

William's Wildflowers

The drawings that usually illustrate this newsletter are the work of Mary Patten Priestley. For this issue, however, we are using watercolors by William Crutchfield, whose work is the basis of a children's book, *William's Wildflowers*, recently completed by Ms. Priestley. A selection of the botanical paintings by the late Chattanooga architect are woven together by the narrative of Bea the honeybee, with a focus on pollen and nectar collection. The featured flowers are Mr. Crutchfield's, but the drawings of Bea and additional illustrations, as well as the written content, are by Ms. Priestley. The book was designed and published by Latham Davis, also of Sewanee, TN. It will be used in the fourth grade curriculum in Hamilton County, TN, and in other educational venues.

Mary Priestley was introduced to Mr. Crutchfield's work in 2008 during Trails & Trilliums, an annual event in the Sewanee area with a focus on native wildflowers. There, Mr. Crutchfield's paintings were on display, made available by his son, Bill Crutchfield. "Meeting Bill and learning that he wanted to find a way to publish some of his father's paintings was the inspiration for the project," said Ms. Priestley. Over a subsequent two-year period, the concept and creation of the book took shape. It was highlighted during the 2011 Trails & Trilliums this past April, sponsored by the Friends of South Cumberland State Park (FSC).

William Crutchfield, born in 1889, was an architect and native of Chattanooga, TN. He began painting wildflowers during the Great Depression, working directly

from nature. At the time of his death in 1956 he had completed 460 color plates of southeastern United States native and naturalized wildflowers, which he had ready for publication in a volume. About 50 of them are used in the book. Bill Crutchfield was excited about this new purpose for the paintings. "My father dreamed of using his watercolors to illustrate a wildflower book himself. I know he would be pleased to see them in this delightful little publication!" Mr. Crutchfield received the first copy of the book off the press, autographed for him, before he passed away earlier this year. The William Crutchfield Collection of wildflower color plates is under the care of the Lupton Library at the University of Tennessee at Chattanooga.



The flowers illustrated in *William's Wildflowers* are arranged seasonally from trailing arbutus in the spring to asters in the fall, and by forays into different habitats: forest, pond, rocks, meadows, and roadsides and backyards. Along the way, sprightly Bea the honeybee imparts a wealth of detail about the adaptations of various flowers to facilitate pollination by bees and other means, as well as information on such topics as photosynthesis, honeybees in general, and introduced non-native wildflowers. All is couched in lively language suitable to the targeted fourth-grade audience, including a glossary of possibly unfamiliar terms.

The visual appeal of the book is due to the design expertise of the publisher, Latham Davis. He had the task of transferring the flower images from the plates to their positions on the pages of the book, then incorporating the drawings by Ms. Priestley. Font face and size, as well as the arrangement of text and illustrations on the page, were chosen with input from elementary school teachers as to their suitability for third- and fourth-graders. The book format and cover design are also his work.

Publication of *William's Wildflowers* was made possible by grants from the Lyndhurst Foundation and the Community Foundation of Greater Chattanooga to the Chattanooga Nature Center and the Creative Discovery Museum. The grants will also support exhibits and educational programs at the museum and nature center that complement the book. It is endorsed by the Tennessee Native Plant

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Logging and Tree Composition Change on the Domain

The following is an overview of the results of Sean McKenzie's Honors research for his major in Ecology and Biodiversity. Sean has worked closely with Jon Evans, Nick Hollingshead and Chris Van De Ven in the Landscape Analysis Lab over the last 3 years to bring this project to fruition. We wish him well as he begins his graduate studies at Rockefeller University in New York City this coming fall. — JE

How has the Sewanee forest changed over the last half century? What events precipitated this change? Is there a link between human activities on the Domain and the changing composition of Domain forests? Just how much have human activities been a part of the history of the Domain? These are the questions that the Sewanee Forest History Project of the Landscape Analysis Lab set out to answer. Now, after three years, we have some answers.

The Sewanee Forest History Project began in the summer of 2008 with the digitization of over 3,500 documents from the files of the Office of Domain Management. Project members have since been poring over these documents to extract information about how the Domain was used and how the forests of the Domain have changed over a period of record stretching back over 60 years. In the first research paper extracted from this information we have catalogued changing forest composition from 1952 to 2001 using forest inventory data taken by the Forestry Department. In addition we have compiled a record of timber harvests on the Domain since 1945 to examine how the logging history of plateau stands has affected

forest composition change.

Overall, we found that Sewanee Forests have seen massive changes in composition over the last half-century. Logging seems to have played some role in this change, at least influencing the direction of the change if not responsible for the overall change itself. Logging was extremely prevalent over the whole Domain. Outside of Dick Cove and a few inaccessible corners of Shakerag and Browers Hollows, no area has been logging free, and several areas have been cut 10 times.

