

# CHINQUAPIN

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SOUTHERN APPALACHIAN BOTANICAL SOCIETY

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## John E. Fairey Scholarship Supports Study at Field Stations

By Joe Pollard, Jay Bolin, and Charles Horn

Dr. John E. Fairey III, who passed away in February, 2015, will certainly be remembered as one of the giants in the history of the Southern Appalachian Botanical Society. Now, the SABS Council has commemorated his legacy by announcing that a



bequest left by Dr. Fairey will provide scholarship funds to defray the costs of students wishing to study at biological field stations.

A detailed tribute to Dr. Fairey was published in *Castanea* (Nelson J, *Castanea* 80(2):71-73, June 2015), and readers are urged to consult it for a more complete picture of the man and his influence on generations of botanists. Born in the small town of Rowesville, South Carolina, he pursued his undergraduate studies at the University of South Carolina, studying botany with Drs. WT Batson and John Herr. He went on to earn M.S. and Ph.D. degrees at West Virginia University, under the supervision of Dr. Earl Core, one of the founders of what was then the Southern Appalachian Botanical Club (SABC). With names like Batson, Herr, and Core in his pedigree, it was perhaps inevitable that Fairey would also play a major role in the SABC during his long faculty career at Clemson University. He served the SABC as Vice-President in 1981 and President in 1982 and remained active for the rest of his life, as the organization evolved into its

current form, as the Southern Appalachian Botanical Society (SABS).

Shortly after the SABS leadership learned the sad news of John Fairey's death, our Treasurer (and now President) Charles Horn was quite surprised to learn that John's will had included a significant bequest to the society – a six-figure sum representing the largest single gift ever received by SABS. Reflecting Dr. Fairey's lifelong commitment to teaching the plant sciences, the funds were designated to be used for the promotion of botanical education. For over a year, the SABS Council has discussed and refined a mechanism for using the Fairey bequest. On October 7, 2017, at its mid-year meeting, the council unanimously approved a motion to establish the John E. Fairey – Southern Appalachian Botanical Society Biological Field Station Scholarship. The scholarship program will be administered by a committee consisting of Jay Bolin (chair), Jonathan Horton, and Mike Held.

The Fairey Scholarship will provide financial support for undergraduate or graduate students to attend botany workshops or courses taught at biological field stations. Applicants must be members of SABS. Financial need will be a consideration in the selection process. Awardees will be expected to write a brief summary of their experiences for publication in *Chinquapin*. Further details and an application form are being developed by the scholarship committee, and will be available on the SABS website (<http://sabs.us>) in the near future.

The purpose of the John E. Fairey – Southern Appalachian Botanical Society Biological Field Station Scholarship is to honor the life and contributions of John E. Fairey III by providing students access to the potentially transformational educational experience of studying botany at a dedicated field station. It is the hope of the Council that the scholarships will positively impact both the student and the field station they attend. If you are a student, please consider applying for this award. If you know suitable students, please encourage them to do so.



### NEWS FLASH -- *Earl Core Student Award increased!*

The SABS council has voted to raise the maximum research grant under the Earl Core Student Award program to \$1200. (Just two years ago the limit was \$500, so this is a very substantial increase.) Award details are described on the back page of this issue.

Also on the back page you'll find details of our other annual awards. Please consider nominating a worthy candidate for the Elizabeth Ann Bartholomew Award, and spread the word about our other opportunities!

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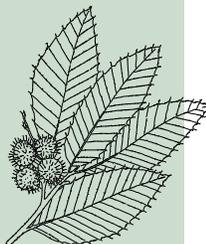
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**From The Editor's Desk:****Joe Pollard, Newsletter Editor**

In the previous issue of *Chinquapin*, I mentioned in this column the devastation caused by Hurricane Harvey, and said that Irma was looking intensely scary. At that moment, Maria had not even formed, but the suffering it inflicted on Puerto Rico will not soon be resolved. Heck, I'm spending the year in England, and Hurricane Ophelia even found us here - not exactly close to the tropics. Sadly, this seems to be the new normal.

