Law Breaker or Nature Lover?
You Be the Judge!

By Julie Higgie, editor

News Flash! Life in quarantine took a strange turn this year when Don and I moved to a 55+ neighborhood right during the state lockdown. Talk about weird and scary. But we had no choice, as we had signed papers for this new home last fall. So, we packed boxes and away we went.

Now we are on a property in the same small town, Mooresville, overlooking a small forest that we don’t have to take care of. Yay!

As most of my friends know, I am an avid, lifelong naturalist by avocation. The home from which we just moved sits on a very steep, Lake Norman waterside property certified as a Native Plant Habitat, a Wildlife Habitat, and a pitstop on the Butterfly Highway. It’s full of plants obtained from plant sales, Society auctions, and UNC-Charlotte Botanical Gardens, as well as the Spring Wildflower Pilgrimage in the Great Smoky Mountains National Park.

Fortunately, we were able to sell that woodsy paradise to a woman who is also an avid gardener, but has no fear of falling down the steep hill as we have done too many times.

All that is good news. Now for the bad news: Our move to this sedate, little community has turned me into a law-breaker. Yes folks, I might soon be in the “slammer”. You see, the beautiful wooded park behind us—replete with hiking trails, unique trees, wildflow-
President’s Report

I hope this newsletter finds everyone well during these unprecedented times. Somewhere in my readings of philosophy, I came across a quote that went something like “if things are not changing, they are not real”—a quote that has guided me for years, but did not prepare me for a pandemic. I sincerely hope all of you and your families are well.

The Society is adopting ways to operate during times when we cannot meet. We have purchased subscriptions to Zoom, an online meeting platform, for our chapters to reach out to their members. I will add that the Board of Directors used Zoom for the May board meeting and it was my first board meeting in which every board member, plus all the chapter and committee representatives were present.

As you know, our June Membership Meeting and Picnic was cancelled. And given the uncertainties of COVID-19 and efforts needed to secure facilities for a membership meeting in the fall, the board voted to forego an in-person membership meeting this year. However, there are two things we normally conduct during the annual meeting that will move on-line: 1) a vote for board members, and 2) a vote to change the Society’s Articles of Incorporation. These two items will need your vote.

We are having discussions with a land trust about conducting a Fall hike. This should provide us with an opportunity to get together, enjoy and learn about native flora and adhere to any health advisories.

I encourage everyone to suggest ideas on moving forward. Online meetings offer many advantages such as securing guest speakers who do not need to undergo travel. The primary disadvantage is that we do not meet in person.

Finally, I have reflected upon my role in the Society and decided to continue as President for another two-year term, pending, of course, your approval. Also, if your membership expires soon, I encourage you to renew your membership so you don’t miss out on all the advantages our Society offers.

Steve Kroeger
ers, birds, and two streams—is owned by Iredell County and is full of "No Trespassing" signs. Whoops!

The first week we moved, I explored the gravel road that looks like a nature trail behind our new home. That trail was once in the Outdoor Education Center, a park whose mission is to provide community groups with team-building activities like ziplining, camping, rappelling and exploring. It was heavily used by businesses, Scouts, schools and other groups. Now it sits empty of human activity because Interstate 77 will someday have an interchange beside it, so Iredell County moved the center up to Jennings Park in Statesville.

Therefore, I’ve declared this park as mine. Yes, it now belongs to me, as well as to Red-bellied Woodpeckers, Kingfishers, Ospreys, Barred and Great Horned owls, hummingbirds, Wood Thrush, Eastern Bluebirds, Summer Tanager, various warblers, Indigo Bunting, and of course many of what birders call “the usual suspects”. I’ve seen the prints of opossum and raccoon, and evidence of crayfish. I’ve heard Bull Frogs and several species of tree frogs. I’ve even heard the call of a rooster!

All of these beautiful creatures enjoy the life-giving qualities of trees large and small, such as beech, hickory, dogwood, American Hornbeam, Sweetgum, Southern Red Oak, White Oak and Tulip Poplar. I even saw a rare (to me) White Fringetree (Chionanthus virginicus) right behind my neighbor’s house!

Also spotted in this park are colonies of Black Cohosh, clubmoss, Mayapple, plus ferns, trillium, Solomon’s Plume and many species that I haven’t yet identified. (Naturally, I did ID a few invasives.)

