wild flower

Journal of the
North Carolina Native Plant Society

Winter 2006
Volume XVIII

Cover Illustration:
Duchesnea indica.
An original drawing by NCNPS (Triad Chapter) member Marion Sledge. See article: *Step Lightly* on page 19.

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wild flower NCNPS Journal

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Articles on the native plants of North Carolina, the environment, conservation issues, persons of interest, or other related topics are welcome. Submit such articles to the editor electronically (kathys@ncwildflower.org) or by mail to 1402 Bearhollow Road, Greensboro, NC 27410.

ISSN # 1048-4582

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It's year end and time to assess those tax deductible donations. We want to remind you that the Native Plant Society is a non-profit organization and any contribution you give is tax deductible. We have the Bruce & Tom Shinn Grant that assists research in the native plant arena; the Cullowhee scholarship that sends a college student to the Cullowhee Native Plant Conference; the BW Wells Stewardship Fund that provides funds to selected NC native plant projects; and the general operating fund which allows us to function as a society and from which we support the NC Conservation Network, the Conservation Council of NC and the NC Botanical Garden. Another important fact is that 100% of your donation goes directly to these efforts.

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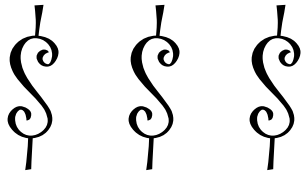


From The President.....

I was talking to my neighbor just a few days before we went to the coast for our fall get together and he could not believe that there was anything worth seeing in the Croatan National Forest this time of year—and besides, "it's forecast to rain down there." When I came back I showed him some pictures of an Autumn Gentian and a Shadow Witch. Just these two pictures were enough to make him decide to take his kids to the coast to see the stuff "other than the beach." Now this was not a formal presentation or a fancy PowerPoint slide show but it did plant a seed of interest in the natural beauty that is around us all the time. It didn't hurt the story that the rains came before, after and around where we were and we stayed dry.

We all have these opportunities to talk with other folks. I urge you to take advantage of them, to spread the word about the beauty of standing in a power-line cut surrounded by yellow, orange, white, and lavender flowers as far as you can see.

That's what we are about! Seeing the beauty, preserving the beauty, telling about the beauty!

That's one of the reasons we want to increase the number of chapters across the state—chapter activities give new opportunities to see and learn about our native plants. People will join an organization that is doing "stuff."

To help you out with information, we are making a considerable effort to make our website, www.ncwildflower.org, an informative useful site. I ask that you visit this site and spend some time on it. It will give you information that you can use when you talk to your neighbor or your club. Let 'em know that the NC Native Plant Society is a fun, active organization eager to have others join us.

See you in the wild.
Tom Harville
November, 2006

Charlotte Patterson on sabbatical from NCNPS

Alice Zawadzki

Charlotte Patterson is taking a sabbatical from her 15-year dedication to the North Carolina Native Plant Society. I have been blessed in sharing time with her in NCNPS/NCWFPS activities since 1996. These have been the nicest times for me. I cherish the many hours that Charlotte and I have spent on the phone over the years. Charlotte has been the serene rock and foundation of the Society for many years. In all her actions, Charlotte has always been gracious, diligent, diplomatic, and reliable. She was the one who always brought the card table and the nametags for the spring and fall meetings. Charlotte always made the Hagan Stone Park reservation for our June picnics and brought the ice and drinks. Every member can add to the list of the many ways that Charlotte has served us and made us better.

Charlotte served as NCWFPS president from 1996 to 2000. Her quiet leadership was always so thoughtful and respectful. I really appreciated her support in the late nineties, when we were becoming more involved in advocacy for the North Carolina Plant Conservation Program. Charlotte was always there for me during the years I served as vice-president and president, especially when some of the longtime members of the Society had concerns that I might single-handedly destroy the Society. Thankfully I did not and that is mostly because of Charlotte's due diligence and her always smoothing the concerns.

For many years Charlotte and I had a continuing discussion of our proposed name change from the North Carolina Wild Flower Preservation Society to the North Carolina Native Plant Society. We knew it would eventually happen. I have always had a fond place in my heart for the tongue twister NCWFPS. I was proud that it only took me two years of practice to say it correctly and in one breath. But the reality was that not one person ever said it correctly when they were

introducing me, so I knew it had to change. I think that both Charlotte and I had very mixed feelings when we finally did experience that final vote in Southern Pines that did change our name. I remember her coming to my room afterwards. We were both relieved in a way, yet we both experienced a sense of loss in that gracious, historical name. I still fondly say the Wild Flower Society and wear my old nametag on my royal blue travelling hat.

Charlotte has been diligent in and knows the importance of maintaining records for historical purposes. Charlotte did the research for our 50th anniversary newsletter. She found and then ordered the beautiful river stones we used to honor our longtime members. As immediate past president and then historian, Charlotte hosted our wonderful 50th anniversary party at the Botanical Garden in Chapel Hill. When we needed a substitute-recording secretary, Charlotte started to write comprehensive minutes and then continued in that role on a permanent basis for the last six years. Charlotte has been keeping a list of key decisions by the Board and incorporating them in a list of Policies and Procedures to which we refer frequently.

Thank you Charlotte Patterson for all your service and dedication to NCWFPS/NCNPS.

Rocky Shoal Spider Lily

Andrew Lazenby

When I look at the native plants of our state I am amazed and awed at the diversity of floral forms as well as the many habitats that abound. One such flower / habitat combination that I enjoy is found in the rocky shoals of some of the southeast's rivers, where *Hymenocallis coronaria,* commonly known as the Rocky Shoal Spider Lily, makes its home. *H. coronaria* is a large impressive perennial notable for its 4 foot long leaves from which 3 to 4 flowering stalks rise, each with an umbel of 7-9 flowers. The flower is white and is made up of 6 long thin tepals with a central "cup" or corona as seen in the photo. These large flowers, measuring up to 6 inches in width, open in the early evening and persist but one day before being replaced the following day with a new flower. It is easy to see where it derives its Latin name, as *Hymenocallis coronaria* means "beautiful membranous crown".

The Spider Lily, traditionally a member of the Amaryllis family, is very distinct as it makes its home in the shallow rocky shoals of rivers such as those found in the Catawba River at Landsford Canal State Park in the Piedmont of South Carolina. This habitat reduces the competition pressures on the lily; the swift water does not allow accumulation of sediment that would provide habitat for other plants. The colony at Landsford Canal State Park, which will be toured on the second day of the spring 2007 symposium, covers approximately 27

acres. When in peak bloom it is in my opinion one of the most striking sights imaginable and a true treasure of South Carolina. From May it is not uncommon to see dozens of canoes and kayaks wending their way among the large clumps of lilies or individuals standing along the shoreline at the lily overlook admiring flowers.

It must be noted that this is a species in crisis and is listed as a Federal Species of Concern. When one looks at the abundance of flowers in the spring it is sometimes hard to understand how this is so, but you have to realize that this represents a case which is becoming far too common where it is the habitat that is in peril as much as the plant. Shoals have historically had pressures on them such as those present in the early 20th century when this area was in need of electrical power for the development industry and growth. As dams were built to meet this need, the traditional habitat of the lily was drowned as the reservoirs began to fill. The reduced flow out of the impoundments coupled with construction along the river has increased the sediment levels, which impacts the plants. In recent years this latter scenario has been apparent in Alabama; biologists have observed the population of lilies in the Cahaba River located near Birmingham, decreasing in the number of plants from year to year. While observers have not witnessed this on the Catawba, impact on the Spider Lily population is something of which we should be mindful as our area grows.

