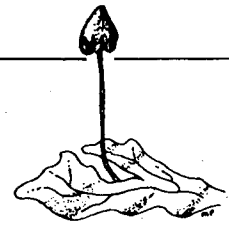


The Plant Press



Volume II, Number 4

Newsletter of the Friends of the Herbarium

Autumn, 1998

Domain 2020

This summer, I worked as a Domain 2020 intern, under the direction of Dr. Jon Evans. One of my projects was the creation of a relational database system for the Sewanee Herbarium. The herbarium has four computer databases: a) Herbarium Collection, a catalogue of the pressed and mounted specimens; b) Sightings, with information on plants that have been seen on, but not collected from, the Domain; c) Plants to Collect, listing species that we expect to find; and d) Plant Species Information, with taxonomic, ecological, and conservation-related information for all plant species indigenous to the Cumberland Plateau.

One of my summer projects was the creation of a "computer pathway" linking the databases. For example, Japanese spiraea (*Spiraea japonica*), a successful invading species on the Domain, has been catalogued in the Herbarium Collection, the Sightings, and the Plant Species Information databases. I have created a link, or "relationship," between the databases that will allow all of the Japanese spiraea data to be considered concurrently. Such a relationship will allow for multiple floristic analyses and facilitate further botanical research, as follows. The Plant Species Information database contains the information that Japanese spiraea is a "significant threat" to native plant populations. A database inquiry would elicit the names of all such plant species. Combining that list with habitat information from the Herbarium Collection and Sightings databases will make it much easier to quantify answers to questions such as, "What particular microhabitats on the Domain are most susceptible to invasive species that are classified as significant threats?" or even, "How should microhabitats on the Domain that seem most susceptible to invasion by exotic plants be managed?"

Major objectives of the Domain 2020 initiative include a) the study of ecological and environmental issues as they affect the Domain and its immediate surroundings and b) the development of educational and research models for ensuring the long-term quality of the Domain's environment. The newly-created relationships between the herbarium databases will aid the University in meeting these goals.

—Jacquelyn Presley
Biology Dept., Class of '99

Invasive Exotic Plants

Any plant species that is growing in an area where it is not native is termed "exotic." Some exotic plants, such as many cultivated roses, cannot survive without our care and attention. Others, such as Japanese spiraea, have spread through the countryside and aggressively invaded natural habitats. The establishment of these invasive exotics reduces the biological diversity in an area, because the exotics out-compete the native species for limited space, light, and nutrients.

The Tennessee Exotic Pest Plant Council (TN-EPPC) has identified three classes of invasive exotic plants, based on their perceived impact. As you might imagine, kudzu is among the "severe" threats, as is privet. Wisteria and mimosa, among others, join Japanese spiraea as "significant" threats. Queen Anne's lace and chicory, because they do not readily invade natural areas, are listed among the "lesser" threats.

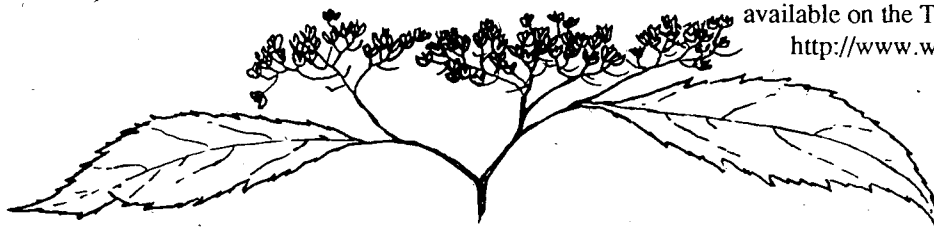
Japanese spiraea, a native of eastern Asia, has escaped from cultivation. A member of the rose family, its many tiny pink flowers are arranged in attractive flat-topped inflorescences. In Sewanee, it has moved from roadsides into the woods, particularly along streams. Statewide, it is threatening our native *Spiraea virginiana*.

In addition to cultivated exotics that have been deliberately introduced to North America, many exotics have arrived as stowaways. Explorers and early settlers inadvertently brought weed seeds, hidden in grains used as fodder and for planting. Later, the ballast of merchant ships dumped at the harbors contained large quantities of seeds.