Usually in the fall I would be attending the mid-year meeting of the SABS Council. Since I am on sabbatical I couldn't be there. President-Elect Brian Keener also had to cancel at the last minute because of - you guessed it - Hurricane Nate. But the rest of the council was there and had a very busy and productive day, and there are important new initiatives announced elsewhere in this issue. The two most important ones involve student awards. The Earl Core Student Awards provide support for research projects, and the maximum grant amount has now been raised

**Society Awards and Grants – APPLY NOW!**

The Southern Appalachian Botanical Society presents awards and grants each year at its annual meeting in April. Information on the application process can be found on the SABS web page: <http://sabs.us/awards/>.

**APPLY FOR STUDENT PRESENTATION AWARDS**

These awards recognize exceptional student presentations at the annual meeting. Each year we present two awards: the SABS Outstanding Student Poster Award and the SABS Outstanding Student Contributed Paper Award. Each award includes an honorarium of \$150, and the winners are announced at the Association of Southeastern Biologists (ASB) banquet. To submit your paper for consideration, make sure to note such as you submit your abstract to the ASB meeting. Students need to be members of SABS to receive an award.

**HONOR A DISTINGUISHED BOTANIST – THE ELIZABETH ANN BARTHOLOMEW AWARD**

The Society annually presents the Elizabeth Ann Bartholomew award in memory of the namesake's untiring service to the public, to plant systematics, and to SABS. It is presented to individuals who have excelled in professional and public service that advances our knowledge and appreciation of the world of plants and their scientific, cultural, and aesthetic values, and/or rendered exceptional service to the society. If you feel a person deserves recognition, please submit a nomination and request others to write supporting letters. Forms are online at <http://sabs.us/awards/elizabeth-ann-bartholomew-award/>.

to \$1200. The size of the grants has more than doubled in two years. The council also voted to establish a program of grants to students wishing to study at biological field stations, using the generous endowment from the estate of the late Dr. John Fairey.

The focus on student opportunities in these initiatives is not an accident. The Council realizes that students are the future of the SABS. I've said it before in this space, but the gift of a student membership is one of the most powerful things anyone can give to a prospective botanist. With the holiday season approaching, please consider giving a gift membership to your students. It is a sign of respect and validation for them, it opens doors to opportunities for funding and networking, and it helps keep your society growing!

ERRATUM: *Chinquapin* 25(2), page 10, included a quote about the domestication of wheat, from the book *Sapiens* published in 2015. However, we inadvertently omitted the author's name. The author is Yuval Noah Harari. (I recently read this wide-ranging and insightful book and recommend it enthusiastically.)

**APPLY FOR STUDENT RESEARCH FUNDS – THE EARL CORE AWARDS**

Dr. Earl Core was a major force in the founding of the Southern Appalachian Botanical Club in 1935. The annual Earl Core Student Awards were established by the Society in 1996 to provide financial assistance in support of student research projects in plant taxonomy, systematics, and ecology. As noted on the first page of this *Chinquapin*, the maximum value of the award has just been raised to \$1200. The application deadline is February 7, 2018. Both students and their professor must be SABS members in order to apply. Find application information at <http://sabs.us/awards/earl-core-student-research-award/>.

**APPLY FOR STUDENT CONFERENCE SUPPORT**

SABS makes awards of \$300 to assist students attending the Association of Southeastern Biologists (ASB) meeting each year. The award is available to undergraduate and graduate students presenting a paper or poster with a botanical focus at the annual ASB/SABS meeting. Applications are due in February 2018. For criteria and application forms, see <http://sabs.us/awards/student-conference-support-award/>.

**PUBLISH THE BEST PAPERS IN CASTANEA**

The Richard and Minnie Windler Awards are designated for the best papers published in systematics and ecology during the preceding year in our journal *Castanea*. It was established by Dr. Don Windler as a memorial to his parents. If you published or will publish a paper in one of the 2017 issues, your paper will automatically be considered for the award.

# South Carolina Plant Conservation Alliance: Conserving rare plants for future generations

by Amy Hackney Blackwell

Worldwide extinction rates for plant species are seven times greater than for animals. Botanic Gardens in Conservation International (BGCI) estimates that there are about 400,000 species of plants in the world and that one in five of these are threatened with extinction. Threats include habitat loss and degradation, competition with introduced invasive species, overexploitation, and climate change. As of September 2017, the U.S. Fish and Wildlife Service listed 945 plants as endangered or threatened in the U.S. The IUCN Red List included 12,253 plants assessed at least Vulnerable.