This new habitat comforts my soul. I can gaze upon it from my screened porch and patio. I can meditate to the song of the birds and frogs. I can pray that these woods survive the onslaught of bulldozers. And, I can pray that we all survive the pandemic. Blessings and good health to all my native plant-loving friends!
I spend many days in the nearby Sandhills, often in the North Carolina Sandhills Game Lands (SGL) or the Carolina Sandhills National Wildlife Refuge (CSNWR). Both refuges manage expansive tracts of mature and maturing Longleaf Pine, enhancing and expanding habitat for endangered Red-cockaded Woodpeckers using periodic controlled burning. Both also manage thousands of acres of pools, stream heads, and seepages, home to pitcherplants, native orchids, and more. Stream-head species including Honey-cups (*Zenobia pulverulenta*), White Wicky (*Kalmia cuneate*) and White Asphodel (*Tofieldia glabra*) would be swallowed up by Gallberry hollies (*Ilex* ssp.) and other shrubs without periodic controlled burns.

The SGL and the CSNWR are well known for species diversity. A seepage slope may harbor masses of pitcherplants (*Sarracenia* spp.), nesting songbirds, uncommon tree frogs, and rare sedges. Some species benefit most from an annual burn. Burn intervals of two, three, or even five years may be optimal for other species. For some species, a winter burn is best while others benefit more from growing season burns.

Sandhills Lupine (*Lupinus diffusus*), with masses of gray-green hairy leaves and showy racemes of pale blue blossoms, can be common in mid-spring, carpeting Longleaf Pine tracts by early April. The species is uncommon or absent in areas that are fire-suppressed but often abundant in the second or third year following a burn. Frosted Elfin (*Calliope iris*) are uncommon, small non-migratory butterflies that produce a single brood each year.

In the CSNWR, Sandhills Lupine appears to be their only host plant. Adults “eclose” (an entomology term indicating an insect emerging as an adult from its egg or pupa) from over-wintering pupae in late March, just in time to deposit eggs on flower buds of Sandhills Lupine. Caterpillars feed on flowers and seed pods, mature through early summer, and pupate at or beneath the forest floor. Do a percentage of these pupae survive managed burns? I cannot find a definitive answer. If they survive a burn, they must immediately seek out lupine in an adjacent compartment. What burn regimen is best for both Sandhills Lupine and the Frosted Elfin? I do not believe we know.

Dwarf Indigo-bush (*Amorpha herbacea*) is...
Dealing With A Fire-managed Landscape (cont.)

one of many Sandhills plants that thrive in the growing season immediately following a late winter burn. Compound leaves with numerous opposite leaflets (like other Fabaceae) appear in late spring in burned compartments. Slender flower spikes covered with buds appear in May and by early June small blue blossoms with protruding bright orange anthers attract butterflies and bees. As I walk through a patch of blossoming Indigo-bush, scores of distinctive Brown-belted Bumblebees (Bombus griseocollis) with bright orange pollen sacs methodically circle the flower spikes. Absent Dwarf Indigo-bush, this bee is difficult to find in the CSNWR. Where do they come from? Do they nest in the burned tracts in anticipation of the bloom?

Native plant gardeners know that butterflies love Ironweeds. Slender Ironweed (Vernonia angustifolia) is a striking mid-summer bloomer in the Sandhills. Unbranched stems are typically waist high with numerous narrow stem leaves. Basal leaves are absent. As with indigo-bush, Slender Ironweed thrives in the growing season immediately following a winter burn. The date of the burn influences the time of peak bloom. The rare Dotted Skipper (Hesperia attalus), one of several butterfly species limited to the Sandhills, almost always nectars on purple flowers. The late summer flight period of the Dotted Skipper coincides with the late bloom of Slender Ironweed in compartments that have been burned.

In September and October, Longleaf Pine tracts fill with color as goldenrods (Solidago spp.), gayfeathers (Liatris spp.) eupatoriums (Eupatorium spp.), golden-asters (Chrysopsis spp.), and asters (Symphyotrichum, Eurybia, and lonctis spp.) take center stage. Brightly colored Sandhill Chaffhead (Carphephorus bellidifolius), a Southeast endemic perennial aster, grows among the wiregrass and attracts late-flying butterflies and bees. Migrating Monarchs and Painted Ladies, bright orange Gulf Fritillaries, Cloudless Sulfurs and Long-tailed Skippers congregate in areas of chaffhead, chasing one another and competing for nectar.

Over years of visiting the Sandhills, I have learned that no two years are the same. Weather and prescribed burn regimens combine to alter the Sandhills landscape in dramatic and surprising ways. Butterflies and bees that depend upon Sandhills species as host plants and nectar sources must adapt to the complexities of life in a fire-managed landscape. The demands of survival in this highly variable landscape likely contribute to the region’s species diversity.

