



## Grasses and Others of that ilk

*"I would like to know grasses and sedges—and care. Then my least journey into the world would be a field trip, a series of happy recognitions."—Annie Dillard*

*"Practice every time you get a chance."—Bill Monroe of the Bluegrass Boys*

We lump them together as "graminoids"—all the grass-like plants, which usually include grasses, sedges, and rushes. Only a few of the showiest ever appear in wildflower books, a more-or-less token nod toward these exquisite members of our flora.

Identifying grasses and their relatives is no laughing matter: often you must use a microscope in dissecting the inflorescences (flower arrangements on a plant). The tiny flowers may be nestled among bracts and tufts of hair of various textures and configurations, each one tagged with some esoteric terminology. Time and again, the minuscule focus of your attention will skitter out of view, and you have to start all over with a fresh one. We joke that grass identification is gloomy business, a play on the word "glume," the name for part of a grass inflorescence. No wonder Annie Dillard steered clear!

Actually, discriminating between the major groups of graminoids is fun—perhaps as enjoyable as teasing the harmonies out of good bluegrass music. Botany students learn that "rushes are round, sedges have edges, and grasses have joints," and that is a pretty good generalization. Run your fingers up the stem of a graminoid—rush stems are usually round, often solid; most sedges have triangular stems; and grasses

have round, hollow stems with swollen solid nodes (think bamboo).

It is a good idea to invest in an inexpensive hand lens if you want to explore the world of graminoid inflorescences. With a lens, you can see the array of appendages and surface patterns on the seeds of rushes. You can study grasses' dangly stamens and feathery pistils,

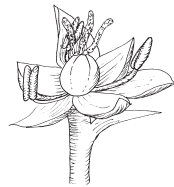
scaly "spikelets," and each flower produces only one relatively large seed, called a nutlet. When you crush the mature seed heads between your fingers, the difference between rushes and sedges is evident—you expose lots of tiny rush seeds or a small number of larger, hard sedge nutlets.

Grass inflorescences are called spikelets, too, and they are loaded with specialized bracts: glumes, lemmas, and paleas. Each flower produces a single-seeded fruit, usually a grain. Some grass grains are quite familiar, including corn, oats, wheat, barley, rye, and rice.

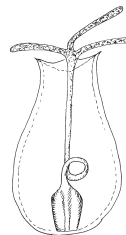
Rushes and sedges are usually limited to moist habitats (think Moses in the bulrushes), whereas grasses can be found in almost all water regimes. Altogether, graminoids are the mainstays of plant communities that are among our richest and most interesting.

This summer, as the Herbarium staff works to complete the plant inventory of the Domain, we will be scouring wetlands and grasslands in search of our graminoids. And maybe you can join us later this summer (see our summer calendar) to explore the meadows at the South Cumberland State Park Visitors' Center and learn more about these plants.

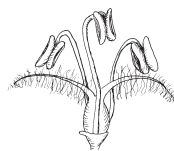
—Mary Priestley  
Herbarium Curator



Rush Flower



Carex Perigynium



Grass Flower

both adapted for wind dispersal of their pollen. And you can see perigynia, the diminutive bags that enclose the nutlets of *Carex*, a common type of sedge. Perigynia can float, facilitating seed dispersal in their watery world.

Rush flowers resemble miniature lilies; the fruit is a capsule that contains numerous small seeds. The flowers of sedges are grouped in

## Nepal Grass News



**N**epal Grass (*Microstegium vimineum*) is an exotic shade-tolerant grass that has proliferated in natural and disturbed habitats throughout the southeastern United States. It potentially outcompetes native species through its apparent role as an invasive generalist, quickly establishing a monoculture and crowding out other plants. Some studies indicate that this grass changes soil chemistry and decreases plant diversity.

On the Sewanee Domain, Nepal Grass is found in backyard gardens, cleared areas, hiking trails, and even in undisturbed old-growth forests, such as Dick Cove. Because the native oak and hickory species that dominate upland forests on the Plateau are so well adapted to their acidic drought-prone environment, Ecology and Biodiversity major, Meagan Binkley (C'05) wanted to determine if Nepal Grass invasion could change the chemistry and micro-invertebrate ecology of these soils.

