

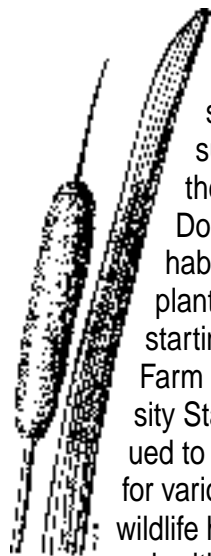
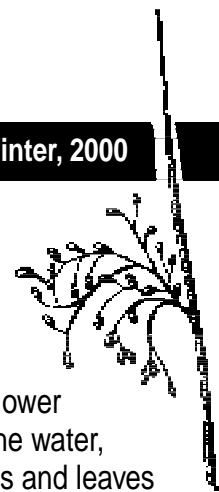
THE PLANT PRESS

Volume IV, No. 1

Newsletter of the Friends of the Herbarium

Winter, 2000

Plants of Sewanee's Lakes



The lakes and ponds of Sewanee serve as a water supply but also add to the diversity of the Domain by providing a habitat for water-loving plants. All are man-made, starting in 1953 with the Farm Pond near the University Stables. Lakes continued to be added until 1968 for various uses, including wildlife habitat and fire fighting and, with Lakes O'Donnell and Jackson, the community's water supply.

Lakes and ponds are temporary phenomena, because filling in, no matter how slow, is inevitable. The accumulation of organic matter and decrease in water depth define more or less concentric vegetation zones from the center to the edge of the water. These plant zones are the **submersed**, the **floating-leaved rooted aquatic**, and, closest to the shore, the **emergent**. Ponds are so shallow that rooted vegetation can grow over most of the bottom; lakes are deeper.

The carnivorous Bladderworts, *Utricularia* spp., are perhaps the most fascinating **submersed** aquatics. The finely-divided leaves go limp when taken out of the water, but the small roundish bladders can still be seen. These bladders are a marvel, with a "trapdoor" triggered by sensitive hairs.

When a protozoan or small crustacean sets one off, it opens and shuts in about 0.002 seconds, suddenly inflating with water that carries the creature inside. When digestion is complete and the nutrient-filled water is extracted into the stem, a partial vacuum is created that restores the bladder to a deflated, concave shape. The occurrence of Bladderworts in Lake Cheston and other lakes is a good sign that protozoans, rotifers, and small crustaceans are abundant.

One of the **floating-leaved, rooted aquatics** is Broadleaf Water-plantain, *Alisma subcordatum* (drawing page 4). Its growth form varies with the habitat. In shallow water, some leaves are broad and floating, while others are lax and ribbon-like. When growing at the shoreline, leaves are erect and more



Bladderwort

heart-shaped around an attractive, many-branched flower stalk. This is usually in bloom around the Fourth of July at Lake Cheston.

Emergent plants have their roots and lower stems immersed in the water, while the upper stems and leaves stand above the water. Their variety and distribution vary with water depth and fluctuation of the water level. Cattails, the most familiar, do better in deeper water. Called "the supermarket of the swamps" by Euell Gibbons, some part of the plant is edible in every season. A researcher found that one seed of the Broad-leaved Cattail, *Typha latifolia*, produced in a single season a rhizome system 10 feet in diameter that sent up 100 clonal shoots.

Sedges and rushes are emergent plants that do better in shallow water and saturated soils. Sedges usually have three-sided stems and flower spikes with the male and female flowers separate. The stems of rushes are round and smooth and the flowers are three-parted. The Soft Rush, *Juncus effusus*, (drawn above) is very common and easy to identify with the flower clusters seeming to emerge from the side of the long, pointed "leaf".

—Yolande Gottfried

Excerpted from *Plants of Pond and Shore*, an upcoming brochure in the Biodiversity on the Mountain series published by the Sewanee Herbarium. A stroll around one of Sewanee's lakes, taking time to note the variety of plant life, is rewarding at any time of the year. Expect to go slowly for close observation of this watery world.