The southeastern United States support 33% of the total number of plant species in the U.S. on just 17% of the land mass. South Carolina alone is home to over 3000 vascular plant species, an extraordinary amount of species richness for a relatively small state. A large number of these plants grown in hot spots of biological diversity such as rock outcrops, cataract and southern Appalachian bogs, sandhills, cove forests, relict prairies, and remnants of the longleaf pine ecosystem.

Many of these species and communities are endangered. In South Carolina, there are 22 federally threatened and endangered plant species and 34 at-risk plant species. Nine out of 22 of the federally listed species occur in only two states and SC is one of them. In addition, South Carolina supports the world's majority of populations for the federally endangered American chaffseed (*Schwalbea americana*), Canby's dropwort (*Oxypolis canbyi*), and bunched arrowhead (*Sagittaria fasciculata*). In 2014, the South Carolina Department of Natural Resources listed nearly 450 vascular plants as rare, threatened, or endangered. Many of these are rare because their entire communities are threatened; Carolina bays, coastal sand dunes, rocky shoals, piedmont seepage forests, cedar swamps, and bottomland hardwood communities have all been reduced to fragments of their pre-development incarnations.

The South Carolina Plant Conservation Alliance (SCPCA) is a new organization dedicated to preventing plant extinctions by coordinating conservation efforts across the state. The SCPCA was formed in early 2017 out of a desire to coordinate all the plant conservation efforts going on in the state and, ideally, to ensure that no local extinctions occur. The mission of the South Carolina Plant

Conservation Alliance is to coordinate rare plant conservation activities to ensure no local extinctions. The guiding vision is to serve as a coalition of partnered organizations and individuals dedicated to preserving South Carolina's rare flora. There are no required fees or annual dues to be a member, just a desire to preserve rare flora.

The SCPCA is patterned on similar organizations in other states, such as the Georgia Plant Conservation Alliance. The idea is that the organization will connect interested parties – university programs, botanical gardens, government agencies, land managers, environmental consultants, and botanical experts – to facilitate collaboration and coordination of statewide plant conservation activities. Conservation activities include surveying populations, collecting seed according to approved guidelines, and propagating plants for *ex situ* safeguarding and *in situ* reintroduction.

At the moment, the group is starting small, choosing several priority plant species on which to concentrate efforts. Priority species will be chosen based on practical criteria such degree of endangerment and potential for recovery or conservation. It is not necessary for a species to be federally or state listed for it to be considered a SCPCA priority species.

Current SCPCA projects include the safeguarding and reintroduction of *Schwalbea americana* (American chaffseed), the safeguarding of *Oxypolis canbyi* (Canby's dropwort), and the possible reintroduction of *Plantanthera integrilabia* (white fringeless orchid) to Caesar's Head State Park. The *Schwalbea* and *Plantanthera* reintroductions both highlight the importance of safeguarding seeds *ex situ* as both projects involve decade-old seeds collected for conservation. The *Plantanthera* stock is currently in Illinois, under the care of Lawrence Zettler. The South Carolina Botanical Garden is growing seedlings of both *Oxypolis* and *Schwalbea*, and is working on reintroduction plans with the U.S. Fish and Wildlife Service.

Currently, 39 partnering organizations belong to the SCPCA. Members include Clemson University, The Citadel, Coastal Carolina University, Francis Marion University, Furman University, Newberry College, U.S. Fish and Wildlife Service, U.S. Forest Service, Department of Defense, Federal Highway Commission, National Audubon Society, Naturaland Trust, Riverbanks Botanical Garden, South Carolina Botanical Garden, South Carolina Native Plant Society and The Nature Conservancy. The South Carolina Botanical Garden in Clemson will serve as headquarters.

In the fall of 2017, SCPCA hired me as a coordinator to oversee and organize statewide efforts. My employment is through Clemson University and the South Carolina Botanical Garden, but my work is statewide. We have scheduled a members' meeting for January 24, 2018, from 10:00 to 3:00 at Riverbanks Botanical Garden; we welcome enthusiastic new members!