With help from Kara Allen (C'05), a Natural Resources major, we hypothesized that dense Nepal Grass invasion would raise soil pH and nitrogen concentrations and decrease micro-invertebrate abundance and diversity in the litter layer. On four sites of varying levels of

disturbance and Nepal Grass density, we compared soil chemistry and litter microinvertebrate populations. We found that Nepal Grass does alter the relative abundance of some orders of litter invertebrates. Soil samples taken from areas where Nepal Grass density was heavy had greater nitrogen levels, although pH was not statistically higher, perhaps because of inherent soil variability among sites that might mask such an effect.

To remove this possibility, Meagan and I designed a more controlled greenhouse experiment in which we compare the chemistry of native "homogenized" soil grown with and without Nepal grass. Meagan graduated this May, but the experiment was passed on to Natural Resources major, Natasha Cowie, who will monitor soil chemistry throughout a complete Nepal Grass lifecycle that includes germination from seed, growth and flowering, and death and decomposition. Results from this comparison should provide us with conclusive results on whether or not this invasive grass can change the chemistry of local forest soils.

—Deborah McGrath  
Assistant Professor of Biology

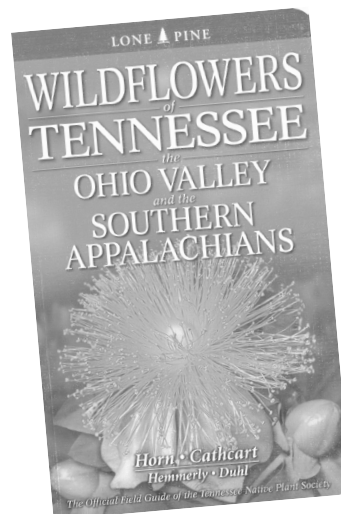
## Tennessee's Field Guide

**E**very state needs its own comprehensive wildflower field guide. Using Peterson's guide or Newcomb's can be frustrating for Tennessee wildflower enthusiasts because of the northeastern emphasis of these books.

Well, the wait in this state is over.

*Wildflowers of Tennessee, the Ohio Valley, and the Southern Appalachians*, edited by Dennis Horn and Tavia Cathcart, has just been published by Lone Pine Press, and it is a fabulous resource for professional and amateur botanists alike.

The guide covers 1250 species in 90 families with more than 800 of these represented by beautiful color photographs. Species are organized by family but there is a helpful color key at the front of the book that allows novice



users to find flowers based on bloom color and shape. Each species has a detailed description including diagnostic traits and information on habitats and distribution, as well as interesting ethnobotanical information.

*Wildflowers of Tennessee* was produced as the official field guide of the Tennessee Native Plant Society, and our very own Mary Priestley was instrumental in all aspects of its publication, including the writing of portions of the introduction and many of the plant descriptions. The Herbarium has proudly ordered several copies for Sewanee students to use next fall. Nice work, Mary!

—Jon Evans  
Herbarium Director and  
Associate Professor of Biology

# Summer Calendar of Events

## Botany 101

Wed., June 22, 4 PM, Yolande Gottfried

Take a stroll through Abbo's Alley and learn (or review!) the basics of botany through the plants we encounter. The differences between gymnosperms and angiosperms, vascular and non-vascular, and evergreen and deciduous plants; the value of scientific names and how to know them; and even some principles of identification and classification—all will be revealed! Meet at the entrance to Abbo's Alley just past the Fowler Center on Texas Avenue for this short and easy walk.

## Favorite Campus Trees

Wed., July 6, 4 PM, George Ramseur

Join retired botany professor Dr. Ramseur for an easy stroll around the Sewanee campus and visit some outstanding specimens, including the famous "Moon Tree," to learn more about the lives of these fellow citizens of Sewanee. Meet in front of All Saints' Chapel.

