



Invasive Plant Management on the Domain



Sewanee's Sustainability Master Plan calls for the University to limit the ecological impact of invasive species by "assessing notable exotic plant and animal species, their distribution across the Domain, and the potential extent of their threat to ecological value, delineating an eradication plan for each species, and maintaining a database of exotic species control across the Domain, quantifying successes and areas for improvement." The project described here is an important step in this direction. — Ed.

During our final semester at Sewanee, we wanted to give back to the Domain. We used our Ecology and Biodiversity capstone course to survey invasive plants in Sewanee and raise awareness of the threat these plants pose to the health and longevity of our forests.

Without their natural enemies (herbivores, diseases, etc.) to keep them in check, alien invasive plants can outcompete and displace native plants, compromising the diversity and integrity of the native ecosystem. To help limit the ecological impact of invasive species on the Domain, we wanted to provide information that could be used to improve the efficiency of the University's management efforts. With the help of Nate Wilson (Domain Manager) and Dr. Christopher Van de Ven (GIS instructor and manager of the Landscape Analysis Laboratory), we mapped the distribution and abundance of invasive plants along the Perimeter Trail, and used this data to create an open-source GIS database.

We chose to map the Perimeter Trail first because it encompasses a large portion of the Domain, including areas of particularly high ecological interest, such as Shakerag Hollow. In addition, the Perimeter Trail itself is, though on a somewhat small scale, the type of forest disturbance that invites colonization by nonnative plant species. Future surveys should be focused on other Domain trails, roads, powerline cuts, former

homesteads, former quarries, and along the edges of developed land, as these areas allow invasive plants to establish themselves more easily.

We now have a map, titled "Invasive Plants and their Densities on Sewanee Perimeter Trail" that can be viewed by anyone interested, and updated by anyone with access to ArcGIS software. (Search online for the map by its name to locate it.) We have been able to identify high priority management areas, but there is much work to be done. Our hope is that students, staff and faculty will add more data to this map to make it as comprehensive and useful as possible. Any treatments, such as herbicide or manual removal, that are applied to a site of 'infestation' can be included within an individual GPS point. Over time, continued mapping and updating of treatment history would be invaluable to management planning, as we can determine the most aggressive species and the most effective treatments in Sewanee.

This past spring, to raise awareness about the issue of nonnative plants, we advertised free English Ivy removal in the *Sewanee Mountain Messenger*. Though we were only able to respond to some of the demand we received, we offered guidance on how to do it yourself. To this end, we also prepared a how-to English Ivy removal pamphlet for the Sewanee Community Council, which is available upon request. Teaming up with the Sewanee Herbarium,

we helped sponsor the annual Garlic Mustard pull, which was held at Morgan's Steep.

We have also made a field guide, titled *Nonnative Invasive Plants of Southern Forests*, readily available to anyone with interest, by contacting Prof. Deborah McGrath <dmcgrath@sewanee.edu> or the Sewanee Herbarium. It can also be easily accessed online by searching for it by title.

While we hope the map will be a powerful tool, particularly for the Office of Domain Management, no action is too small. Everyone is encouraged to learn to identify and pull invasives on their walks, plant native species in their yards, voice their concern with nurseries where invasive plants are sold, or simply mention this issue to a friend!

— Parker Haynes (C'14),
Will Noggle (C'14),
and Shannon Jones (C'14)



Walking Our Land



Have you ever felt different inside while you're looking out from the Plateau's bluff versus sitting alongside a creek flowing through a cove forest? The religions of The Book (Judaism, Christianity, and Islam) all hold that God speaks to us through nature. So, is it possible that God speaks differently to us

through various kinds of land?

On our property, some 20 acres out Jump-off way, my husband Robin and I are exploring what we might call the spiritual personality of a specific piece of land. We are spending time in different areas of the property and recording and discussing what our experience is each time and whether it varies depending on whether we are in the field, woods, yard, or along a creek bottom, for instance.

We started in January by mapping the property in a general way, spending a couple of our first sessions walking the land together and making a rough sketch of what we thought were areas that were distinct from each other. Winter was a good time to do this because it is easier to see the contours, the "bones" of the land. I would not have thought that on 20 acres of mostly dry plateau woods that there would be much variety, but we came up with 15 different areas ranging from watersheds of seasonal streams, to higher ridges, to open woods near road and neighbors, to field and pond.

Most years I intend to do something like this — start in the New Year to go out regularly and really get to know the land we

live on, but it is usually too easy to decide that it is cold or otherwise nasty and just stay inside, and then it gets hot and buggy. This time, though, we were committed to doing this together with a specific goal in mind - trying to define a way to describe the way the different parts of our land speak to us spiritually, through quiet, contemplative prayer with the land. After all, one of the early saints, St. John of Damascus, said, "The whole earth is a living icon of the face of God."

So one morning last January, after a brief prayer we set out in the 20 degree weather of an arctic blast for our first session. My first reaction was a kind of exhilaration in just finally getting out! It didn't hurt that in spite of the cold the sky was sunny and blue and there was a light dry snow on the ground. Some of the things I noted were the quiet, the sense of waiting, the bareness that seems dead but is not — all with potential for thoughtful reflection.