There has been a recent resurgence in interest concerning the Spider Lily as the public and biologists have begun to take a new look at this wonderful plant. I have been fortunate to be allowed to do research on the Spider Lily where I have explored methods for re-establishing colonies upstream of current populations. On the first day of the symposium I will discuss these methods, my research, and the plant and shoals in general. On Sunday a group of dedicated volunteers from the park support group, Landsford Canal Partners for Parks, and I will have the pleasure of leading a canoe tour through the lilies where the participants will be able to get up close to examine the plant and its beauty. For individuals that do not go on the paddling trip, there is a special treat for you as well. Dr. John Schmidt will be leading a guided flower walk along the trails at Landsford. During early May there are many spring ephemerals that will be visible peeking above the leaves. Flowers that are sure to be seen include species such as BloodRoot

(*Sanguinaria canadensis* L.), Trout Lily (*Erythronium umbilicatum*), Heartleaf (*Hexastylis arifolia*), Atamasco Lily (*Zephyranthes atamasco*), and Ruellia (*Ruellia caroliniensis*) to name but a few. Recent improvements to the trails at the park will add to your experience. As of this writing, a lily overlook platform and two bridges have been constructed. These improvements are the result of a recreational trail grant as well as matching grants to the sum of $130K benefiting the park. Future plans include an ADA trail from the main parking area to the overlook. We are fortunate to have a mating pair of Bald Eagles within the park boundary; however, we must respect their breeding season so some trail maintenance will have to wait until next summer.

Well I certainly hope to see you at the Spring Symposium. In my conversations with the organizers it sounds as if they have quite a schedule of events planned to further our education on the native plants of the Carolinas as well as many chances to venture out of the lecture halls into the surrounding areas to observe some of the special plants that call our small part of the world home.

Heuchera in the Caroliniana

Jean Woods

The *Manual of the Vascular Flora of the Carolina*s lists five species of the genus *Heuchera*, known to gardeners as Coral Bells and to wildflower enthusiasts as Alumroot. Elizabeth Fortson Wells lists another species, *Heuchera carolinian,a* in her monograph "A Revision of the Genus Heuchera (Saxifragaceae) in Eastern North America." These names are shown in Table 1, ordered by the dates of the life of the person who named the species. The plant names and their synonyms reveal a story of how the classification of these plants has evolved over time. This paper will take a closer look at the process of classifying and naming the species in the *Heuchera* genus.

Table 1

Plant Name	**Person Naming the Plant**	**Synonyms**
H. americana L.	Linnaeus (1707 -1778)	*H.curtisii* T.& G., *H. Lancipetala* Rydberg *H. Calycosa* Small - S.
H. villosa Michaux	Andre Michaux (1746 - 1802)	
H. pubescens Pursh.	Frederich Traugott Pursh(1774 -1820)	*H. pubescens* var. *brachyandra* Rosendl, Buttl, & Lak. - F
H. parviflora Bartling	Frederick Gottlieb Bartling (1798 - 1875)	*H. Parviflora* var. *rugelii* (Shuttlew.) Rosend., Butt., & Lak. -F,G
H. longiflora var. *aceroides* (Rydberg) Rosend., Butt., Lak.	(Axel Ryderg (1860- 1931)) Carl Otto Rosendahl (1875 - 1956), Fredrick King Butters (1878 -1945), and Olga Lakela (1890 -)	*H. aceroides* Rydberg-S
H. caroliniana (Rosendahl, Butters & Lakela) Wells	Elizabeth Fortson Wells	*Heuchera americana var. caroliniana* Rosendahl, Butters & Lakela

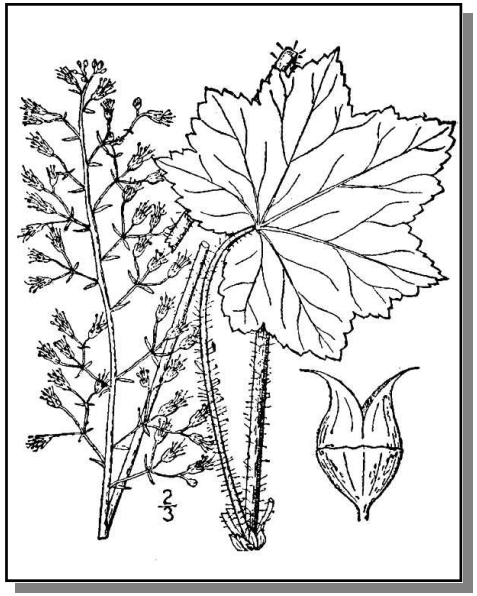
S - *Manual of the Southeastern Flora* (1933) by J. K. Small
F - *Gray's Manual of Botany* 8th Ed. (1950) by M. L. Fernald
G - *The New Britton and Brown Illustrated Flora of the Northeastern United Stated and Adjacent Canada* (1952) by H. A. Gleason

The first species in this list is *Heuchera americana* followed by an "L.". The "L." refers to Linnaeus, the famous Swedish botanist, who standardized the naming of plants in 1753 with the publication of *Species Plantrum*. Until Linnaeus, plants were given long, descriptive, phase names that were cumbersome to write and speak. Linnaeus reduced the names to two parts: genus and specific epithet, with genus being a group name and specific epithet an adjective or the name of place or a person.

The current rules of naming plants specifies that all names earlier than 1753 are invalid and only names after that date that meet certain criteria are acceptable. From this we know that Linnaeus named and described *Heuchera americana* and it is listed in *Species Planatrum* published in 1753. This plant grows only in North America and given that Linnaeus never went to the New World, he must have examined either a plant brought to him or a picture of a plant done by some one who visited the colonies. This might have been Mark Catesby (1682 - 1749) who visited the southeast of what is now the United States where he collected and painted the flora and fauna, resulting in his book, *A Natural History*. At any rate, Linnaeus obtained, studied, and named this small plant. The genus, *Heuchera*, is named after Johan von Heucher, a German doctor and botanist. Linnaeus often named plants after his friends and benefactors, so he most likely was connected in some way with Herr Heucher.

The next species to be named is, *Heuchera villosa*, by Andre Michaux. Michaux collected widely in the Carolinas during his trips of discovery to the New World. Wells speculates that Michaux collected the type specimen during his trip to Roan Mountain, North Carolina in the summer of 1789. *H. americana* has a calyx that is glandular-puberulent, while the calyx of *H. villosa* is villous. Because of this difference, *H. villosa* and its close relative, *H. parviflora* (which is also villosa) are easy to distinguish from the other *Heuchera* species. (See table 2.)

The flowers of *H. americana* are variable and this has caused some botanist to split it into three separate species. We can see this in the synonyms that are listed: *H. curtisii* T. & G. , *H. lancipetala* Rydberg, and *H. calycosa* Small. Synonyms are other names for the same plant that have been published. It is proper to list these other names in a



Heuchera villosa Michx Britton, N.L., and A. Brown. 1913. *Illustrated flora of the northern states and Canada*. Vol. 2: 226. www.plants.usda.gov

flora so that they can be referenced. A "-" followed by a letter or letters refers to the name of the book(s) which published this synonym. For instance, the synonym for *H. longiflora* var. *aceroides* is *H. aceriodes* Rydberg-S. The "S" tells us that Rydberg published the name *H. aceriodes* in Small's *Manual of Southeastern Flora.*

To examine the synonyms for *H. americana* we are referred to Small's *Manual of the Southeastern Flora.* The species in this manual are based on such distinctions as "hypanthium fully 1 mm. long during anthesis and calyx becoming 4-5 mm. long versa hypanthium barley 1 mm. long during anthesis and calyx becoming 3 mm. long." Some of the differences could be small regional differences. *Heuchera americana* is found from Ontario, Canada to Georgia and these botanist worked in different areas of the eastern United States. The authors of the *Manual of the Vascular Flora of the Carolinas* felt that these differences were too small to constitute a different species and list only one species with three synonyms.