Will is a professional photographer and a longtime member of the Society.
Very often it helps to step back from the myriad details about plants we wish were not taking over and think about why we are not welcoming them into our yards and landscapes. NO plant is “bad”, however much we may joke about that. Every plant has evolved somewhere on the planet and has a place in a particular ecosystem.

Nourishes them until the plant can produce its own nutrients. After that, the plant provides the fungus with nutrients. It appears that most orchids (and many other plants as well) have this mutually beneficial relationship.

You are familiar with the need of butterflies and moths for specific host plants, such as the Monarch Butterfly on milkweed (Asclepias spp.) and some relatives, the Spicebush Swallowtail on Spicebush (Lindera benzoin) and its relative Sassafras (Sassafras albidum), and the Tulip-tree Moth on Tulip Tree (Liriodendron tulipifera). But many other insects have similar specific requirements. For example, the colorful Elderberry Longhorn Beetle (Desmocerus palliatus) lays its eggs on Common Elderberry (Sambucus canadensis); the eggs feed on elderberry roots and the adults eat elderberry pollen. Without the elderberry, there would be no Elderberry Beetle.

Look around right now, as the oaks are leafing out, and you may discover a white, fuzzy gall with red spots, caused by the Wool Sower Wasp (Callirhytis seminator). This tiny wasp is harmless to people and is specific to White Oak (Quercus alba).
many wasps that produce galls: when the wasp lays its eggs, substances secreted by the larvae induce the plant to produce the gall. The plant does the work of making the gall!

This summer find Witch Hazel (*Hamamelis virginiana*) and see if you can spot the Witch’s Hat galls (also known as Hershey’s Kisses gall). The Witch Hazel cone gall maker (*Hormaphis hamamelidis*) is an aphid that lays its eggs on Witch Hazel branches. The nymphs migrate to the leaf undersides in the spring, where they cause the leaf to form a cone-like structure on the upper leaf surface. After several other stages they fly to birch trees (*Betula* spp.), go through more transformation and end up resembling whiteflies; they then fly back to Witch Hazel and the process begins again.

Later in the summer look for the Goldenrod Ball Gall, caused by a fly (*Eurosta solidaginis*) that lays its eggs on the stems of goldenrods (especially *Solidago altissima*, *S. canadensis*, and *S. gigantea*). The larvae burrow into the stems, causing the plant to form the gall around the developing larvae. The larvae usually overwinter in these galls, sometimes sharing space with other insects that join them. Birds have been known to break open the galls to feed on the larvae and guests.

And finally, early next spring when Spring Beauty (*Claytonia* spp.) abounds, hang around a patch and look for the tiny Spring Beauty Andrena (*Andrena erigeniae*), a bee that feeds only on the pollen of *Claytonia*. Finessy pollen preference is called oligolecty, and scientists are trying to understand if this has to do with the evolution of an insect’s digestive system or its neurological make-up, so that it does not recognize other plants’ pollen as a food source.

These are but a few examples of the amazing complexity of the world around us. By planting plants native to the region where they evolved, you not only get beautiful plants in your landscapes, you are supporting entire communities. As always, GO NATIVE!

*Chlorofiends! is a regular column in Native Plant News. If you have information or comments on invasive species in North Carolina, please share them with Lisa Gould (lisalgould@gmail.com).

*Thanks to Jim Butcher’s *The Dresden Files* for the column title.*

*All photos are by the author except for the Andrena bee, which is by Patrick Coin.*
As you all know, the big problem of planting natives is the resources to obtain the plants. Sometimes the big box stores will carry a few, but there can be problems with using them. That is, you don’t know where they were raised, so they might not grow well in your location. Most of your local small nurseries will know where their plants were grown (and it is usually local) so that is not an issue. We call this issue “provenance”. This is defined by NCSU NC Master Gardener Handbook, Chapter 12 like this: “Provenance refers to where, in a plant’s native range, seed or propagation materials, such as cuttings, were collected. For example, Red Maple (Acer rubum) trees grown from seed collected near Pittsboro, NC, have NC piedmont provenance.”

The characteristics of plants with a broad distribution can vary from one area of their range to another. Sometimes it matters and sometimes not. What I discovered is, it’s best that your plant/seed be consistent with your area. At first, I didn’t.

When I started this experiment/learning process, I was under the assumption that provenance was not as big an issue with seeds, as it would be with plants. I thought they should germinate if their conditions were right. They may or may not survive where provenance is an issue or they may just “hang in there” and not be very productive. One opinion from a botanist said provenance probably doesn’t matter greatly; another from a nursery owner said it was as important to seeds as plants. Ok, maybe we’ll see, but note the next paragraph.