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The Sewanee Herbarium
Biology Department
The University of the South
735 University Avenue
Sewanee, TN 37383

WEB SITE

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

EDITOR

Mary Priestley
(931) 598-1324
mpriestl@sewanee.edu

CONTRIBUTORS

Jon Evans
(931) 598-1304
jevans@sewanee.edu

George Ramseur
gramseur@sewanee.edu

Yolande Gottfried
ygottfri@sewanee.edu

COMPOSITOR

Tammy Scissom

Hart's-Tongue Fern Update

Several recent articles about the hart's-tongue fern have raised the question of its current status in Tennessee. Jim Hall of Madison, Alabama, a Fellow and Life Member of the National Speleological Society, has reported the presence of two plants he saw on a visit to the Marion County Sink in September of 1999. The plants are on opposite sides of the sink and in different light, slope and substrate conditions. They are in locations different from where the plants have been reported before. Both appear to be in good condition. One has five or more leaves up to about four inches in length and the other has five leaves up to nearly two inches long. I am happy to report that Tennessee's rarest plant is still here. It is, however, in need of protection.

—George Ramseur

Sewanee's Graduates in Botanical Fields

This, the third in a series of profiles of botanists who got their undergraduate degrees at Sewanee, features Tom Dolan of the class of 1973.

—George Ramseur

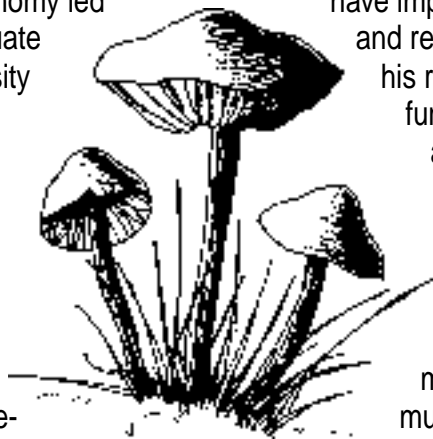
Thomas Eliot Dolan entered Sewanee from Geneva, IL, where his guidance counselor had recognized his scientific aptitude and said, "Go pre-med, young man." At Sewanee, he became more interested in exploring the larger world of environmental and organismal biology than in pursuing a medical career. After graduating in 1973, Tom worked as an operations manager for Davidson's Department Stores in Atlanta for five years. An interest in plant taxonomy led him to enroll in graduate school at the University of Georgia. There, a course in mycology quickly spurred an interest in mycology and cell biology. His dissertation work focused on mitotic ultrastructure in lower fungi (zoospore-producing microbes) as a tool to unravel phylogenetic relationships in the group. Working as a teaching assistant, Tom realized that he really enjoyed teaching and, unlike many graduate students, he looked forward to working in the labs with undergrads.

After graduating with a Ph.D. in Botany in 1983, he accepted a two-year post-doctoral research fellowship at the University of California at Riverside, where he worked on *Phytophthora* root-rot diseases of avocado and citrus. He published a number of papers from his work at UCR, but his most important work demonstrated that avocado trees can be "immunized" against root-rot by cross-inoculation with related, but non-

pathogenic, *Phytophthora* species. Cross-inoculation systems had been employed in annual plants, but this was the first time that such a biocontrol mechanism had been shown in a woody perennial.

In 1985, Tom landed a position at Butler University in Indianapolis, an institution where undergraduate education is the primary mission. Butler has a long and rich history in botany, and many of their graduates have important roles in teaching and research. Tom continues his research with zoosporic fungi, but his interests also include population biology and ecology. As head of the Department of Biological Sciences, which has over 200 majors, he now devotes much of his time to administrative duties.

Tom met his wife, Rebecca, in graduate school at Georgia, where she received a Ph.D. in Ecology. Rebecca is curator of the Friesner Herbarium at Butler, a systematic collection of nearly 100,000 specimens from around the world, with emphasis on the plants of the Ohio River Valley. In addition, she publishes widely on population biology of rare plants. Currently, she is doing isozyme studies of rare plants of the Lake Wales Ridge in central Florida. Tom and Rebecca are the parents of eleven-year-old Katherine. Along with teaching, administration, and research, Tom enjoys cooking and collecting wines.



Winter Calendar of Events

Search for the First Hepatica

Sunday, Feb. 13, 1:30 PM
Yolande Gottfried

It's nearly Valentine's Day, and our hearts turn to . . . wildflowers! Join us to look for the earliest bloomers. We may find Hepatica, Bloodroot, Toothwort, or others. Meet at Green's View for a two mile moderate hike through Shakerag Hollow. In the event of snow, ice, or extreme temperatures, the hike will be canceled.