Heuchera pubescens was named next by Frederich Traugott Pursh. *Heuchera pubescens* is similar to *H. americana* with a calyx that is glandular puberulent, but the flower is different. *H. americana* has stamens that are exserted and *H. pubescens* has stamens that are included (see Table 2). The synonym for *Heuchera pubescens* is *H. pubescens* var. *brachyandra*. "Brachyandra" means short stamens. Heuchera pubescens is widely variable with stamens ranging from relatively long (9-13 mm) to relatively short (5.5 -8mm). Rosendahl et al. used "Brachyandra" to designate plants with short calyces, short

stamens, and with stamens and styles being nearly included. They were not aware of plants with longer calyces and nearly included stamens and styles which Wells found in populations of *H. pubescens*. Wells feels that "the intergradation between the various flower lengths and degrees of stamen and style exsertion is so extensive that it is not possible to justify subdividing the species into infraspecific taxa" (Wells, 101). Radford et al. agree and do not recognize the variety.

Heuchera parviflora, the next to be named, has a villous calyx and is similar to *H. villosa*. It, however, has acute leaf lobes while *H. Villosa* has rounded leaf lobes. *Heuchera parviflora* has the synonym of *H. parviflora* var. *rugelii* (Shuttlew.) Rosend., Butt., Lak. "Shuttlew." stands for Robert James Shuttleworth (1810-1874) who gave the plant a name which was later changed by Rosendahl, Butters and Lakela. "Rugelii" is based on a person's name. Botanical names are usually formed by adding "ii" after a name in honor of the plant's discoverer or someone who has made significant contributions to the field. "Rugelii" refers to Ferdinand Rugel (1806 -1978*). Heuchera parviflora* var. *rugelii* is differentiated based on the firmness and hairiness of the leaves. The amount of pubescence and firmness vary considerable over the range and within populations making such divisions arbitrary. Radford et al. do not believe that a separate variety exists. Gleason appears to have changed his mind also. His later 1968 edition of *The New Britton and Brown Illustrated Flora of the Northeastern United States and adjacent Canada* also omits the *H. parviflora* var. *rugelii*, listing only *H. parviflora*.

The next to be named is *Heuchera longiflora* var. aceroides by Axel Rydberg. Rydberg's name is in parentheses, meaning that he originally name the species, but that Rosendahl, Butters and Lakela believed it to be merely a variety of H. longiflora. *Heuchera longiflora* is similar to *H. pubescens* with a calyx that is glandular puberulent and has included stamens. The styles, however, are much shorter than the calyx, while *H. pubescens* has styles equal to or slightly longer than the calyx. *Heuchera longiflora* is the only species which grows only on limestone soils. In the opinion of the authors of the *Manual of the Vascular Flora of the Carolinas*, the plant is a variety of the species *H. longiflora* and not a separate species as Rydberg thought, i.e. they accept the opinion of Rosendahl, Butters and Lakela. Wells goes farther and drops the "var. *aceroides*" all together. The leaves of var. *aceroides* "have puberulent undersurfaces and were longer than wide, with the central lobe conspicuously elongated" while *H. longiflora* had glabrous undersurfaces and were equal in width and length (Wells, 111). Wells maintains that plants with these characteristics are found within the same populations and that plants have been found that bearing both leaf shapes on the same plant. She recognizes *H. longiflora* as a single taxon.

The most recently names is *Heuchera caroliniana* (Rosendahl, Butters

& Lakela) Wells. The species was recognized by Rosendahl, et al. in 1979 and published in the *Minneapolis Studies of Plant Science*. It's physical attributes resemble *H. americana* except that the stamens and styles are barely included or only just exserted from the calyx and its free hypanthium is relatively longer. *H. caroliniana* is found in a narrow band in the Carolinas with *H. americana* occurring in adjacent areas.

Wells conducted an artificial hybridizations program among the species listed in this paper. From these experiments she discovered that the species that bloom in the summer, *H. villosa* and *H. parviflora* interbreed moderately and the remaining species interbreed readily. The two groups, however, are not very cross fertile. Her studies did not indicate any changes to the exisiting divisions at the species level, but do support changes at the sectional and subsectional levels.

For instance, when *H. Americana* (as female) was crossed with the other spring-blooming species (as male), the germination percentages ranged from 97% for a cross with *H. pubescens* to 92% for *H. caroliana*. Among the summer-blooming groups the results were 5% when crossed with *H. parviflora* and 6% for a cross with *H. villosa*. Wells states that genetic barriers, while incomplete, were detected between spring- and summer-flowering species. Few barriers exist among spring-flowering species and were only slightly stronger between the two summer-flowering species (Wells, 1979, 328). The groupings show by this do not correspond to the divisions proposed by Rosendahl et al. (1936). The spring-flowering species make up a "closely related, natural group of species which are vegetatively similar although distinctive in floral characters" (Wells, 1979,328). Likewise the summer-blooming group are closely related while having similarity in floral traits while being vegetatively distinct. Wells proposes putting the spring-flowering group in section *Heuchea* and subsection *Americanae* of section *Heuchea* and moving *H. parviflora* to subsection *Villosae* within section *Heuchea*.

By examining the names and synonyms, the history of the classification of a species can be studied. Noting the characteristics that caused problems for taxonomists in the past can help one to avoid such pitfalls in the future. It also sharpens ones power of observation when examining specimens in the field. Show below is a comparison of the species in the genus Heuchera:

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H. villosa	Calyx villous	leaf lobes acute	Stamens exserted	seeds spiny	Free portion of hyp. .2-.5mm			Summer
H. parviflora	Calyx villous	leaf lobes rounded	Stamens exserted, not protruding beyond styles	seeds smooth	Free portion of hyp. .05-.3mm			Summer
H. americana	Calyx glandular-pubescent	leaf lobes rounded	Stamens exserted 3 mm or more	spiny	free portion of hyp.<2 mm	Styles exserted 2.6 mm or more		Spring
H. longiflora	Calyx glandular-pubescent	leaf lobes rounded	Stamens included	spiny	free portion of hyp.>2 mm	Styles conspicuously shorten than the calyx	flowers horizontal at flowering	Spring
H. pubescens	Calyx glandular-pubescent	leaf lobes rounded	Stamens included	spiny	free portion of hyp.>2 mm	Styles equal to or slightly longer than the calyx	flowers ascending at flowering	Spring
H. caroliniana	Calyx glandular-pubescent	leaf lobes rounded	Stamens exserted.2-1.5 mm	spiny	free portion of hyp. >2 mm	Styles included to 1.1 mm exserted		

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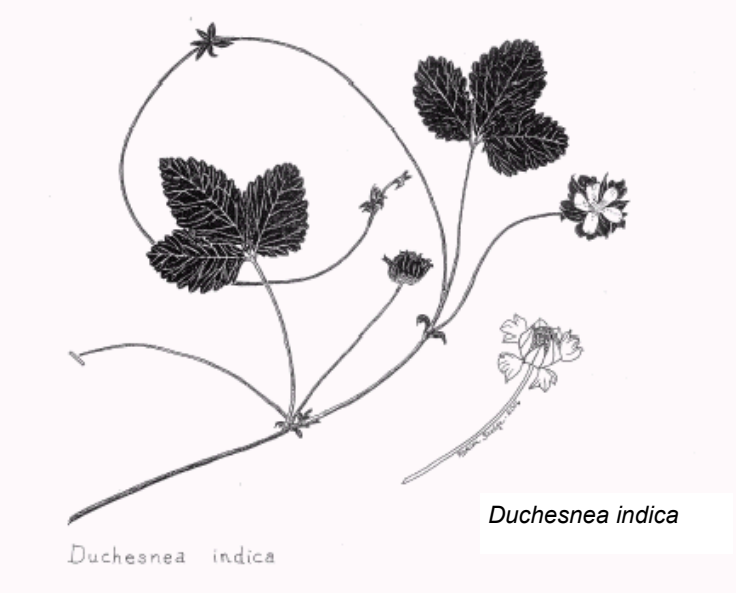
Jean Woods is a long-time member of the North Carolina Native Plant Society and serves as chair of the Piedmont (Charlotte) Chapter.