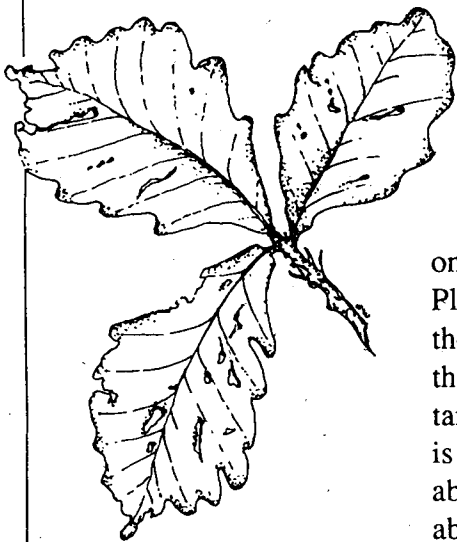
Invasive non-indigenous plants generally exhibit "weedy" characteristics: they grow rapidly under a wide variety of soil and climate conditions, produce abundant seeds, and are often perennial, reproducing by vegetative propagation. Many also lack pathogens or insect predators that could keep them under control. A list of the exotic pest plant species in Tennessee is

available on the TN-EPPC web site,
<http://www.webriver.com/tn-eppc/>

—Mary Priestley



The Sewanee Herbarium: Education—Research—Conservation



The Fall at Sewanee, Tennessee, USA Some Natural History Observations, 1 Oct to 18 Dec 1988 by Roy Whiteside

Sewanee is situated on the Cumberland Plateau which rests on the southwest margin of the Appalachian Mountain Range. The plateau is about 600 metres above sea level and about 300 metres above the surrounding valleys. The region consists almost entirely of native forest with a vast range of different deciduous species and a few evergreen species. It therefore makes an ideal environment for the observation of trees, birds, and mammals.

We arrived as summer was ending and within a week there were signs of the Fall (Autumn) approaching. The leaves of the deciduous trees were starting to change colours and the colours reached a peak within a further two weeks. Taking pictures of these Autumn tints presents a dilemma similar to that of taking a picture of a sunset. We had to anticipate when the colours of the foliage would look the most spectacular.

The predominant genus of tree was the Oak with 13 different species represented on the University property. With many of the trees being of the order of 40 metres in height it presented a perfect habitat for woodpeckers and squirrels because of the many hollows and acorns. At times it was somewhat hazardous to be standing below the taller Oak trees for fear of being hit on the head by numerous falling acorns!...

We learnt that 175 different species [of birds] have been recorded on the campus over the past 25 years, but we identified only a small fraction of these species. Sewanee is on the principal path of birds flying between the Mississippi and the Atlantic coast and part of a chain of plateaus which provides updrafts used by migrating hawks.

The most fascinating species of bird for us was the Woodpecker (Picidae). We were able, during our stay, to identify 6 of the 7 species of woodpecker recorded in the area....

We only observed 4 species of mammal during our stay. White-tailed deer were seen a number of times feeding from lawns and one group made good use of a salt lick provided in a neighboring garden. They were extremely timid, but they were able to move freely because there were no fences between the land surrounding the residences. Eastern Gray Squirrels were very common and became more noticeable after the majority of leaves had been shed.... A number of Eastern Chipmunks were seen. These are small squirrel-like mammals which run with the tail pointing vertically upwards. We also saw a few rabbits but were unable to identify the particular species. Sightings of the Mountain Cat and Bobcat were reported within 15 km of the campus during our stay, but we were not fortunate to see them for ourselves....

Some days the campus was shrouded in fog (low cloud) only to be followed by a clear, cloudless day. On some nights the sky was as clear as inland Australia as we were a considerable distance from any industrial areas. We experienced one fall of snow to a depth of about 5 cm in early December and a number of rather severe frosts.

Roy Whiteside, an Australian scientist, spent a semester here at Sewanee in 1988. His impressions of the natural history of the area were published in the journal, Geelong Naturalist (Vol. 26, No. 3, pp 76-81). Excerpts from the article are reproduced above. Thanks to Dr. Harry Yeatman for bringing this to our attention. It is interesting "to see ourselves as others see us."
-Ed.

