

Sewanee's Rare Plants – Who, What, and Where?

This year we mark the 25th anniversary of Governor Lamar Alexander's signing into law the Tennessee Rare Plant Protection and Conservation Act, which directs the Department of Environment and Conservation (TDEC)'s Division of Resource Management to monitor and maintain plant species that are rare in the state. The law specifically does not infringe upon private landowners' rights, and since most rare plant populations in Tennessee are found on private property, taking care of these populations can be quite a challenge.

The Division keeps a list of the state's rare plants. The current list, adopted in 2008, includes 545 plant species in three categories: endangered, threatened, and of special concern. That first group – the endangered plants – are the most imperiled. They face extinction in Tennessee unless they are protected. Threatened plants are those that could become endangered throughout all or a significant portion of their range in the state. Inclusion of a plant in one of these two groups requires legislation. The third group – plants of special concern – are monitored for various reasons. Some may in the future be nominated for threatened or endangered status.

A 12-member Rare Plant Scientific Advisory Council meets every three years to review the list and suggest revisions. That group, of which I am a member, met this past December, along with several other botanists from across the state who keep up with rare plants in their regions. We spent a day discussing the status of possibly two hundred plant species, adding some to the list, elevating or lowering the status of others, and removing those species that have not been seen here in decades or are doing so well that they no longer require

protection. The revised list will go through a formal review process by the commissioners of TDEC and the Department of Agriculture, after which it will be sent to the legislature.

Three years ago, we were pleased to have discovered ten rare species on the Domain, but that was before we had begun to survey Lost Cove. Now, with 13,000 acres to comb and more than 1000 plant species identified, it is probably no wonder that we have located 22 rare plant species to date. That number would have been 24, but two of our newly discovered species, Eggert's sunflower (*Helianthus eggertii* Small) and eared goldenrod (*Solidago auriculata* Shuttlw. ex Blake) were formerly listed but have since been found in such abundance that they are no longer considered rare.

What are these plants, where did we find them, and what is it that makes them "rare"?

Not surprisingly, many of our rare plants inhabit rich woods and hollows. American ginseng (*Panax quinquefolius* L.), Canada lily (*Lilium canadense* L.), and the American chestnut tree (*Castanea dentata* (Marsh.) Borkh.) fall into that group. Plants that succeed in rocky limestone woods,

including Cumberland rosinweed (*Silphium brachiatum* Gattinger) and Morefield's leatherflower (*Clematis morefieldii* Kral), form another important category for us.

Moderately disturbed areas on limestone bedrock, such as TVA powerline rights-of-way (if they have not been treated with herbicide), are good habitats for prairie and barrens plants like cylindrical blazing star (*Liatris cylindracea* Michx.), Southern prairie-dock (*Silphium pinnatifidum* Ell.), and barrens silky aster (*Symphotrichum pratense* (Raf.) Nesom). And then we have some tough little plants that live atop or in crevices in sandstone outcrops and cliffsides: filmy fern (*Trichomanes boschianum* Sturm), elf orpine (*Diamorpha smallii* Britt. ex Small), and roundleaf fameflower (*Phemeranthus teretifolius* (Pursh) Raf.).

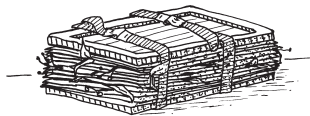
Some of these plants are rare because of human influences. Inadvertently we practically wiped out the American chestnut tree early in the last century because of the accidental importation of a fungus on Chinese chestnut trees. Lacking immunity to the pathogen, this once-dominant tree is now reduced to occasional sprouts and scarce fruiting specimens throughout the forest. Ginseng, also formerly common, has been over-harvested for sale (mainly to Asian markets), and remaining populations must be protected if the species is to survive here.

Other plants are just naturally rare. They fall into two categories: those for whom the state is near the edge of their ranges and those that exist in rare habitats. Mountain honeysuckle (*Lonicera dioica* L.) is common throughout the Midwest and Northeast but has been found in only a few scattered counties in Tennessee. On the other hand,



(cont'd on p. 2)

Alfire, Making Her Mark at Sewanee



Alfire Sidik, who completed in December, 2009, her semester as a Post Baccalaureate Fellow of the Sewanee Environmental Institute, has had a longer association with the herbarium than any other student to date. Beginning as a work-study student her freshman year and spending several summers as an intern, she has by a rough calculation spent around 2,000 hours in herbarium-related work. From mounting specimens to database management, everything in the herbarium has felt her touch.

Alfire came to Sewanee, joining her sister Almire (C'07), in the fall of 2005 as a pre-med student. She was assigned to the biology department as a work-study employee supervised by Dr. Jon Evans and her careful and dependable work soon led to her spending many hours mounting specimens and occasionally collecting in the field with the curators. When the decision was made to convert the database of specimen information from Filemaker Pro to Microsoft Access, Alfire came into her own as a database manager. Working by phone and e-mail, even IMing (exciting at the time), with Nick Hollingshead, she assisted in converting and redesigning the herbarium collection database, cleaning up countless problems and inconsistencies in the process. This work continued through the summer of 2006, when Alfire was named a Yeatman Biology Research Intern, with occasional breaks for fieldwork and the ongoing project of mounting specimens from the UNC permanent loan collection.