Original drawings by Marion Sledge

Step Lightly……

Marion Sledge

I find it interesting that our local garden center is selling "steppables," diminutive perennials reported to survive gentle foot traffic. Although I find grass boring, I peruse but do not buy, not wanting to introduce more aliens. The only native represented was our Bluet (*Houstonia caerulea).* I don't like to step on them, and thought it futile to introduce it to our so-called lawn.

Mother Nature has donated the steppables for this zone—that border between shrub bed and curb, semi-shaded, baked by street heat and consumed by tree roots—once seeded in boreal fescu3. Civic duty impels me to keep the growth short so mail carriers can deliver and trash and recyclable cans can be found by the robotic arm of the collection truck. No fan of turf culture, I now ponder the specimens beneath my feet.

Infrequent mowing suffices for the dry uphill. A quick census reveals numerous strands of dwarf cinquefoil, aka five fingers (*Potentilla canadensis*), with slender stolons reaching two fee across the ground, some struggling mock strawberry (*Duchesnea indica*), aok seedlings, and various clovers amid the thin fescue. The damper downhill reveals occasional Lespedeza, much more Duchesnean plus the usual opportunists (odd grasses, violets, *Clematis virginiana,* non-native honeysuckle, liriope, plus—get the mower and the mattock—multiflora rose). One good rain and *Salvia lyrata* emerges. I remove it to colonize out backn not wanting to mow its flowering stem, and wonder which of these species I should encourage in lieu of the dwindling fescue.

My steppables must have survival skills—tolerance of drought, vehicle exhausts, and feet. They must not require mowing, and there will be no regular sprinkler service. Plants must be visibly parked from earliest spring until winter's arrival. A modest reproductive capacity would be a plus, and I want something that would have been here all along, not a come-from-afar. I can't see that diminutive stature qualifies a plant as faux grass. Could you ever clomp across a carpet of foamflower (*Tiarella cordifolia*)? No. If a plant is going to be walked on it has to be common as dirt.

The obvious choice is *Potentilla canadensis,* that tiny member of the rose family, easy to distinguish from its non-native cousin *Duchesnea indica*, now busily colonizing downhill. (Actually, it has colonized every fertile crevice of the

entire yard, front and back, sun and shade, aided by its ability to fruit until frost.)

Visually Potentilla is simpler than Duchesnea. Although Potentilla's leaf is five palmate leaflets, and Duchesnea's leaf is only three leaflets, Potentilla's margins look cut by pinking shears with leaf venation basic fishbone; Duchesnea's margins are crenate to doubly crenate withleaf venation attractively net. Both have leafy basal rosettes and extend above-ground stolons that root at their nodes. From these emanate axillary pedicels bearing solitary 5-petaled yellow flowers, a half-inch wide for Potentilla, slightly more for Duchesnea. Potentilla's flat ten bracts run to points at their tips; Duchesnea's five curve downward at their tips, sport three to four teeth, and extend beyond sepals and petals. Potentilla produces a dry, seed-like fruit; Duchesnea the strawberry look-alike that has no taste. Both species are said to lay more prostrate after flowering (April, in Guilford County). In this yard some petioles of Duchesnea rise eight inches above the stolon, Potentill'a only four, although sources say six is possible. Duchesnea's longest leaflet here makes it just past three inches; Potentilla's makes it to only two and a quarter.

I wonder now what would happen if I limed the soil uphill and ran the sprinkler over it frequently. Would that only encourage the vigorous Duchesnea to come running up and over the delicate Potentilla? I suspect it would. It look like I am left with a lawn full of mowables and one little plant whose survival depends on my neglecting it completely.

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Gentians

Jim Drake

Members of the Gentian family, *Gentianaceae*, occur on every continent except Antarctica, and grow in varied habitats from deserts, savannas, prairies, rain and temperate forests to tundra environments. Their structures range from small herbs to trees, and their beautiful flowers exhibit a wide range of colors.[1] Currently, about 1706 species of gentians within approximately 90 genera are recognized worldwide, however, since several genera are still being revised, this number may change.[2] Gentians derive their name from the ancient King Gentius of Illyria (near Greece) who studied the plants and found medicinal properties in certain species.

In our area, gentians can literally be found far and wide, high and low from the tops of mountains to the coastal plain. They often grow along roadsides and trails, in meadows, within national and state parks and forests, on private land and other locations. Since many of our gentians bloom from late summer through mid fall, they seem to say "goodbye" to summer while offering a preview of next spring's return of other wildflowers.

Such species as fringed gentians, Blue Ridge gentians and narrow-leaf gentians are extremely rare in North Carolina. Both governmental and non-governmental groups are engaged in preservation efforts for these wildflowers. Additional species are also becoming endangered or threatened due to habitat loss, and should be protected. As with many endangered plants, gentians often grow in specific ecologic niches and require unique environmental conditions. In fact, this is often an important element in the identification of a particular species.

The focus of our discussion will include several species of gentians of the southeastern United States particularly North Carolina and surrounding areas. Specific genera included are "blue" gentians (*Gentiana*,

Gentianopsis and *Gentianella*), rose pink (*Sabatia*), American columbo (*Frasera*) and Pennywort (*Obolaria*). Sources of information include personal observations, published literature, online resources and communications with experts on the subject.

General characteristics of *Gentiana* include: herbaceous structure; perennial lifecycle; bottle, cylindrical or bell-shaped flowers; and pleats (appendages) connecting the five petals or lobes of the corolla.

Closed gentian (*Gentiana clausa* Raf.), is a more northeastern species extending into a few North Carolina counties near the end of the plant's southern range. This gentian has tightly closed flowers with smooth, hairless calyx and stems. Several plants, found blooming beside perpetually wet areas at higher elevations of the Blue Ridge Parkway in early October, had beautiful deep blue to dark purple flowers.

The sap of soapwort gentian (*Gentiana saponaria* L.), does not actually produce a lather, but owes the common name to the resemblance of its leaves to those of saponaria or soapwort.[3] *G. saponaria*, also known as harvest bells, seems to prefer wet areas along slow flowing woodland streams and on road banks through hardwood forests. Members of this group were observed blooming in several locations in north Georgia during October and November. It also occurs throughout most of the eastern and southern United States including several counties in North Carolina. Recognizable features include: narrowly elliptical leaves broader near the center and; closed to loosely open flowers.

Showy or Appalachian gentian (*Gentiana decora* Pollard), is somewhat similar to the two previous species. Differentiation can usually be made by observing a puberulent calyx tube through a 10X lens in *decora*. Also, showy gentian earns the common name because the distinctive inflorescence often alternates between white and blue or purple sections producing a striped appearance. This species seems to prefer higher elevations. Several flowering plants of *Gentiana decora* were observed during September and early October at elevations above 4500 feet in the Blue Ridge Mountain area.

Narrow-leaf gentian (*Gentiana linearis* Froel.), a rare species of the northeastern United States, occurs in one isolated location in the Tennessee section of the Great Smokey Mountains at high elevations

near the North Carolina border.[4] Narrow-leaf gentians can be identified by their linear leaves and specific geographic range. The flowers of *G. linearis*, which generally remain closed, are striking for their deep blue coloration. This Gentian was observed at peak bloom during early August.

Blue Ridge gentian (*Gentiana austromontana* Pringle & Sharp) is another rare gentian of high elevations in the Southern Appalachians first described as a new species by Pringle and Sharp in 1964.[5] Found in only four states, North Carolina, Virginia, West Virginia and Tennessee, Blue Ridge gentian occurs in North Carolina on, or near, grassy balds. *G. austromontana* appears to be related to *G. clausa* and

G. decora. However *G. austromontana* has a more tapered acute-tipped flower than *G. clausa*, and further differs by having puberulent stems and calyx lobes. *G. austromontana* differs from *G. decora* in that the latter has a more open florescence and the flowers of the former are more deeply colored.[6] Blue Ridge gentian was observed in full bloom during mid September.