If you are interested in joining or want more information on the South Carolina Plant Conservation Alliance please check the SCPCA's website at [SCplantconservation.org](http://SCplantconservation.org), or contact Dr. Amy Blackwell at [amyblackwell@mac.com](mailto:amyblackwell@mac.com).

Plant Conservation Alliances in other states have done some amazing things with rare and endangered plants. It would be great to see South Carolina do the same.



Bunched arrowhead (*Sagittaria fasciculata*). Photo © Joe Pollard

# BOTANICAL EXCURSIONS

## Gentians

By George Ellison ([www.georgeellison.com](http://www.georgeellison.com))

Artwork by Elizabeth Ellison ([www.elizabethellisongallery.com](http://www.elizabethellisongallery.com))

*Thou waitest late and com'st alone,  
When woods are bare and birds are flown,  
And frosts and shortening days portend  
The aged year is near his end.  
-- William Cullen Bryant*



Aside from witch-hazel, which unfurls its yellow tassels into December or even early January, gentians are among our latest showy flowering plants. In damp or wet areas protected from hard frost, they can often be found blooming throughout November.

Because of their tardy nature and unsurpassed beauty, gentians have been justly celebrated in both American and European letters. In the lines quoted above, William Cullen Bryant was referencing the fringed gentian), which has in recent decades been reclassified into a closely related genus (*Gentianopsis crinita*).

Nevertheless, it is readily identified by the delicate fringe along its petal margins. Some consider it to be the most beautiful

wildflower in North America. Thoreau described its color as "such a dark blue, surpassing that of the male bluebird's back! It is a transcendent blue!"



*Fringed gentian, Gentianopsis crinita.* © Josh Fecteau.com

Unlike fringed gentian, which opens in sunlight, the seven or so species still classified in the original genus (*Gentiana*) have five petals that are closed or almost closed at the top so that the blossom has a bottle-like shape. One of the most common of these is the stiff gentian (*G. quinquefolia*), which displays narrow purplish flowers.

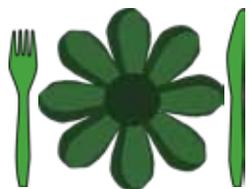
Happening upon these plants in the woods for the first time, you might wonder how they accomplish pollination since their sexual parts are encapsulated within a container of petals. Hang around long enough and the answer will come buzzing along. For reasons known only to themselves, bumblebees are during the fall months incurably attracted to purples and blues. (In spring they seem to prefer white-blooming flowers.) Bumblebees cannot resist gentians, the ultimate in blue. And they know, of course, the secret of gaining access to the sustenance inside the gentian containers.

Bumblebees are stronger than most other nectar-gathering insects. By pressing at the apex of the gentian blossom, they cause it to open like a door. If the bumblebee is a careful bumblebee, he'll push only the front end of his body into the bottle. But if he gets too excited and enters completely, the "door" closes and the flower becomes a prison.

In "Wildflowers and Plant Communities: A Naturalist's Guide to the Carolinas, Virginia, Tennessee & Georgia," biologist Timothy Spira notes that "The exclusive nature of the flower's pollination mechanism benefits the plant in that pollen and nectar aren't wasted on less efficient pollinators."

Bumblebees can fly at lower temperatures than other potential

Gentian continued on Page 24



## Edible Wild Plants: Pollen Paddies and Botanical Cat Dogs – Cattails, Part One

by Lytton John Musselman, Old Dominion University

Cattails, species of *Typha* (Typhaceae) are perhaps the most familiar of any marsh plants, recognizable any time of year. The flowers are virtually unknown by the general public; however, the brown cattails of the autumn that become ragged with cottony masses of seeds (technically fruits) are iconic. Less well-known are the diverse uses of these globally distributed wetland plants. In many places, especially in earlier times, the strap-like leaves were dried and woven into prayer mats and baskets. The tiny seeds produce an oil, the fibers surrounding the seeds can be used for stuffing pillows, mature cattails (the infructescence) can be dipped in kerosene and used as a torch, and all parts of cattails are edible. Without a doubt, cattails are what the ethnobotanist would call a



*Figure 1. Typha latifolia in the Apulia region of Italy, indistinguishable from the abundant cattails of the same species found in wetlands throughout the United States. The upper brown portion of the stalk is the spent male flowers. Below are the masses of female flowers, at the stage for eating.*

multi-purpose plant.