Perhaps the most interesting facet of forest change at Sewanee has been the change in upland canopy dominance, a "tale of three oaks." In 1952 scarlet oak (*Quercus coccinea*) was the most abundant tree species all across the plateau. Across the southeast, red oaks (*Quercus* sect. *Lobatae*), which includes scarlet oak, have seen major declines recently, and on the uplands at Sewanee white oaks (*Quercus* sect. *Quercus*) have been replacing the dwindling scarlet oak. However, which white oak species is becoming dominant seems to be influenced by logging history: where logging has been less frequent but more intense, chestnut oak (*Quercus*

montana) dominates, while white oak (*Quercus alba*) has taken over forests harvested

more frequently but less intensely. We also found that the extensive logging of black gum (*Nyssa sylvatica*) has reduced this once common canopy species to its role as understory species in our forests today.

All of the data used in this study are on file with the Sewanee Forest History Project at the Landscape Analysis Lab, available to any student or faculty member interested in using it for research. We have inventory records from 1952, 1978, and 2001 and maps of all harvests on the Domain between 1945 and 2000. In addition, we have pine plantation planting records and maps, management plans and records since 1933, and study reports from research on the Domain since 1941. We on the SFHP are excited about the research possibilities for these data.

— Sean McKenzie (C'11)

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Society and the Tennessee Valley Beekeepers Association.

According to Kyle Waggener, Director of Education at the Chattanooga Nature Center, "William's Wildflowers is a great children's book... It covers everything from the diversity of wildflowers found in our region to the adaptations between wildflowers and their pollinators. This book is the inspiration for a new wildflower field class that the Chattanooga Nature Center will be offering to school children starting this spring." In 2012, the book will be made available to all fourth-grade students in the Hamilton County, TN, school

system. FSC is working toward making the book available for use in schools in the park area.

The official launch of the book will take place in conjunction with the grand opening of the new wildflowers and honeybees exhibit at the Creative Discovery Museum's Honey Harvest Festival on July 29, 2011, along with the opening of a travelling exhibit of some of Crutchfield's paintings.

Ms. Priestley will read from her book at the Thurmond Library in Sewanee on Wednesday, June 15, 2011, at 10 a.m. CDT. The book is available online through

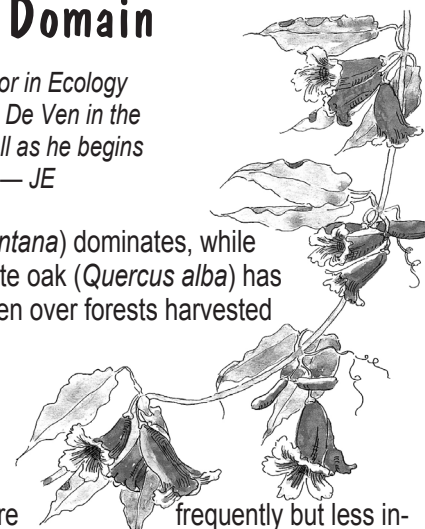
the FSC website, www.friendsofsouthcumberland.org and at Lorena's Gifts in Monteagle, TN. Proceeds go toward the William's Wildflowers Project in the Hamilton County schools.

— Yolande Gottfried

References:

"Priestley's Children's Book to Debut at Trails and Trilliums". *The Sewanee Mountain Messenger*. Vol. XXVII, No. 14, April 8, 2011.

Priestley, Mary Patten. reflectionriding.org/upcoming_events



Summer Calendar of Events

Nature Journaling Opportunity — 8:30–11:00 a.m. Thursdays, June 2 through July — Mary Priestley

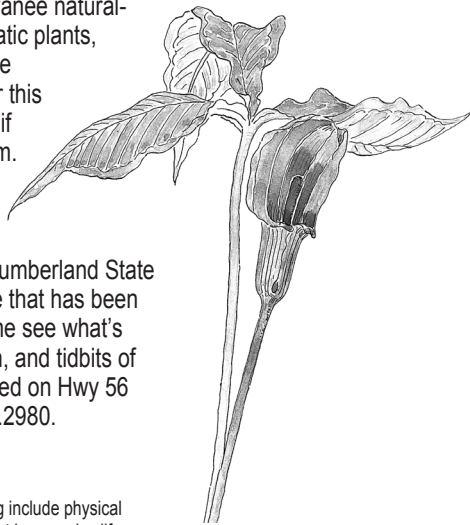
Experienced in but not an “authority” on nature journaling, Mary has been practicing it for close to ten years. This is not a workshop. Rather, it is an invitation to set aside any or all Thursday mornings in June and July for nature journaling. Meet at the gazebo in Abbo’s Alley. Bring a notebook (preferably small and unlined), a pen or pencil, and something to sit on if you wish. Come as early or as late as you like and stay for however long you like.