Gentiana austromontana. Jim Drake.

Striped gentian (*Gentiana villosa* L.) can be found growing throughout most of the eastern United States. A distinctive feature of this gentian is a greenish-white flower with purple to blue stripes. Contrary to the name "villosa" meaning hairy, the stem and calyx are actually glabrous or smooth. This species, also known as Sampson's Snakeroot may infrequently be found in North Carolina from the mountains to the coastal plain. This gentian seems to have a preference for drier areas with mixed hardwood-pines. The species was observed blooming during the first part of November.

Pinebarren Gentian (*Gentiana autumnalis* L.) is threatened throughout much of its range due to habitat reduction. Fire suppression, invasive plants and alteration of the natural terrain endanger populations of this native gentian.[7] As the name implies, this species prefers pine woods in our sandhills and coastal plain regions. This *gentiana* species is unique in a number of ways. The five, occasionally four, lobed flowers are wide open at peak bloom. This allows a clear view of the pleats (appendages) which are much shorter than the lobes of the flower. The leaves of G. autumnalis are thin grass-like, and each stem bears a solitary clear-blue bloom with yellow spots on the lobes. These flowers were observed blooming during early November.

Other *gentiana* members of interest include Elliott's gentian (*Gentiana catesbaei* Walt.), closed bottle gentian (*Gentiana andrewsii* Griseb.) and plain gentian (*Gentiana alba* Muhl. ex Nutt.).

G. catesbaei may be found in open moist woodlands, along roads and clearings on the eastern coastal plain from New Jersey to north Florida. Some botanists question whether *G. catesbaei* and *G. saponaria* are separate species. Both of these species have been reported from the southeastern United States. However, botanists have studied specimens from several states and the results seem to indicate two distinct biotypes. *G. catesbaei* has wider leaves and longer calyx and corolla lobes than *G. saponaria* and are thus regarded as separate species.[8] *G. andrewsii*, a more northern species, has been reported in Virginia and could extend into North Carolina. *G. alba*, primarily of the north and midwest, is known from only one specimen in North Carolina which was collected by the botanist Huger in 1916.[9]

Ague weed or stiff gentian [*Gentianella quinquefolia* (L.) Small], and greater fringed gentian [*Gentianopsis crinita* (Froel. Ma)] were previously

also included in the genus *gentiana*.

Gentianella quinquefolia is frequent throughout much of the eastern half of the United States. In North Carolina it is restricted to several mountain counties where it grows on moist road banks and along streams and bogs.[10] The genus name *Gentianella* means small gentian. This annual plant frequently produces multitudes of flowers on the ends of several branches. Each flower is somewhat "crystal" shaped and, in the opinion of this writer, the whole plant resembles an inverted lavender chandelier. These plants were observed blooming in several locations in the Blue Ridge and Great Smokey Mountains during September and October.

Gentianopsis crinita is a northern species and extremely rare in the southeast with very limited range in western North Carolina and north Georgia. *G. crinita* is limited in its growth range due to specific magnesium-rich soil requirements. The limited geographic region containing this specific soil type naturally limits populations of this plant. The iridescent blue flower contains four fringed lobes. *G. crinita* is a biennial and prefers sunny locations along road banks. Inappropriate mowing practices may reduce the plant's range. In some counties, governmental agencies, volunteer groups and private landowners are cooperating in attempts to preserve this beautiful and delicate wildflower. These plants have been observed blooming from September through November.
Other genera of *Gentianaceae* occurring in North Carolina include rose-pink or marsh-pink (*Sabatia*), American columbo (*Frasera*) and pennywort (*Obolaria*).

Several species of *Sabatia*, some of which are rare or imperiled, exist in North Carolina and the southeast. Rose pink (*Sabatia angularis* L. Pursh) grows in scattered localities throughout much of the south and eastern half of the United States. Infrequent in North Carolina, *S. angularis* can occasionally be found primarily in the lower mountains and piedmont. This biennial plant often produces several pink five-lobed flowers with yellow centers.[11]

American columbo (*Frasera caroliniensis* Walt.) is a rare *Gentianaceae* found in two or three of our mountain counties. These tall, up to ten feet, perennials produce four-lobed cream and green flowers.[12] This

unusual plant consists primarily of a basal rosette of leaves increasing in numbers each year until it becomes mature enough to flower during May and June. After flowering, the plant dies. Columbo, also called green gentian, grows in rich woods and limestone glades.[13]

Pennywort (*Obolaria virginica* L.) is a low perennial with rounded purple-green leaves. Small white to lavender flowers appear in the axils of upper leaves in early spring. A species of rich deciduous forests, pennywort is found mainly in our mountains and northern piedmont. The plant is often overlooked due to inconspicuous coloration.[14] Since pennywort contains little chlorophyll, it depends on mycorrhizal fungi for food supplement.[15]

The abundance of wildflowers in North Carolina is a treasure worth protecting. The diverse group of gentians is but one example. Please enjoy, but do not destroy, this natural heritage.

Special thanks are extended to the following individuals for their valuable assistance:

Brady Beck, Wildlife Biologist, North Carolina Wildlife Resources Commission, Hoffman, North Carolina
James S. Pringle, Ph.D. Plant Taxonomist at the Royal Botanical Gardens and Adjunct Associate Professor of Biology at McMaster University, Hamilton, Ontario

Lena Struwe, Ph.D. Gentian Research Network. Assistant Professor, Dept. of Ecology, Evolution, and Natural Resources, & Dept. of Plant Biology and Pathology, Rutgers University - Cook College, New Brunswick, NJ

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You Can Go Home Again

Lisa L. Gould

The first time I visited Rhode Island, I was a fugitive from a long, hot summer in Greensboro, spent toiling at summer classes in physics and calculus and living in an un-air-conditioned dormitory at UNC-G. August in coastal New England seemed like heaven! It wasn't just the cool ocean breezes that struck me, however, but how much Rhode Island's landscape resembled my beloved North Carolina mountains: the forests filled with oak, maple, beech, birch, hickory, White Pine, rhododendron, and Mountain Laurel, and a landscape strewn with rocks. What a great combination: the feel of the mountains right beside gorgeous coastline.

Thus began decades of life in New England, with graduate school at the University of Rhode Island leading to marriage, children, career, many friends, and an ever-deepening appreciation of the beauty of this littlest state. And little it is: Rhode Island is only about 30 miles across and 45 miles north to south, pitiful compared to North Carolina's over-500 mile length and nearly 200-mile width at the widest point.
While North Carolina boasts the highest mountain in the eastern United States, Mt. Mitchell, at 6684 feet—a fact about which I must constantly remind my New England friends, who erroneously award that honor to New Hampshire's Mt. Washington, a mere 6288 feet—Rhode Island's highest peak is Jerimoth Hill, a lowly 812 feet. North Carolina has over 52,000 square miles, while Rhode Island has 1045, making it 50 times smaller than North Carolina!

But for such a tiny place, Rhode Island has an amazing diversity of plant life. The happy botanizer can spend a morning in a Black Spruce (*Picea mariana*) bog examining American Larch (*Larix laricina*), Northern Pitcher plant (*Sarracenia purpurea*), sundews (*Drosera* spp.), cranberries (*Vaccinium* spp.), and cotton-grass (*Eriophorum* spp.) and all sorts of other sedges and rushes, and the afternoon mucking about in a salt marsh resplendent with Sea Lavender (*Limonium carolinianum*), spartinas (*Spartina* spp.), Seaside-goldenrod (*Solidago sempervirens)*, Perennial Salt-marsh Aster (*Aster tenuifolius*), and

glassworts (*Salicornia* spp.). Or perhaps you'd rather wander through a Pitch Pine (*Pinus rigida*) forest looking for Wild Lupine (*Lupinus perennis*), Bearberry (*Arctostaphylos uva-ursi*), Golden Heather (*Hudsonia ericoides*), and other goodies, or explore a coastal plain pond edged with Creeping St. John's Wort (*Hypericum adpressum*), Plymouth Gentian (*Sabatia kennedyana*), Water-lobelia (*Lobelia dortmanna*), Pink Tickseed (*Coreopsis rosea*), Slender Quillwort (*Sagittaria teres*), and New England Boneset (*Eupatorium leucolepis* var. *novae-angliae*). All this and still be home in time for dinner!