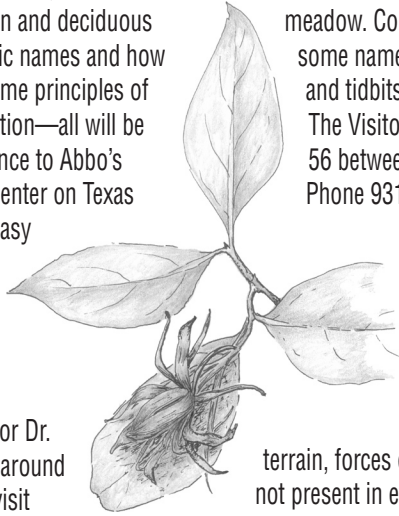
## Late Summer Wildflowers

Sat., August 27, 8:30 AM, Mary Priestley

The Meadow Trail at the Visitors' Center at South Cumberland State Park is unique. It winds through a former golf course that has been converted to a flower-studded grassy meadow. Come see what's blooming; learn some names, ecological information, and tidbits of lore about these plants. The Visitors' Center is located on Hwy 56 between Monteagle and Tracy City. Phone 931.924.2980.

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.



## THE PLANT PRESS

The Sewanee Herbarium  
Dr. Jon Evans, Director  
Biology Department  
Sewanee: The University of the South  
735 University Avenue  
Sewanee, TN 37383

## WEB SITE

<http://www.sewanee.edu/biology/herbarium>

## EDITOR

Mary Priestley  
marypriestley@bellsouth.net

## CONTRIBUTORS

Jon Evans  
jevans@sewanee.edu

David Haskell  
dhaskell@sewanee.edu

Deborah McGrath  
dmcgrath@sewanee.edu

## CALENDAR

Yolande Gottfried

## COMPOSITOR

Tammy Scissom

*Drawings, by Mary Priestley, are of soft rush, timothy grass, Nepal grass, sweetshrub, and mountain laurel.*

Our mailing list has become unwieldy again! This summer we may have to do a little whittling on it. If you have not made a contribution to the Herbarium but would like to continue receiving this newsletter, please let us know. —Ed.

## 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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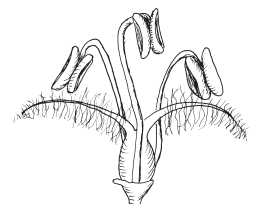
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Amount Enclosed:  \$10.00  Other: \$ \_\_\_\_\_

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

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Others who might like to receive *The Sewanee Plant Press*: \_\_\_\_\_



## Our Summer Interns

**W**e have four students working in the Landscape Analysis Lab and Herbarium this summer:

**Leighton Reid**, a rising Senior and Ecology & Biodiversity Major, has a Yeatman Summer Internship. He will be re-inventorying and mapping trees in each of three 1-hectare plots in Franklin State Forest previously inventoried by George Ramseur in 1978 as part of a large TVA study. The Herbarium staff inventoried these same plots in 1997. Leighton will be analyzing the 27-year trends in forest data for his Honors thesis this coming year as part of his Ecology

and Biodiversity Major. He is particularly interested in oak regeneration failure and the spread of red maple. Leighton will also be assisting the Herbarium staff in their quest to complete the Flora of the Domain.

**Valerie Moye**, a rising Junior and Ecology & Biodiversity Major, has a Greene Summer Internship. She will be using the extensive LAL GIS data to develop a habitat suitability model for Eastern Mountain Lions on the southern Cumberland Plateau. She will be addressing the question: If mountain lions currently exist on the Plateau, is there enough suitable habitat to maintain a sustainable population? This is part of a larger initiative just getting underway in the LAL called the Sewanee Mountain Lion Project. This will involve a number of student projects over the next couple of years.

**Brett Scheffers**, Ecology & Biodiversity Major who just graduated, has an Environmental

Studies Summer Internship. He will be working to publish his Honors thesis in which he mapped and documented the fate of ephemeral ponds on the southern Cumberland Plateau (see article in the Autumn '04 issue of *The Sewanee Plant Press*).

**Bert Harris**, a rising Senior and Ecology & Biodiversity Major, has a Yeatman Summer Internship. He is working with David Haskell to publish a study of bird survey techniques. Bert is using GIS to quantify the biases associated with the nationwide Breeding Bird Survey. He is also working with Brett Scheffers to publish a study on the ecology of birds at ephemeral ponds on the Cumberland Plateau.

—contributed by Associate Professors  
of Biology Jon Evans and David Haskell

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**SEWANEE**  
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Herbarium, Biology Department  
735 University Avenue  
Sewanee, TN 37383-1000

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