Here, however, I want to discuss only two of the many food uses of cattails. Unlike some edible wild plants, cattails are easy to identify. In fact, they look alike around the globe (Fig. 1).

First, find a population of cattails that are in an area not affected by pesticides or polluted waters. Cattails are used for soil and water remediation because they can sequester heavy metals. You don't want a mercury-laced lunch. Once you locate a chemical-free population keep an eye on it for the collecting season.

In mid to late-spring the flowering stem will appear with the developing male (staminate) flowers on top of the female (pistillate) flowers. Each inflorescence bears thousands of flowers. When bands of yellow begin to show in the male inflorescences they are ready to be harvested (Fig. 2, left).

Simply cut off the male stalks and place in a paper (must be paper!) shopping bag. Fifty stalks will yield about three cups of pollen plus debris. Leave the bag in a cool dry place for a week then shake the bag (closed!)

to remove the pollen. Debris from the inflorescence is impossible to completely remove even after careful sieving and sifting with a tea strainer. Pollen can be stored for several weeks in the refrigerator.

Pollen can be used in several ways. I simply steam the pollen after forming the grains into fragile cakes in cheese cloth. Steam for one hour. The cakes are less fragile after steaming (Figure 2, bottom).



This simple recipe was given me by a Marsh Arab when I was working in Iraq who told me how highly valued pollen cakes are for medicine and as a tonic. To me, the taste is pleasant and slightly sweet—a good combination with a cup of Arab coffee.

The female inflorescence develops at the same time and is also edible (Fig. 1). After removing the male parts, cut the stalk about six inches below the female flowers. You will need sturdy clippers. Using the stalk as a handle, roll the female inflorescence in cornmeal (if you are a Southerner) or flour (if you are from the North) with salt and paper. Lightly fry in a minimum amount oil for about two minutes on each side. Rotate the stalks as they fry, avoid burning. Then, using the stalk as the handle, eat like a corn-dog. Except this is a cattail-dog.



*Figure 2. Top, almost mature male inflorescence at the stage for collecting. Bottom, pollen cakes.*

# Botanical Brainteasers

By Joe Pollard and Janie Marlow

Our summer Brainteasers [Chinquapin 25(2)] were (1) *Helianthus divaricatus* (woodland sunflower), (2) *Cocculus carolinus* (Carolina moonseed), (3) *Oenothera fruticosa* (southern sundrops), (4) *Lupinus perennis* (sundial lupine) and (5) *Drosera rotundifolia* (roundleaf sundew). Once again, the answer to the puzzle was in the common names. Four out of five names refer to the sun, but as we saw on August 21, sometimes the moon can block out the sun.

We had 5 entries, and only one person got it exactly right. Our winner was a brand-new member of SABS, Gretchen Lughart. Welcome, Gretchen, and congratulations! This one had some tough aspects. We all probably struggle with “DYC’s”. And even if you recognized an evening primrose and a lupine, if you guessed the species wrong then you never got the “sun” reference. The biggest stumbling block of all was to confuse no. 2 with a *Smilax*. I realize that would have been a lot easier with a color picture to see those glowing red fruits. We’re still having trouble getting the pdf online quickly, but we’re working on it.

The last two puzzles have both hinged on the plants’ common names, so it’s time to do something different. Once again, one of these pictures doesn’t really belong with the other four, but the reason is more fundamentally “biological.” (As a hint, it might also relate to how people could use them.) As usual, you need to identify all 5 plants and then pick the odd one out. We’ll total up the score at the end of 2017 to determine who gets the prize. So the key is to play often. It also helps to send your answers promptly—there’s extra credit for early responders.

Please address all correspondence regarding Botanical Brainteasers to [joe\\_pollard@att.net](mailto:joe_pollard@att.net). (That’s an underscore character between first and last names.) Email is strongly preferred, as I’ll be out of the office a lot. Color photos will be posted online at <http://sabs.us/publications/chinquapin-issues>. Images are ©JK Marlow.