As one of the first settled states in the country, and rapidly becoming a bedroom community wedged between Boston and New York City, habitat fragmentation and development are rampant. But Rhode Island is blessed with a strong conservation community: when a place is as small as Rhode Island, it engenders an intimacy with the land, a love of the landscape—down to individual trees, shrubs, and boulders—and a desire to protect that heritage. The Nature Conservancy, Audubon Society of Rhode Island, RI Natural History Survey, RI Wild Plant Society, land trusts (the state has over 39 of them, more than the number of townships), and other NGOs work closely with federal, state, and municipal agencies, and the state's universities, to purchase and manage conservation land, and to educate the public about their importance to the state's aesthetic, ecological, and economic health.

Fast forward nearly forty years, and now I find myself back in North Carolina and back in a state with a stunning breadth of ecosystems and biota (among them lizards! I missed lizards—Rhode Island has none). I'm enjoying the presence of trees I'd missed, such as Sourwood (*Oxydendrum arboreum*), Sweetgum (*Liquidambar styraciflua*), and Redbud (*Cercis canadensis*), and relishing the abundance of Flowering Dogwood (*Cornus florida*), common only in the rare less-acidic soils of Rhode Island. Yellow Poplar (*Liriodendron tulipifera*) reaches its northern limits in New England, and is nowhere abundant in Rhode Island, while here it abounds.

The scale of the plant life is also different. Walking Fern (*Asplenium rhizophyllum*) is perhaps the most extreme example: in Rhode Island, there is one limey rock outcrop with one or two plants of Walking Fern. That's it, for the whole state! Its existence is the Holy Grail for Rhode Island botanists, a spot shown only to those deemed trustworthy. Not a

mile from that rock is another outcrop with the only Purple Cliffbrake (*Pellea atropurpurea*) in Rhode Island, and just a few miles north of that is the sole state site for American Ginseng (*Panax quinquefolium*). But in Nantahala, I know of an entire hillside covered with Walking Fern, and I'd guess that there's plenty of "Sang" in the area, even if I'm not privy to it. From my youth hiking in the North Carolina mountains, I remember slopes covered with Fringed Phacelia (*Phacelia fimbriata*), Large-flowered Trillium (*Trillium grandiflorum*), Spring-beauty (*Claytonia* spp.), and myriad other spring wild flowers, in numbers that would be unimaginable in Rhode Island, where two or three trillium together is cause for much rejoicing.

Here in North Carolina I am also finding old friends in new places. Great Rhododendron (*Rhododendron maximum*), for example, is strictly a swamp plant in Rhode Island, where it hangs out with Atlantic White Cedar (*Chamaecyparis thyoide*s) and Red Maple (*Acer rubrum*); in North Carolina I look for it at mid to low elevations in the mountains and piedmont. American Holly is nearing its northernmost limits in Rhode Island and is found mostly only within 15 miles of the coast, but it can be found throughout North Carolina, from the coastal plain to the mountains. Grounsel-tree (*Baccharis halimifolia*) is confined to the upper margins of salt marshes in Rhode Island, but in the eastern half of North Carolina I see it well inland, forming a frothy border along highways and fields.

It's clear that North Carolina is no less plagued with invasive plants than is New England. While Rhode Island is rapidly becoming overrun with Asiatic Bittersweet (*Celastrus orbiculatus*)—which I've long called the "Kudzu of the North"—here you actually do have Kudzu (*Pueraria lobata*) and plenty of it (along with some Asiatic Bittersweet). I'm seeing Porcelainberry (*Ampelopsis brevipedunculata*) spreading here, as it is in the Northeast, along with Privet (*Ligustrum* spp.), Japanese Barberry (*Berberis thunbergii*, another terrible problem in the Northeast), Princess Tree (*Paulownia tomentosa*), Tree of Heaven (*Ailanthus altissima*), Asian honeysuckles (*Lonicera* spp.) and wisterias (*Wisteria* spp.), and English Ivy (*Hedera helix*). Japanese Stiltgrass (*Microstegium vimineum*), Garlic-mustard (*Alliaria petiolata*), and Japanese Bamboo (*Polygonum cuspidatum*), all scourges farther north, are present here, and I recently got my first look (but I fear, not my last) at Cinnamon-vine (*Dioscorea batatas*) on a NCNPS walk. There are many others that could be listed, but the challenge is the same everywhere: how can groups such as the

NCNPS help prevent new introductions of invasive species and educate the public and the nursery/landscape industry about the existing problems?

And here in North Carolina I have lots to learn. The Rhode Island flora is respectable, at close to 2000 species and varieties/subspecies. But the North Carolina flora is considerably larger (Weakley's *Flora of the Carolinas, Virginia, Georgia and the Surrounding Areas* lists ~5400 taxa). There are new pines and oaks, gingers (none in Rhode Island), lots more trilliums (Rhode Island, with its very acidic soils, has only three species of trillium), oodles more orchids. There are entire families to get to know, and just the thought of all the new grasses, sedges, and rushes, not to mention ferns, makes my knees weak. So I'm looking forward to getting to know the knowledgeable people of the NCNPS and learning from you, and to exploring the great diversity of habitats that North Carolina has to offer.

Lisa Lofland Gould is a new member of the NCNPS and the Triad Chapter. She is former director of the Rhode Island Natural History Survey and a co-founder of the Rhode Island Wild Plant Society. Publications include Vascular Flora of Rhode Island (edited by L. Gould, R. Enser, I. Stuckey, and R. Champlin, 1998, Rhode Island Natural History Survey) and Coastal Plants from Cape Cod to Cape Canaveral (I. Stuckey and L. Gould, 2000, UNC Press).

Northeast Coast Chapter

Kathy Mitchell

Our first-ever field trip, to Pettigrew State Park on September 28th, was a great success. Park Superintendent Sid Shearin, the official "Big Tree" man of the NC State Park Service, led a canoe trip on the Scuppernong River so we could admire the fall fruit display, including Cornus foemina and C. asperifolia (not supposed to occur here!). We also visited Sid's native nursery and his collection of "cookies" from former champion trees -- Quercus pagoda, Diospyros virginiana -- some of which were lost to Hurricane Isabelle. Duane & Iva McSmith, Todd Carroll, Frances Inglis, Pat Simmons and Betty Cassady attended, along with Susan and me. There's some good info on Pettigrew in this article by NC Sea Grant *Coastwatch:*
http://www.coastalguide.com/nc/seagrant/pettigrew01.htm

Sid talked about the park's champion trees and shared copies of the *National Register of Big Trees 2006-07*, which includes several from Pettigrew or nearby areas that Sid nominated.

Pettigrew has a rich historical record, from native American settlements to the Civil War. Somerset Place, an antebelleum plantation dating to the 18th century, is a state historic site included within the park's 1,144 acres.

Sid Shearin is co-author, with Michael Dunn of the NC Museum of Natural Sciences, of *Plant it and They Will Come... Using Native Trees & Shrubs to Attract Wildlife in Eastern North Carolina.* This handbook includes teaching tips for each species, a very useful resource for educators and anyone who wants to introduce children to the wonders of the natural world. Jointly published in 1994 by the NC State Museum of Natural Sciences and the NC Division of Parks & Recreation, the book is currently out of print. Copies may be available from the museum.

Northeast Coast chapter members enjoy a beautiful September day on the Scuppernong River.