Autumn Calendar of Events

Summer and Autumn Wildflowers — Date TBA

The spectacular display that the wildflowers put on helps make autumn such a beautiful time of year. Harry Yeatman, accomplished naturalist and photographer, will give a slide presentation, featuring many of our late summer and fall wildflowers. This evening of armchair botanizing will be held sometime in October. Let us know if you would like notification via e-mail.

Shakerag Hollow — Oct. 10, 10:00 a.m.

Ready for a walk on a crisp fall morning? Join George Ramseur for a hike through Shakerag Hollow. A must-see destination in the springtime, Shakerag is well worth a visit at any time of the year. Meet at Green's View. Two miles, moderate.

Homecoming Events—Oct. 17

1. Birdwatcher's Outing — 8 a.m., David Haskell

We will be searching for birds that winter here, as well as late migrants. Meet in front of Woods Laboratories.

2. Visit the Herbarium—9:30-10:30 a.m.

What is a herbarium anyway? Answer this question for yourself: use the computer to look up species that interest you, and then find them in the collection. Mount specimens; check out the GIS databases. Woods Laboratories G-12, near the greenhouse.

3. Dick Cove—10:00 a.m., Jon Evans

Tour Sewanee's old-growth forest. Dick Cove has all the elements of classic old-growth forest: There is a wide range of large, mature trees and smaller ones creating a multi-layer canopy. Meet in front of Woods Laboratories.

Of course, digging of plants is prohibited on all of our trips.

For more information on the above, phone Mary Priestley.

The Plant Press

The Sewanee Herbarium

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Thanks

This summer we were blessed with the able assistance of two people.

First, our summer intern Jacquelyn Presley was a tremendous asset. In the field, in the lab, or at the computer, she could handle it all.

An additional boon was the help of Friends of the Herbarium member Anne Giles, who spent several mornings mounting plants. Anne rallied her patience to deal with some very fragile, old specimens. Many thanks to both of you.

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*: _____

Bryophytes: a Small, New World

This summer, the Herbarium supported Mary Priestley and me in taking a one-week course in bryophyte identification at the Highlands Biological station in the mountains of western North Carolina.

What are bryophytes anyway, and why should the Herbarium be interested in them? Currently, the collection aims to include all the *vascular* plant species on the Domain and, eventually, the surrounding area. Hikers along the roadsides and through the wood are familiar with the oaks and partridgeberry and New York fern they expect to see there. But what of the fuzzy green stuff growing at the bases of the oaks or the slimy stuff hanging off the wet cliff faces with the partridgeberry or the soft damp cushions among the New York fern along a stream bank? These are often mosses and liverworts which, along with the hornworts, make up the bryophytes, a group of *non-vascular* green plants, small plants that do not have special water conductive tissue. They also are an important part of plant communities, and, with the training received in this course, Mary and I plan to begin including bryophytes in

the Herbarium collection and the flora of the Domain.

The Highlands area is an ideal place to learn to identify bryophytes. The Southern Appalachians harbor roughly 380 species of mosses, 150 species of liverworts, and 4 species of hornworts, many of which are found in the Southern Blue Ridge escarpment region near Highlands and also have distributions which include the South Cumberland.

Each day of the course involved field trips for field identification and collecting, followed by long hours in the lab in the afternoons and even late into the evening, hunched over microscopes. The instructor, Dr. Paul G. Davison of the University of North Alabama, was always available to help with such unfamiliar characters as oil bodies and pseudoparaphyllia. In addition to identification, the course included techniques in collecting and herbarium preservation. Mary and I returned with useful reference collections, which will be stored in the Herbarium, and with good grades on the final exam, thereby earning course credit at the University of North Carolina at Chapel Hill.

—Yolande Gottfried



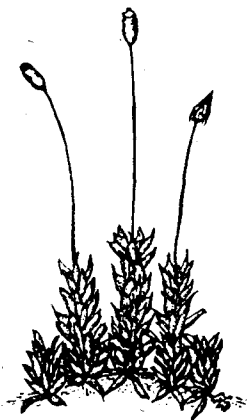
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