Winter Botany

Saturday, Feb. 19, 1:30 PM
George Ramseur

Join us for a pleasant wintertime walk, and learn to identify some of the common deciduous and evergreen wintering trees. Learn what a tree is doing in winter: how will it know when to put out new leaves? Why did it drop them in the fall? Meet at Morgan's Steep for an easy hike along the Perimeter Trail.

**Mark your calendar now.
For more information on
any of the events,
contact Mary Priestley.**

Botanical Drawing

Saturday, Feb. 26, 9:30-11:30 AM
Ann Seiters

Using the Biology Department's greenhouse plants as inspiration, workshop participants will learn to draw leaves and flowers and possibly delve into microscopic structures. Ann, a real appreciator of nature's beauty, often carries her pastels with her when she takes to the woods. Bring your preferred drawing materials, or use the pencils and paper provided. Meet in Woods Labs room G-9, behind the greenhouse.

Wildflower Identification

Saturday, March 4, 10:00-11:30 AM
Mary Priestley

Get a jump on learning to identify wildflowers in this early spring workshop. Participants will become familiar with some of the basic plant identification terminology and the use of simple keys to identify herbarium specimens and plants from the greenhouse. Bring a copy of *Newcomb's Wildflower Guide*, by Lawrence Newcomb, and a hand lens (both available at the Supply Store and Jill Carpenter Books), or use the materials provided. Meet in Woods Labs room G-9, behind the greenhouse.

From the Editor

We are pleased to announce that *The Plant Press* has gone on-line. The most recent issues may be accessed or downloaded via the Herbarium webpage. Many thanks to Ken Pooley, Sewanee's Web Content Developer, for our new status.

We owe special thanks to Al Good, a botanist from Signal Mountain, TN, who has volunteered to help us to identify the herbarium's graminoids (grasses, sedges, and rushes) and to augment our collection of these plants. Al is offering this as a service of the Tennessee Native Plant Society. Contact us for more information about TNPS and its activities, including a number of interesting wildflower walks throughout the state. Both the TNPS and the Herbarium welcome new members.

Current members, please note the date of your latest contribution to *The Friends*, printed on your address label. We depend on you for your support.

Finally, we would like to hear from you, our readers, and we plan to publish what you send us. Comment on our articles; correct our mistakes; send us botanical news or musings. All are welcome.

—Mary Priestley

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:

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



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

1999 Annual Report

The Herbarium continues to work toward the production of a Flora of the Domain, a list of plant species found on the 10,000 acre campus of the University of the South. Of the over 3200 records in the herbarium collection database as of the end of October, 1999, about 1300 are specimens from the Domain, representing about 660 plant species.

The list of species likely to occur on the Domain, the focus of ongoing collection efforts, has been reduced from 500 to somewhat over 300. This presents the intriguing possibility that the Domain Flora may reach 1000 in the new millenium! Other Floras in the region for areas like Wolf Cove, Savage Gulf, and Fiery Gizzard list 500-600 species, so the current list of 660 may well be nearing completion.

However, the database of general information on vascular plant species of the Southeastern Cumberland Plateau region lists 1079 species. Is it possible that almost all of these occur somewhere on the University Domain?

The Herbarium staff continues to be involved beyond the Domain. All four staff members led walks at the Smokies Wildflower Pilgrimage and the Chattanooga Spring Wildflower Celebration. Staff also provided hikes and programs for the South Cumberland State Recreation Area, the Sewanee Summer Seminar, and the Sewanee Garden Club. These activities were in addition to the regular seasonal offerings for the public of hikes, slide shows, plant photography and drawing workshops, and the third annual Herbarium Homecoming Open House.

These offerings continue to draw area residents, this year around 150, who are interested in learning more about the plants with which we share this part of the earth.

The quarterly newsletter, *The Plant Press*, now in its fourth volume and with a circulation of 500, publishes reports on current research and conservation efforts in the area, as well as articles of botanical and historical interest. The Herbarium continues to benefit from the generosity of the over 160 supporting members in the Friends of the Herbarium.

—Yolande Gottfried

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SEWANEE

The University of the South

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

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