By her sophomore year, Alfire was a full member of the Landscape Analysis Lab/Herbarium community that spent much time in the basement of Woods Labs. She also joined the Natural History Society, and on a fall break trip with them to the Joyce Kilmer Memorial Forest, was pleased to be able to use the knowledge of plant identification that she had gained through her work in the herbarium and her Plant Systematics class. Another highlight of that semester was a trip to DC with that class to lobby a logging

bill. In spring 2007, she attended the Spring Wildflower Pilgrimage in the Smokies. In fact, she enjoyed it all so much that she spent a second summer as a Yeatman Biology Research Intern, processing specimens and entering ecological information in the database.

In her junior year, Alfire made a major contribution to the Landscape Analysis Lab/Herbarium community and the larger college community as cofounder and coordinator of the Woods Tea Society, whose goal is to organize interdepartmental gatherings to discuss university affairs, student research, and contemporary news (and drink tea!). The following summer, 2008, Alfire decided to spend her time someplace besides Sewanee and travelled with her family to her birthplace, the Xinjiang Uighur Autonomous Region in China. They visited the capital Urumqi, her mother's hometown, and Kashgar, where her father's family lives, perhaps familiar to some as the place where "The Kiterunner" was filmed. But she still managed to squeeze in some time as a summer intern with the Landscape Analysis Lab, assisting in developing the Sewanee Forest History geospatial database.

Even after she graduated in May, 2009, *magna cum laude*, with a bachelor of Science in Biology, Alfire continued working at Sewanee, this time as an Environmental Studies Intern. As such, she assisted herbarium staff with a plant taxonomy course during the first season of the Sewanee Environmental Institute pre-college program. The bulk of her time, though, in her last two years at Sewanee, in summer 2009, and in fall 2009 when she worked as a Post Baccalaureate Fellow in the Sewanee Environmental Institute, was geared toward the production of a Flora of the Domain. This was the motivation for all the database work, nomenclature revision, and specimen processing. Twice, when the end was in sight, the goalposts were moved, once when the University acquired the 3,000 acres in Lost Cove, which necessitated more collecting, and again when *A Fifth Checklist of Tennes-*

see Vascular Plants was released. Alfire first put the checklist, a Word document, into tabular format and then changed the nomenclature of the Domain flora to reflect that of the checklist – a massive task. She then carried out other database tasks and floristic analyses, leaving the herbarium on the brink of being able to publish the flora of the Domain.

Now Alfire has passed the baton of the Woods Tea Society to another student leader and has left the herbarium without a talented and dependable assistant. She is taking some time to clarify her direction for the future, which will probably include graduate studies, possibly in medicine. We know that wherever she goes next, Alfire will surely make her mark!

— Yolande Gottfried

Sewanee's Rare Plants, cont'd from p. 1

filmy fern is restricted to sheltered grottoes in sandstone and other acidic rocks, so deep in the rock that it is never touched by direct sunlight. Because of its extreme habitat requirement, this plant is considered threatened or endangered throughout its range.

It is quite a responsibility to be sharing the Domain with these plant species whose existence is in jeopardy. As we go forward in planning for Sewanee's future, we must take them into account when making land use decisions. If we do our job as stewards, our rare plant populations may actually thrive among us.

The internet is a great place to go for wintertime botanizing. For more information about rare plants in Tennessee, see TDEC's Division of Resource Management website at <http://www.tn.gov/environment/na/>. To learn more about any North American plant, including its natural range, see the US Department of Agriculture's plant database at <http://plants.usda.gov/>. And finally, for photos and county range maps of all native and naturalized plants found in Tennessee, go to the University of Tennessee Herbarium's webpage at <http://tenn.bio.utk.edu/>.

— Mary Priestley

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June 27 - July 10, 2010

A summer outdoor residential program for talented rising high school juniors and seniors who are passionate about the outdoors and interested in advancing their knowledge and skills in the study of the environment.

<http://sei.sewanee.edu/programs/precollege>

Winter Calendar of Events

Mega-Mountathon – Sewanee Herbarium, Sat., Feb. 6, 9:30-11:30 a.m., Mary Priestley

Come in out of the cold, and help us mount our backlog of specimens collected by such giants of Southeastern botany as Albert Radford and C. Ritchie Bell. Learn methods that have been passed down through generations and are still used today, and take home a guide to mounting pressed plants. Meet in the herbarium on the first floor of Spencer Hall. The main entrance is across from DuPont Library and there is parking behind the library.

Hunt for the First Hepatica – Shakerag Hollow, Sat., Feb. 13, 1:30 p.m.,

Yolande Gottfried

Celebrate the day before St. Valentine's Day, which is also Old Groundhog Day, with a walk to see what might be out early in Shakerag. If flowers are scarce on the ground, we'll look at mosses, liverworts, lichens, clubmosses, and even some ferns, which are not fazed by winter weather. Meet at the Shakerag Hollow trailhead near the University Gates for this 1-hour moderate walk. Come prepared for muddy, wet, and/or rocky conditions.