Trees of the Sewanee Campus — Tues., June 21, 4 p.m. — George Ramseur & Sandy Baird

Join botany professor *emeritus* Dr. Ramseur in a walk among the trees of the Sewanee campus, which he has lived with and taught about for many years. Meet in front of All Saints’ Chapel for this easy one-hour walk. For background reading, see *Comparative Descriptions of the Native Trees of the Sewanee Area*, by Stephen Puckette with Mary P. Priestley, Karen Kuers, and Thomas O. Hay, 1996, The University of the South Press, available at the University Bookstore.

Lake Cheston Stroll — Tues., July 5, 4 p.m. — Jean & Harry Yeatman

Stroll around Lake Cheston with these eminent Sewanee naturalists and see what can be found — wetland and aquatic plants, meadow plants, trees and shrubs, maybe even some bird-watching. Meet at the Lake Cheston pavilion for this easy one-hour walk. Bring hats and insect repellent if desired, though the insects usually are not a problem.



Late Summer Wildflowers — Sat., August 20, 8:30 a.m. — Mary Priestley & Jean Yeatman

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 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 ygotffri@sewanee.edu. Directions are available on the Herbarium website, lal.sewanee.edu/herbarium/, under the calendar of events.

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Sondra Bridges

Watercolors, by William Crutchfield, are of bloodroot, crossvine, Jack-in-the-pulpit, and partridgeberry. Drawings of Bea are by Mary Priestley.



Friends of the Sewanee Herbarium

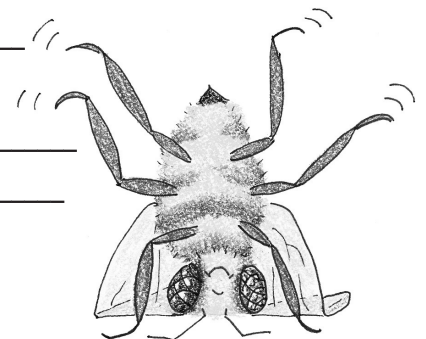
The Friends of the Sewanee Herbarium support the work of the Herbarium: education, research, and conservation. A \$10.00 annual contribution would be very much appreciated. The date of your most recent contribution is printed on your address label.

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Hi!

The gals in the herbarium are turning cartwheels over my new book, *William's Wildflowers*. But personally I am far, far too busy to sit around reading.

We had a good spring. Black locust in particular was good. You probably heard us buzzing around their dangly inflorescences on roadsides and forest edges.

As you know, plants have to depend on outside forces — usually wind, hummingbirds, or insects — to transfer their pollen from one flower to another so the seeds can be fertilized. Plants that have tiny, non-showy flowers, like grasses and many trees, have wind-blown pollen. They produce a ton of it so that some will make it to the right flowers. Most of it never gets there. Some of it flies up your nose and can make

Bea on Pollination

springtime pretty miserable for allergy sufferers. Plants that depend on insects or hummers to carry their pollen don't have to produce as much of it. But they have to do three things that those other plants don't: supply some type of reward (usually food, and for us bees that's either pollen or nectar); advertise the reward (usually with colorful or fragrant flowers); and have some way of putting the pollen on the pollinator so it can be transferred. Their pollen is heavy and sticky, not light and airy like that wind-blown stuff.

Beyond that, if a flower is to be pollinated by a bee, its petals will probably be blue or yellow or have ultraviolet coloring. It will be open in the daytime and have a good landing platform. Often, bee-pollinated flowers are bilaterally symmetrical (the left and right sides of the flower mirror each other) and tubular, with nectar at the base of the tube.

Black locust is a great example of a bee-pollinated flower. The bilaterally symmetrical, tubular flowers have great landing platforms. They have a wonderful sweet fragrance, and most years they really put out the nectar. Also — get this — the nectar absorbs UV light, so it's easy to spot. To us bees, a pool of nectar looks like a dark spot at the bottom of the flower's white tube.

That is not to say that bees are 100% picky.

We can definitely pollinate more generalist flowers, like magnolias, but usually we'll leave them to the less intelligent insects, like beetles (no offense). To pollinate a magnolia, all you have to do is roam around on the flower, brushing up against the anthers and pistils while foraging. It's a no-brainer.

Generalist plants, however, risk not getting their pollen to the right flower. Smart insects like us engage in what's called "flower constancy." Basically when we learn how to find nectar or pollen in a certain type of flower we stick with it. Not to brag, but that makes us pretty efficient pollinators. If you study a honeycomb, you'll see groups of cells are filled with the same color of honey, all from nectar gathered at about the same time from flowers of one kind: sourwood, clover, blueberry — you name it!

Well, gotta fly! We're working the blackberries out by Lake Cheston today, and our scouts are over at the community garden checking on the beans and squash. Keep an eye out for us — we're fun to watch. But don't worry — unless you bother us, we probably won't pay any attention to you. We've got more important business to attend to.

Indispensably yours,
Bea

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