The rare roughleaf dogwood (*Cornus asperifolia*) occurs in Pettigrew State Park, along with the more commonly-seen stiff dogwood (*Cornus foemina*). Both species have strikingly colorful fruit displays in autumn.

Pat admires a selection of tree and shrub seedlings in Sid Shearin's native plant nursery.

Bewitched

Katherine Schlosser

A forest of spruce and fir muffles the crash of waves against great granite boulders along Ship Harbor Trail in Acadia National Park, Maine. The fragrance of balsam hangs sweetly in the air and thick moss carpets the trail through this magical forest of tiny brooks meandering around rocks and under fallen trees.

Standing atop one of the giant pink boulders and turning to face inland, another intriguing feature of the forest is revealed—Witches' Brooms, those stubby, tangled knots at the end of branches on many of the trees. Witches' broom is a generic term for an "abnormally bushy, localized growth of a branch characterized by a proliferation of twigs with short internodes."[1] Some so small you have to look closely for them, and some so large they could easily serve as nests for squirrels or eagles, they are the result not of magic, but of pathological or environmental stress. The hunt for Witches Brooms has been likened to the passion of morel hunters among mushroom aficionados, but in this forest, the hunt is over, for they grow in abundance here.

Witches' Broooms on a hackberry tree. Photo by Chub Harper, Iowa State University Extension Service.

Witches' Brooms can be found on many woody trees and shrubs from honeysuckle, azalea and lilacs to shagbark hickory and hackberry.

Neither deciduous nor evergreen species are immune to infestation. Environmental stresses such as injury or road salts usually produce only one broom. Genetic mutation might also cause an isolated broom, which is sometimes propagated to produce dwarf or miniature forms of the parent. By far the most common cause of Witches' Broom is pathological—rusts, aphids, fungi or a combination—which can cause multiple brooms on a tree and will spread from one tree to another.

Pathological infestation is the obvious cause in this Maine forest, for the Witches' Brooms are so frequent that spotting them is no longer fun. On a number of islands along the Maine coast, the parasitic dwarf mistletoe, a "slow growing plant [that] saps the strength of infected trees and in severe cases, kills the tree,"[2] is responsible for the threat to the health of the "country of the pointed firs."[3]

A large Witches' Broom on a white pine.
By Roy Lukes:
http://www.doorbell.net/lukes/a010501.htm

A cousin of the mistletoe we hang in our homes during the Christmas holidays, symptoms of infestation by the dwarf mistletoe, which is common across the northern United States, include the formation of multiple Witches' Brooms. "Like a cancer tumor, it slowly starves the host. A germinating seed sinks its roots deep into the life-giving tissue of a tree's branches. As the parasite withdraws nutrients, the tree signals its healthy parts to send more nutrients to the benefit of the mistletoe. In its third or fourth year, the invader grows a tiny reddish-brown shoot no longer than a spruce needle. It flowers, and in the fall, it spews forth a sticky seed which lands on another branch and starts the cycle over again."[4] Dwarf mistletoe seed can travel up to sixty feet, sometimes aided by birds or wind, endangering nearby trees and resulting in the spread of the disease and threatening the integrity of entire forests.

Another cause of large Witches' brooms in coniferous trees are rust

fungi which are spread by tiny spores. Brooms caused by this fungus grow year-round, though they drop their yellowish needles in the fall. Some rusts require an alternate host as the generations alternate between the two different host species. Most often, one of the hosts is not affected by the fungi.[5] Spruce broom rust is found only where the bearberry is available, while fir rust requires chickweed as an alternate.[6] Dwarf mistletoe requires no alternate host.

While most trees and shrubs, evergreen and deciduous, are subject to attack by broom producing parasites and rusts, some trees are so commonly infected that the brooms become a part of their identification. Hackberry (*Celtis occidentalis*) trees, for example, may carry from one to one hundred brooms of varying sizes.[7]

Of significance to chocolate lovers is the widespread fungal disease of cacao in Latin America. *Crinipellis perniciosa* is present in most of the cacao growing areas of South America and the Caribbean, reducing yield by 60% to 90%.[8] Because of the economic damage, scientists have been quick to assess and to learn to manage infestations on cacao plantations. Management includes pruning, chemical control, disease containment, and development of resistant species.

At home, brooms are occasionally spotted, but the hunt is most fruitful in the winter landscape, when bare branches expose the growths. It isn't always necessary to look high in a tree to find brooms, for they are as likely to grow low on a tree, or in shrubs. It is generally assumed that when only an isolated broom is found on a tree or shrub, it is the result of environmental damage or genetic mutation.

Those genetic mutations are the source of many of the dwarf or miniature cultivars of evergreens that are available in nurseries, for the cuttings and seeds taken from brooms grow very slowly and in a compact form. Typical growth is limited to less than an inch for the smallest varieties to six inches per year for some of the "dwarf" forms.[9]

Checking a cultivar I have in a container, and about which I knew almost nothing including the name, I noted the typical stunted dense growth at the ends of the branches. It has truly been slow growing, surviving for almost five years in a container only 6 inches by 12 inches. Some of

Nine year old white spruce graft from a "mother" broom. Photo by Chub Harper, Iowa State University Extension Service.

the cultivars developed from mother brooms are consistently short-lived and weak, while others live a normal, long life.[10] Some even produce brooms of their own, which may be the case with the plant I have in my container.

Looking for Witches' Brooms is an entertaining pastime in our area, especially in the winter, and presents opportunities for interesting propagation experiments for those so inclined. Knowing the cause of one of the unusual growths can require considerable research, but finding only one in a forest would lead me to believe it was environmental stress or genetic mutation. That would be comforting, for those I saw in Maine, caused by fungi, were alarming in their frequency and potential to dramatically change the landscape.

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[3]Reference to *Country of the Pointed Firs* by Sarah Orne Jewett.

[4]See note 2 above.

[5]Marchand, Peter J., *American Museum of National History,* "Riding the Witches'-Broom" www.findarticles.com/p/articles/mi_m1134/is_4_110/ai_74693743 (accessed October 17, 2006).

[6]Ibid.

[7]University of Illinois, Integrated Pest Management. "Witches' Broom of Hackberry," RPD No. 662, July 1989. www.ipm.uius.edu/diseases/series600/rpd662/ (accessed November 15, 2006).

[8]Ohio State University, "Bibliography of Witches' Broom *Crinipellis."* www.oardc.ohio-state.edu/cocoa/witchbrm.htm (accessed November 15, 2006).

[9]Flynn, Paula and McGuire, Jean. "Witches' Broom Sightings in Trees," *Yard and Garden Column*, Oct. 2003. Iowa State University Extension Plant Pathology Services. http://www.extension.iastate.edu/newsrel/2003/oct03/oct0312.html (accessed Oct. 27, 2006)

[10] Fincham, Bob. "The Origin of Conifer Cultivars." Coenosium Gardens, Eatonville, WA. http://www.coenosium.com/text399/conifero.htm

Photo Journey of Hammocks Beach State Park Trip, Fall 2006

David McAdoo

On our boat ride, this is the scene of the marsh on the inter-coastal waterway side of Hammocks Beach SP. Hard to see but there is a bird on top of the dead snag.

On the ride we got a close view of a red plant that grew in the marsh that everyone was asking about. In addition there is another purple flowering marsh plant in the photo.

I thought that the marsh grass had a neat look to it. You could see a lot of snails when you stopped to look more closely.

A neat wind swept tree on the crest of a dune at Hammocks Beach SP

Sea Oats on a dune at Hammocks Beach SP.

This bird kept following me along the boardwalk as I crossed the dunes.

A photo of Hammocks Beach SP from the sea side of the island.

Of course we did get an opportunity to see some orchids

in bloom when we went to the Croatan NF. This is Shadow Witch (*Pontieva racemosa*) which grows along the streams that run through the forest. We found it in perfect bloom along several of the streams.

In one of the locations where the *Pontieva* was growing, we estimated that there were well over 1,000 plants in bloom.