**No. 3**



**No. 1**



**No. 4**



**No. 2**



**No. 5**

# CASTANEA SNEAK PREVIEWS

By Chris Randle, Editor-in-Chief of *Castanea*

Greetings, *Chinquapin* readers. Now that *Castanea* has moved to two print issues a year, we want to alert you to some of the exciting research being published in our December 2017 issue.

The pine rocklands of south Florida represent one of our many fire-successional habitats. With patchy fires, habitats vary widely in ambient light, from the bright understories of pine forests to the heavily shaded dense hardwood hammocks. Suzanne Koptur and Diane Garcia of Florida International University explore adaptive phenotypic plasticity of rough velvetseed (*Guettarda scabra*) a common woody plant of the Everglades. Plants growing in the bright understory of pine forest are short and small-leaved, allocating resources toward reproductive structures. On the other hand, plants of the hammocks grow taller, allocating resource to larger leaves in response to competition for light.

Savannas of the southeastern US are also dependent on seasonal fires, but fire suppression has resulted in the encroachment of closed hardwood habitats. Restoration efforts have often made use of mechanical removal of invasive hardwoods, which may nonetheless resprout from rootstocks and rhizomes. Milton H. Diaz-Toribo and Francis E. Putz of the University of Florida present an analysis of pine savanna restoration, quantifying impediments to savanna restoration efforts including seed banks dominated by non-savanna disturbance-loving plants and ability of invasive hardwoods to survive top-cutting.

Deer and other browsers have become more abundant in temperate forests of the southeast, especially in urban areas where hunting is insufficient to regulate their populations. Henry Wilbur and colleagues at the Mountain Lake Biological Station investigate the effects of long-term over-browsing by white-tailed deer on vegetation in an urban forest in Columbus, OH. The results of this study suggest practices for deer management in both the maintenance and recovery of biodiversity in mesic forests. Marcus Lashley of Mississippi State University and colleagues examine the interaction of deer browsing and forest edge effects on the survival of white pine (*Pinus strobus*) seedlings at the margin of the species range. Despite increased dangers of browsing, seedlings closer to the edge of the forest had higher long-term survival, indicating that pressure from deer may not be the most important consideration in maintenance of white pine forest in the Piedmont.

Our December issue also features floristic and systematic contributions. Although the threatened spruce-fir forests of the southern Appalachians are renowned as a biodiversity hotspot, inventories of lichen diversity are few, despite the integral ecological role that lichens play in this habitat. James Lendemer of the New York Botanical Garden and colleagues present a comprehensive inventory of the lichens and allied fungi of spruce-fir forests of Mount Mitchell State Park, including an analysis of declines in lichen diversity based on historical and modern records.

Despite its small size (24 ha) and encroaching urban development, Abrams Creek Wetlands in Frederick County Virginia hosts

an assemblage of plants remarkable not only for diversity but for local rarity. The unusual geology and hydrology of the site make it a perfect home for two rare botanical communities, prairie fen and calcareous spring marsh/muck fen. Woodward Bousquet of Shenandoah University and Gary Fleming of the Virginia Dept. of Conservation and Recreation have been studying and working to conserve Abrams Creek Wetlands for twenty years. Their publication in our December issue documents the floristic diversity of this amazing site.

Field botany, a focus of many SABS members, is a continual source of new discoveries and location records. Christopher Butler and Huyen Tran of the University of Central Oklahoma document life history and expansion of the iconic dwarf palmetto (*Sabal minor*). Their study of a nascent population in Beavers Bend State Park, extends the range of the species 40km beyond the Red River, previously thought to be the northwest extent of the species.

No one doubts the importance of reporting the appearance of invasive species in native plant communities. However, the trick sometimes lies in recognizing an invasive versus a non-invasive congener. John Wiersema of the National Germplasm Resources Laboratory and colleagues report the presence of the invasive buttonweed, *Spermacoce latifolia*, in Jumping Gulley Conservation Area near Tampa, Florida. They further provide justification for the separation of this invasive from its non-weedy congener *S. alata* and guidelines for distinguishing the two.