Since that first venture, we have continued to take these walks, always at the same time of day, each time heading for a different section that we had mapped. On another quite different winter day — cloudy, damp, foggy — I observed something of what we were looking for: a different experience between being around the openness of the pond area and then entering the woods below the pond, a kind of "out" and "in". This could lead to different types of reflection — more outward-looking and more inward-looking, perhaps.

Most times there were for me two types of what might be considered distractions. Being a botanist/naturalist, I want to know what things ARE - what is the name of the sedge or moss or bird calling nearby. This type of "nature walk" approach, though attractive and good in itself, is not really what we are looking for, although being open and observant needs to be part of the whole contemplative experience. Then, being a gardener, I want to clean

things up! I want to cut back the greenbrier and protect that interesting looking plant from the deer and pick up the beer bottles tossed over the neighbor's fence.

As we move into warmer weather, we face the fact that the rest of the natural world is not necessarily friendly to humans. We have to spray for ticks and chiggers. We have to keep an eye out for snakes and hornets. The sun and humidity will get more uncomfortable. However, these are part of what the land *is*. We also want to try to go out at various times of day (and night) and under different weather conditions, not just when it is pleasant.

And we reflect on the evidence of human habitation all around us. My first instinct is to go as deep into the woods as possible and as far as possible from human influences. But on 20 acres there is usually the sound of road vehicles, landscaping machinery, workers' radios. And the woods have old garbage piles now covered in Christmas ferns and other plants, aluminum cans, views of the neighbors' houses, dogs barking. Are these distractions or part of the whole? Is a possum skull more attractive and of more interest than a beer can? Are our cats that follow us and try to sit on us as we sit to be quiet an annoyance or part of the landscape?

So we continue with the experiment. It is important to take time, an hour, at least, and to be still in one place, or at least move slowly, stopping frequently. Then we can begin to really see/hear/smell/feel what is around us. And then you see the opossum scurrying over the dam, or the crayfish in the stream, or the dewdrops on the moss tips. And maybe you begin to get a sense of what this piece of land is all about and hear the "still small voice" speaking through it.

— Yolande Gottfried

For the latest botanical news from the Domain check out our blog:
sewaneherbarium.wordpress.com

Summer Calendar of Events

Abbo's Alley

Wed., June 25, 4 p.m., Mary Priestley

Meet in front of Rebel's Rest for this one-hour easy walk in the Abbott Cotten Martin Ravine Garden. There are a surprising number of things to see and learn on this familiar trail.

Cross Trails

Wed., July 9, 4 p.m., Yolande Gottfried

Several trails branch off from the War Memorial Cross. We will take short forays in the most interesting directions, as well as talk about the trees and other plants near the Cross itself. Meet at the Cross (at the end of Tennessee Avenue) for this moderate one-hour walk.

Roark's Cove

Sat., Aug. 2, 9:30 a.m., Yolande Gottfried

A private property at the base of the plateau is being made available for a wildflower walk to see some late summer species such as mullein, foxglove, ironweed, and much more. Meet at the Sewanee Inn to carpool or caravan to the location of this easy to moderate walk.

Foster Falls

Sun., Aug. 31, 1:30 p.m., Mary Priestley

This has long been a favorite spot for late season wildflowers that thrive in the open

sun, such as blazing star and numerous asters. Meet at the Foster Falls parking area for this one to two hour easy walk in the power line right-of-way above the gorge with optional short but steep trek to the bottom of the falls and back to see some trees and ferns. Contact the South Cumberland State Park visitor center for directions (931-924-2980).

Nature Journaling — A nature journaling group, sponsored by the herbarium, meets Thursday mornings, 9-11. We have moved to the Sewanee Inn for the summer. An informal gathering, participants share observations and writing, and sketch plants or other natural objects. Everyone is welcome. Contact Mary Priestley for more information.

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

THE SEWANEE PLANT PRESS

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Drawings, by Mary Priestley, are of pipsissewa, an acorn, and these invasive exotic plants: multiflora rose, garlic mustard, privet, chestnut oak leaves, Japanese honeysuckle, and princess tree.

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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Summer Research on the Domain



It's summertime, and students are out all over the Domain doing field studies. Jon Evans, the herbarium's director, has two students working with him on topics in plant ecology.

Callie Oldfield (C'15) is involved in Evans's on-going research on population dynamics of chestnut oak, a foundation species of the upland Domain forests. They are looking at the role of basal sprouting in the persistence of individual trees and the recruitment of younger trees into the population. In addition, they study the role of masting (the periodic production of huge numbers of acorns) in avoiding seed predation. In 2014, Callie worked with Dr's Evans and Chris Van de Ven to map all of the individuals that Evans and his students have been monitoring since 1996. This

summer, Callie will be analyzing spatial and temporal patterns in the data.

Hill cane is a species of bamboo that was first described in 2006. Several populations of this plant inhabit the Domain. Thomas Walters (C'15) will apply treatments of fire and canopy reduction to some of these populations to determine the biological and ecological responses of the grass to these disturbances.

We hope for a fruitful summer for these and all of the research taking place on the Domain this summer. Look for reports in upcoming issues of this newsletter.

— Mary Priestley



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