The other orchid that we found in bloom was *Spiranthes odorata*. It is commonly called a Ladies Tress because of the spiraling aspect of the flowers on the stem. This and several other orchids that had already gone to seed grew in the same area as the *Pontieva*.

One of the electric blue wild flowers that grows

in NC was in bloom in the Croatan NF. This is the Pine Barren Gentian (*Gentiana autumnalis*).

A memorable scene that we saw was a pine savannah that had been burned this summer. The Purple Mist flowers against the wire grass & burnt pine tree trunks made a beautiful sight.

David McAdoo's photos are lovely in color. Unfortunately, we do not have the funds to print our communications in color. Ed.
2013 Copy Note: The photos now appear in all their glorious color. KS

Celebration of the Oconee bell, *Shortia galacifolia,* and its discoverer André Michaux, Clemson, SC March 16-18, 2006

The AMIS (André Michaux International Society), Clemson Natural History Museum, South Carolina Botanical Garden and South Carolina Parks Recreation & Tourism Department will sponsor a Celebration of *Shortia galacifolia*, the "Oconee bell" and André Michaux at the Madren Conference Center, Clemson University, on March 16-18, 2007.

The keynote speaker will be Clemson's Patrick McMillan with other speakers making presentations on the history, science, and garden value of Shortia. The celebration will include a field trip to experience Shortia blooming in its native habitat, the performance of a one-man play about Michaux and will conclude with a tour of the SC Botanical Garden.

Presenters Tim Drake, Clemson entomologist noted for his work in historic preservation, Brad Sanders, author of GUIDE TO WILLIAM BARTRAM'S TRAVELS and Charlie Williams, AMIS Chairman, will set the romantic historical tale of the "lost" *Shortia* and its rediscovery in context. Todd Linscott from Black Hawk College, Moline, IL will report on his ongoing field studies of *Shortia* genetics and Katherine Weeks from Clemson will present her findings on *Shortia* reproduction and its implications for the conservation of this rare species. Lisa Wagner, Education Director of the SC Botanical Garden, will discuss growing Shortia and other Michaux plants in the garden and also lead a tour of the SC Botanical Garden highlighting the Michaux plants. Tim Lee, naturalist from SC State Parks, will lead the field trip to see *Shortia* in bloom in its native habitat. At dinner Charlie Williams will don 18th

century costume to perform the one man play about Michaux's life and adventures that has both delighted and informed audiences from Sewanee to Charleston.

Details and registration information are posted on http://www.michaux.org/

Direct questions about the event to oconeebells2007@yahoo.com

Charlie Williams

Shortia galacigolia photo by Jean Woods

Full registration: $89.00 (includes meals and field trip)
Partial registration: $49.00 (Friday evening and Saturday morning, no meals or field trip)
Lodging: on your own (website and registration form have suggestions)

Registration deadline: February 15, 2007 (late registration at $99.00 accepted until March 10th is space is available.)

Correspondence from members:

A.J. Bullard called after reading the comments on the tree frog identified as *Hyla versicolor* in Vol. IV, Issue 4 (September-October 2006) of the *Native Plant News*.

A.J., who has devoted his life to studying such creatures, says the correct identification is *Hyla chrysocelis*, which is common in North Carolina. *H. versicolor* is a northern variety and is found only in Warren County in North Carolina. The two are morphologically similar but with different chromosome numbers and a different song. Thanks for the correction, and information, A. J.!

Photo by K. Schlosser

2007 NCNPS Schedule

May 4 – 6, 2007 Plants Without Borders

Native Plant Symposium in Rock Hill, South Carolina.

This is our Spring Meeting. We are partnering with the South Carolina Native Plant Society to host the 10th Annual SCNPS Native Plant Symposium. This will take place at the Museum of York County in Rock Hill, SC. For recent, up-to-date information, please see the SCNPS website at http://www.scnps.org/symposium.html

There will be lectures and workshops about the piedmont area and some field trips, one of which will be to see the lovely spider lilies at the Catawba River!

June 9 Annual Picnic and Plant Auction

Bring your favorite picnic potluck dish, a folding chair if you want, and a plant or two for the plant auction. Hagen-Stone Park is off US 421 just south of Greensboro.

October 5 - 7 Fall Trip

Details to be determined

Chapter events

Chapter meetings and events are open to all NCNPS members. Just notify the contact person that you will be attending.

Margaret Reid (Raleigh area) Chapter

12/17/06 Holiday Gathering
1/7/07 Umstead Park
1/21/06 Program on lichens by Garl Perlmutter, Shinn Grant recipient
2/4/07 UNC Herbarium with Carol Ann McCormick
2/18/07 Turkey Creek Work Day
3/4/07 Occoneechee Park
3/18/07 Long Leaf Pine Savannah at Sharon Harris with Dr. Gary Blank
4/1/07 Catsburg Bluffs
4/8/07 Reid Garden Easter Open House
4/15/07 TBA
5/6/07 Exploring Coastal Plain around Mount Olive with AJ Bullard
5/20/07 Tour of the Blomquist Garden with Stefan Bloodworth 6/3/07
Picture Creek joint walk with the Butterfly Society

Triad Chapter

First Sunday of each month: Lookabouts within a days drive
Second Wednesday evening of each month: plant study

Contact for details: kathys@ncwildflower.org

Charlotte Area Chapter

Contact for information: Angela Haigler: ahaigler@plcmc.org

North Carolina Native Plant Society
T-Shirts

100% cotton, pre-shrunk

Sizes: Small, Medium, Large, X Large, XX Large

Colors: Pine green, White, Tan
Azalea pink, yellow, cranberry, sky blue

$15.00 (+ $3.00 shipping)

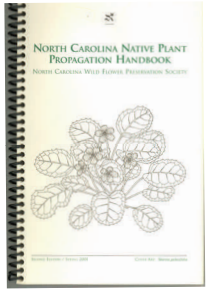
Send your order (make checks to NCNPS):

Brenda Scott, Membership chair
6106 Bent Oak Drive
Durham, NC 27705

Be sure to include color and size preference as well as your mailing address and an email or telephone so we can let you know if your choice is still available!

NORTH CAROLINA NATIVE PLANT PROPAGATION HANDBOOK

Available to NCNPS members for $13.00 each ($18.00 by mail)*
Regular retail price: $15.00 ($20.00 by mail)*
Wholesale price: $10.00 (minimum purchase: 5 copies)
(wholesaler responsible for collecting and paying taxes)



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Business membership I $50
(includes one business card sized ad in one newsletter)

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(includes business card sized ad in two newsletters)

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Send your check and your business card or ad information to:
Tom Harville, 104 Birklands Dr., Cary, NC 27511

North Carolina Native Plant Society, Inc.

Aims and Objectives

The North Carolina Native Plant Society was formed as the N. C. Wild Flower Preservation Society in 1951 by a group of individuals appreciative of native plants throughout the state and region. The purpose of the Society is to promote the conservation and enjoyment of native plants and their habitats through education, protection and propagation.

Quarterly meetings are held at "natural gardens" across the state. Members exchange seeds and propagated plants at these meetings. Other excursions are organized on a local basis throughout the year.

The Society newsletter is usually issued twice a year with articles and illustrations by professional and amateur contributors.

The Shinn Scholarship/Grant Fund sponsors research on native plants by undergraduate and graduate students. The fund is supported by member contributions and by gifts and memorials. Applications are made to the Scholarship/Grant Fund Committee for awards in May of each year.

The Society is a nonprofit organization under North Carolina and Internal Revenue Service regulations. Donations are tax deductible.

Correspondence concerning the Society and its programs may be addressed to:

North Carolina Native Plant Society, Inc.
C/o North Carolina Botanical Garden
Totten Center 3375, UNC-CH
Chapel Hill, NC 27599-3375

www.ncwildflower.org

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ISSN # 1048-4582