You can wait for the December issue to read more. But why wait? SABS members can log into our site at <http://www.castanea-journal.org/> to access these articles right now.

1. Suzanne Koptur and Diane Garcia. Habitat Differences in Morphology and Reproductive Allocation in *Guettarda scabra* (Rubiaceae).
2. Milton H. Diaz-Toribo and Francis E. Putz. Clear-Cuts Are Not Clean Slates: Residual Vegetation Impediments to Savanna Restoration.
3. Henry M. Wilbur, Katie L. Burke, Rebecca B. Wilbur, and Annie Rosenbauer. Recovery of the Herb Layer in a Southern Appalachian Forest Following Chronic Herbivory by Deer (*Odocoileus virginianus*).
4. Marcus A. Lashley, M. Colter Chitwood, Jordan S. Nanney, Christopher S. DePerno and Christopher E. Moorman. Regenerating White Pine (*Pinus strobus*) in the South: Seedling Position is More Important than Herbivory Protection.
5. James C. Lendemer, Carly R. Anderson Stewart, Betty Besal, Jim Goldsmith, Haley Griffith, Jordan R. Hoffman, Betsy Kraus, Paula LaPoint, Lin Li, Zachary Muscavitch, Joel Schultz, Rebecca Schultz, and Jessica L. Allen. The Lichens and Allied Fungi of Mount Mitchell State Park, North Carolina: A First Checklist with Comprehensive Keys and Comparison to Historical Data.
6. Woodward S. Bousquet and Gary P. Fleming. Floristics of the Abrams Creek Wetlands, a Calcareous Fen Complex in Winchester City and Frederick County, Virginia
7. Christopher J. Butler and Huyen B. Tran. Dwarf Palmetto (*Sabal minor*) Population Increase in Southeastern Oklahoma
8. John H. Wiersema, Piero G. Delprete, Joseph H. Kirkbride, Jr., and Alan R. Franck. A New Weed in Florida, *Spermacoce latifolia*, and the Distinction between *S. alata* and *S. latifolia* (*Spermacoceae*, *Rubiaceae*).

## Return Service Requested

### Gentian continued from Page 20



*Stiff gentian*, *Gentiana quinquefolia*. Photo ©JK Marlow.

pollinators, including honeybees. They have longer tongues than honeybees, so they can pollinate flowers with long narrow corollas. And the branched hairs that cover their bodies are perfect for picking up and transferring pollen.

According to Charles Skinner's "Myths and Legends of Flowers" (1911) the plant's scientific name --which was formally applied by Linnaeus, though its origins go back much further -- references

"Gentius, King of Illyria (circa 181- 68 BC) in the Balkans." The king's physicians considered it to be a remedy for "indigestions, weariness, and dog bites." But in his "Highlands Botanical Garden: A Naturalist's Guide" (2012) Jim Costa--director of the Highlands Biological Station--notes that in more recent times the tonic properties in yellow gentian (*G. lutea*), a European species, are 'being used today to make liqueurs, aperitif wines, and flavorful concoctions like Angostura bitters." (I googled "Angostura." It's a concentrated bitters, or botanically infused alcoholic mixture, made of water, 44.7% ethanol, gentian, herbs and spices.)

YIKES! ... 44.7% ETHANOL?

Then, in Patrica Kyritsi Howell's "Medicinal Plants of the Southern Appalachians," (2006) -- the best book of its sort that I know of -- gentian is credited with curing or alleviating chronic digestive problems with symptoms of bloating, gas, belching, constipation, assimilation, and elimination. The species Howell cites for use in place of the Eurasian yellow gentian is stiff gentian (*G. quinquefolia*)

Her recipe for "Gentian Digestive Bitters" calls, in part, for "three ounces of ground dry or five ounces of finely chopped fresh gentian root into a quart jar with the skins of two organic oranges (thinly sliced), one tablespoon of ground cardamom seed, one teaspoon of whole fennel seed and 16 ounces of quality brandy."

Now we're cooking! Brandy will beat ethanol any day of the year. But I don't have to ingest the plant to enjoy it--just seeing that "transcendent blue" makes me feel better.