Several years ago, I purchased some Butterfly weed (Asclepsis tuberosa) from a source in California. I was completely ignorant to the issue of provenance. I did the rigorous cold stratification and planted in my yard. They have survived for several years. Evidently, provenance wasn’t a serious issue with those seeds.

OK, back to this year. I purchased seeds from Farmers Supply here in Wilmington, some from Amazon (collected in SC), some from a place in Texas, and some Coral Bean from a bush down the street from me. So, the provenance was all over the place.

Many of you are aware of the germination codes. Here is a summary:

**Germination Codes**

1. **No pre-treatment necessary.**
2. **Stratification needed.** (Stratification is defined as the process whereby seed dormancy is broken in order to promote germination.)
3. **Soak seeds 8 hours** in warm water before sowing.
4. **Do not cover** these very fine seeds when sowing.
5. **Sow seeds directly** in garden.
6. **Seeds require 1-3 months** of cold stratification.
7. **Sow uncovered on moist**, milled sphagnum, wrap pot in plastic wrap and place in bright light.

I thought that picking seeds that fit codes 1, 2, 4, 5 would be the best for my success. So, I went online and did local shopping and picked seeds that met those criteria. I knew from past experience that *Coreopsis* spp. were pretty good at easy germination so I decided I would have two different experiments, one where I spread the *Coreopsis lanceolate* and *Chrysopsis mariana* (both code 1) seeds in my front yard near the street. I desperately needed some colorful plants there. The second experiment was to plant seeds in trays.

Being a member of the NC Botanical Garden, I was entitled to eight free packets of NC native plant seeds. They included four packets of...
Native From Seeds (cont.)

seeds that fit my easy germination codes, and four that required some form of cold stratification. Thus, my set of trays included both easy (?) germination seeds plus some that, for me, were riskier. I also had some Venus Flytrap seeds that I thought would be neat if I could get them growing.

Here is the list of material I started out with:
- Compost
- Perlite
- Sphagnum moss
- Small plastic stakes
- Starter trays

I used the compost, sphagnum moss and perlite mixed in approximate two parts each of the moss and compost, and one part of perlite to make my starter soil. After doing that, I looked on Google and saw that it should be equal amounts. OK, next time. I read that the seeds should not be subjected to rain and be placed in indirect light. I placed them under my house where it was protected from rain and got filtered light (see picture). Later, I moved some to my deck to receive direct sunlight. So far so good.

My success so far can be seen in several plants. One that I really wanted was Marsh Pink (*Sabatia stellaris*). It is germinating in abundance. Another plant I had never heard of was Bottlebrush Grass (*Elymus hystrix*). It also is doing well.

Another conclusion I reached is that it’s best not to start plants indoors. Many issues can be avoided by starting plants under the correct conditions, mainly correct lighting. Having said that, one plant of several that did OK when started indoors was a Coral Bean (*Erythrina herbacea*). That’s what happens when one experiments!

For our next issue of *Native Plant News*, I will address the topic of “Some germinated, now what?” I will list the seeds I tried and how they progressed.

*Charley is co-chair of the Southeast Coast Chapter.*
NCNPS Awards Grants to 11 Students

By Debra Murray

Due to the generous member donations during the Giving Tuesday campaign, we were able to fund more student research grants this year than any year previous! Students range from undergraduates to PhD students and attend universities across North Carolina. They are proposing to study a range of subjects, from the well-known pitcher-plants to the overlooked but equally interesting lichen communities. Conservation of North Carolina’s native plant species was a large motivation for their research. Some proposed to look at threats to the survival of a species, such as overharvesting and climate change. Others will focus on studying pollination biology and genetic diversity. Thanks again for supporting these young researchers and building the next generation of scientists and conservationists.

Three students are highlighted below.

Laura Hamon, PhD student, North Carolina State University

The Venus Flytrap is one of the most charismatic plants in the South, so it’s amazing that scientists still know so little about its pollinators. Laura is continuing fieldwork she began in 2018 to catalog insects that visit the flowers. She has already shown, along with other scientists, that no, Venus Flytrap plants do not often eat their pollinators! She is now looking to undercover why the species has such low seed-set by first documenting which insect species is the most efficient pollinator. She will also spend time hand feeding the plants crickets and/or pollen to see if that translates into a larger seed set. Her work is critical to the conservation of the species.