Multiflora Rose Raze – Collins Gulf, South Cumberland State Recreation Area,

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

Help observe Tennessee Invasive Weed Awareness Week, Feb. 22-28, by joining the Friends of South Cumberland, the Tennessee Native Plant Society, and the Tennessee Trails Association in a workday to remove an exotic pest plant from a section of Collins Gulf. Meet at the Collins West trailhead of Savage Gulf State Natural Area, armed with gloves and clippers. It's about a 2-mile hike down to the site, and the same distance back, making this a somewhat strenuous outing. Bring lunch and water. Phone the park visitors' center (931-924-2956) for directions.

Early Spring Wildflowers – Shakerag Hollow, Sat., March 20, 1:30 p.m.,

George Ramseur

It's the first day of spring and time to head out to Shakerag Hollow. If you don't get out about now you might miss the beginning of the big show in Shakerag – bloodroot, trout lily, Dutchman's-breeches, and spring beauties bloom early and fade fast. Meet at Green's View for this moderate-to-strenuous 2-mile walk that may include a steep rocky section of trail.

"Watershed: Prime Elements," paintings by Janis Wilkey of scenes from herbarium walks at South Cumberland State Recreation Area, showing at Chattanooga's In Town Gallery for the month of February. See www.intowngallery.com.

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 or other Sewanee Herbarium events, please contact Yolande Gottfried at the Herbarium (931.598.3346) or by email at ygottfri@sewanee.edu. For directions go to the herbarium website, lal.sewanee.edu/herbarium/.

THE SEWANEE PLANT PRESS

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*Drawings by Mary Priestley are of
cumberland rosinweed and
some tools for botanizing.*

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.

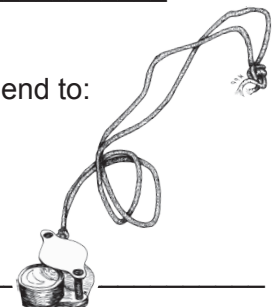
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Interesting Historical Books

The Herbarium has recently received gifts of some historically interesting books.

John Szeglin graciously donated an eight volume set authored by Luther Burbank and published by P.F. Collier & Son Company in 1921. One unique feature of this set is the use of autochrome photography in the color illustrations, one of the earliest of their kind, which makes them of artistic and historical as well as botanical interest. The volumes are titled *How Plants Are Trained to Work for Man* and cover Burbank's life's work in Plant Breeding, Grafting and Budding, Fruit Improvement, Small Fruits, Gardening, Useful Plants, Flowers, and Trees. Also included are biographical material by his sister, Emma Burbank Beason; an autobiography in which he reflects on his own genetic heritage and the environment in which he developed; and some intriguing reflections on "The Bearing of this Work on Human Life: On Improving the Human Plant."

Burbank's work was done in the context of working out the implications of Darwin's theory of evolution, and he states: "However vaguely the laws or principles of heredity involved might be understood; however far

from understanding the precise method of production of the new forms the general public might be, the tangible fact that widely divergent forms of plant life might spring from the same source-witness, for example, the brier stems of strikingly different forms of (sic) cluster of utterly different leaves grown from the seed of one plant-was made clear beyond misunderstanding. And this constituted, in the minds of many laymen, a clearer and more cogent argument for the truth of the doctrine of evolution than could have been found in any amount of theorizing or in the presentation of any number of illustrations drawn from the records of fossil forms or the theoretical reconstruction of the genealogies of species of past eras." (Vol. VIII, p. 322)

Ross Clark donated several old (and well-used) volumes on the occasion of the herbarium's Jubilee celebration. Two are by Asa Gray, whose *Manual of the Botany of the Northeastern United States* (1848) in its numerous later editions was a standard reference for plant identification for many years. The two books are *Gray's Lessons in Botany and Vegetable Physiology* (1857) and *The Elements of Botany for Beginners*

and for Schools (1887). The first was meant, as Gray writes, "to serve as an introduction to the Author's *Manual*...and to be to it what a grammar and dictionary are to a classical author." The second is a revision of the first and is bound with the second edition of the *Manual* (1889).

Also donated were, *An Introduction to the Natural System of Botany* (1831) by John Lindley (Professor of Botany in the University of London), *Botany: An Elementary Text for Schools* (1900) by L. H. Bailey, and *Plant Materials of Decorative Gardening* (1917) by William Trelease, (self-published) – a key to trees, shrubs, and woody vines of the garden. The Lindley book is the first American edition and includes an "advertisement" by John Torrey, M.D., in which he promotes the book for its use of "the natural or philosophical method" in place of "the artificial or sexual system of Linnaeus" and a dedication by the author to the Court of Examiners of the Society of Apothecaries, London, illustrating the importance of botany to medicine.

We are most appreciative of these gifts. Come by and have a look!

— Yolande Gottfried

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