. Rare *Trillium pusillum* (dwarf trillium, least trillium) is a small plant that grows in scattered populations throughout the Southeast, each population somewhat different from the rest. The white petals, which turn pink with age, have strongly undulating edges. *Trillium recurvatum*'s sepals are just that: they are recurved downward along the stem. Like *T. cuneatum*, the purple to yellowish flower is sessile. Its common names are prairie trillium, toadshade, and bloody noses.


Sulcate Trillium

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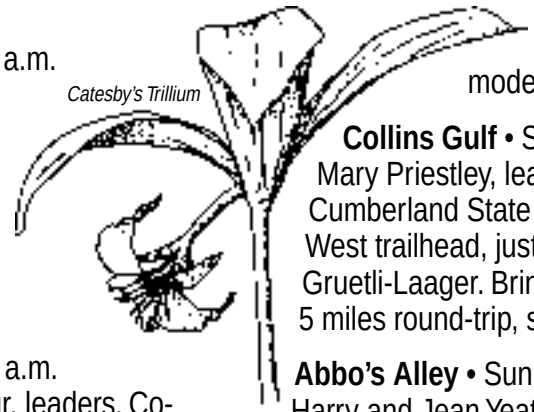
Spring Wildflower Walks

Bluebell Island • Sat., March 25, 10 a.m.
Co-sponsored with South Cumberland Regional Land Trust. Expect to see bluebells, trout lilies, and possibly the elusive dwarf trillium. Meet at Tyson Food Co. on Hwy. 50.

Abbo's Alley • Sat., April 1, 10 a.m.
George Ramseur, leader. Meet at the South Carolina Avenue entrance to the Abbott Cotten Martin Ravine Gardens for an easy stroll to see both native and cultivated plants in bloom.

Little Fiery Gizzard • Sun., April 2, 10 a.m.
Park ranger Tim Wheatley and Mary Priestley, leaders. Co-sponsored with South Cumberland State Recreation Area. Discover hidden trails, shelf caves, spring wildflowers, and much more on this hike. Meet at the Foster Falls parking area. 1 mile, easy.


Catesby's Trillium

Shakerag Hollow* • Sat., April 8, 9:15 a.m.
Yolande Gottfried and George Ramseur, leaders. Co-sponsored with the Tennessee Aquarium. Meet at the Green's View parking lot. Shakerag is Sewanee's "Mecca" for spring wildflower enthusiasts. 2 miles, moderate.

Shakerag Hollow* • Sun., April 9, 12:15 p.m.
Jon Evans and Mary Priestley, leaders. Co-sponsored with the Tennessee Aquarium. Meet at the Green's View parking lot. 2 miles, moderate.

Collins Gulf • Sat., April 15, 10 a.m.
Yolande Gottfried, leader. Co-sponsored with South Cumberland State Recreation Area. Meet at the Collins West trailhead, just beyond the Swiss Memorial School in Gruetli-Laager. Bring a sack lunch and extra water.
5 miles round-trip, strenuous.

Shakerag Hollow • Sun., April 16, 1:30 p.m.
Jon Evans, leader. Meet at the Green's View parking lot. The array of wildflowers in Shakerag changes weekly in the spring. 2 miles, moderate.

Collins Gulf • Sat., April 22, 10 a.m.
Mary Priestley, leader. Co-sponsored with South Cumberland State Recreation Area. Meet at the Collins West trailhead, just beyond the Swiss Memorial School in Gruetli-Laager. Bring a sack lunch and extra water.
5 miles round-trip, strenuous.

Abbo's Alley • Sun., April 30, 10 a.m.
Harry and Jean Yeatman, leaders. Meet at the South Carolina Avenue entrance to the Abbott Cotten Martin Ravine Gardens for an easy stroll to see both native and cultivated plants in bloom.

*There is a small ($6) charge for this event, part of the Chattanooga Spring Wildflower Celebration. Make reservations by telephoning the Tennessee Aquarium, (423) 267-FISH.

For information about these and other hikes, telephone:
Sewanee Herbarium—Mary Priestley (931) 598-1324 • South Cumberland State Recreation Area—(931) 924-2956
Tennessee Aquarium—(423) 267-FISH

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: _____

Address: _____

City, State, Zip: _____

Amount Enclosed: ❑ $10.00 ❑ Other: $ _____

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

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Sewanee, TN 37383

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

_____

Continued from page 2

Trillium's underground stem, called a rhizome, is clasped by its scale-like leaves. The above-ground "leaves" are actually bracts. The plant requires a real winter—an extended period of low temperatures—before it will send up its single flowering stalk in the spring. This may explain why trilliums were not tricked into blooming by the unseasonably mild weather this past fall, as were some hepatica, bloodroot, and violets.

We appreciate this plant all the more when we realize that it takes a trillium seed 2 years to produce a leaf, and even then the plant won't bloom for 6 more years. If the shoot is picked by us or eaten by grazing animals, it will not be replaced that year. Too much picking or grazing, and the plant will die of starvation, unable to replenish needed products of photosynthesis.

So, let's not pick the trilliums. Instead, plan to join the herbarium staff for a wildflower walk this spring to enjoy these spectacular plants in their natural habitat.

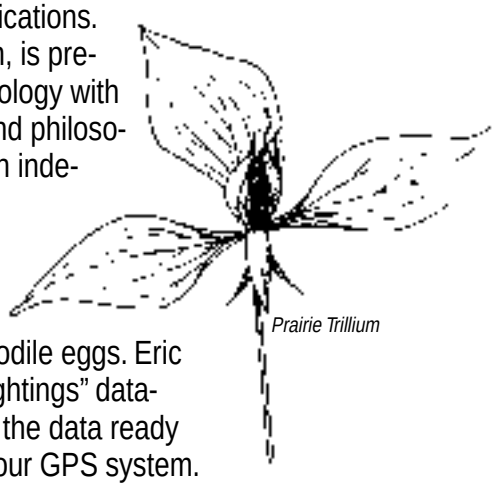
—Mary Priestley

Reference: *Trilliums*, by Frederick and Roberta Case, Timber Press, Portland, 1997.

Meet our Student Workers

We are pleased to introduce two students who are working in the herbarium this year: Wes Bradley and Eric Davila. Wes, a freshman from Bruton, Alabama, plays football and runs track. He plans to major in Political Science and then go on to law school. In addition to running the greenhouse, he keeps the plant collection organized and helps with publications.

Eric, a Californian, is pre-med, majoring in biology with minors in theatre and philosophy. He his doing an independent research project with Prof. Karen McGlothlin, studying the effect of pollution on crocodile eggs. Eric has tackled our "Sightings" database and is getting the data ready for interfacing with our GPS system.



Prairie Trillium

We are lucky to have both of these young men on our team.

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Dwarf Trillim