David Camp, Appalachian State University

Native plant enthusiasts get a thrill when young leaves of Ramps (Allium tricoccum) begin pushing up through the leaves in the spring. Ramps have a long cultural history in the Southeast and lately have been elevated as a delicacy in the culinary world. Although not currently endangered, concerns of overharvesting have prompted David to study Ramps populations in the Great Smoky Mountains National Park. He will sample plants to determine the genetic diversity of healthy populations. Understanding the current population structure before the pressure of overharvesting is a great resource. Conservationists can use this information for future monitoring of the species.

Ryan O’Connell, Duke University

Few have been lucky enough to see Mountain Golden Heather (Hudsonia montana) in bloom, given that it is found in only a few locations in rocky outcrops of the North Carolina mountains. Federally listed since 1980, the species faces many threats to its survival. Recognizing that individual plants typically encounter more than one stressor at a time, Ryan will examine the cumulative and separate effects of soil moisture and invasive species on the survival, growth, and seed set of the Mountain Golden Heather. He will then use the data to model predicted population changes. (Photo: Emily Whiteley)
Stop and Smell the Natives!

By Bettina Darveaux

We are all very familiar with the lovely floral scents from some of our favorite natives. The strong lemony fragrance from Sweetbay Magnolia (*Magnolia virginiana*), the wafts of spicy, clove perfume from Swamp Azalea (*Rhododendron viscosum*), and the irresistible smell of Fruit Loops cereal from Sweetshrub (*Calycanthus floridus*), just to name a few.

These wonderful, olfactory sensations we experience did not evolve in plants for our benefits, but rather to attract animal/insect pollinators. To emphasize just how important floral scent is, research has found that distinct populations of the same plant species have evolved to produce dramatically different scents driven by the local differences in the pollinator species (Friberg *et al.* 2019. Extreme diversification of floral volatiles within and among species of *Lithophragma* (Saxifragaceae). *PNAS* 116(10):4406-4415. https://www.pnas.org/cgi/doi/10.1073/pnas.1809007116).

Although our enjoyment of these scents is definitely secondary to their true purpose, they contribute so much to why we are so “Wild About Natives”! I have discovered a few unexpected natives to be surprisingly fragrant. Just the other day as I was doing my daily walk around our property, I caught wind of a lovely scent as I walked past a grouping of Possumhaw (*Ilex decidua*) that I planted a few years back. The shrubs were loaded with small, inconspicuous flowers just teeming with small bees. As I brought my nose up to a branch, I confirmed that these flowers were the source of the scent. My nose has not failed me yet! Another spring floriferous surprise is the Southeast native Hubricht’s Bluestar (*Amsonia hubrichtii*). The inflorescences of light blue flowers have a nice light sweet aroma, but you have to get up close to experience this.

A bit later in the season I enjoy the “Cashmere Bouquet” soap fragrance of my Silverleaf Hydrangea (*Hydrangea radiata*). This inflorescence smells so good that I find myself competing with the insects for nose time in the flowers! Another beautiful scent is that from Common Milkweed (*Asclepias syriaca*). Catching a whiff as you pass by a patch of this species is truly a memorable experience.

I cannot end this article without mentioning the native plant species that inspired me to write about floral fragrance in the first place. You will never guess this one: Dog-fennel (*Eupatorium capillifolium*)! In the center area of our circular driveway we have a natural area where Dog-fennel flourishes. During evenings in the fall, the amazing sweet fragrance consisting of a mix between honeysuckle and lily-of-the-valley, just wafts through the humid air. This species definitely smells better than it looks.

Now that we are at home during this COVID-19 pandemic, we have more time to slow down to “stop and smell the roses”. If you would like a real treat, stop and smell the natives. It’s fun and rewarding!
Membership Spotlight: Deborah Staves

Deborah has been the “official greeter” of the Triad Chapter for several years. She has taken classes at the North Carolina Botanical Garden in Chapel Hill.

What is your background?
I have an MS in Library and Information Science, and used to assist in the preparation of the U.S. EPA air pollution documents.

How did you get interested in native plants?
I’ve been concerned about wildlife conservation since childhood, but Doug Tallamy’s writing helped me more fully understand the importance of native plants. The more I learn about natives, the more I like them and want to devote every bit of my little yard to them!

How do you support native plants in your chapter?
I occasionally bring plants from home for door prizes, and I work with other volunteers from our chapter to support the use of native plants in local parks.

Do you have a favorite native plant?
I have a number of favorite native plants. One of them is Aromatic Aster (Symphyotrichum oblongifolium)—the masses of purple-blue flowers in the fall!