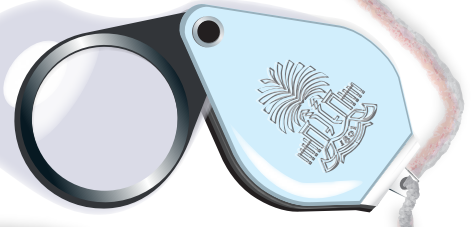


Floroscope



The Newsletter of the A. C. Moore Herbarium
University of South Carolina

Nothing new (botanically) under the sun?

One would think in this age of Blu-Ray technology, instant information access, and global environmental awareness, that something as seemingly mundane as an understanding of the plant life of South Carolina would have been figured out by now. Well, that hasn’t happened. South Carolina is a very “dynamic” state in terms of natural ecosystems, and enjoys a remarkable diversity of plant species. The list of known native species in the state is not a static one, as additional taxa are located and catalogued, most often from unusual or uncommon natural habitats. The process of recognizing and describing plants new to

science has had a long history in this state, at least as far back as 1788, and new species are still being described.

Non-native species, as a result of an array of environmental factors and human manipulation, are showing up increasingly as well. Although such plants are not “native”, they still figure importantly into the contemporary plant life of a given region, and plenty of new imports have been recently documented. Here are a few examples of plant species recently receiving attention at the Herbarium.

1. *Nymphoides peltata*, “yellow floating heart”. This beautiful aquatic species is native to South America, but has become popular for home aquaria and water gardens. Unfortunately, when plants are discarded or “released” into creeks and ponds, they tend to show their dark side, rapidly multiplying as serious invasive pests. Small ponds may be covered by thick growths of this species, which leads to light diminution, among other things. We have specimens of yellow floating heart from several years ago in



A thriving population of yellow floating heart in Lexington County. Close-up photo by Chris Gladis.

Lake Jocassee, but very recently, this plant has shown up in ponds in Lexington and Charleston Counties. To date, treatments with herbicides have been effective in eliminating this plant, but pesticides are expensive, and potentially dangerous. Better strategies for avoiding problems with this plant, and other aquatic weeds—the list is growing!—would involve prevention rather than treatment.

2. *Leptochloa panicoides*, “Amazon sprangletop”. Native to wetlands of Brazil and Mesoamerica, this handsome grass occurs in the Mississippi River drainage, apparently naturally, from western Illinois to the Gulf Coast. It was recently collected (Autumn 2009) along US 601 near the Congaree River, where it grew prolifically (*Nelson 27097, 28056*). Neil Snow, an authority on the genus *Leptochloa* working at the Bishop Museum Herbarium in Hawaii, has confirmed the identity of the SC plants. The presence of this grass in SC may not be particularly surprising, and it should be monitored, especially concerning any potential it may have as an agricultural weed.



Amazon sprangletop, newly reported from South Carolina.

Continued from page 1

3. *Stachys* is a genus in the mint family, and has been the subject of study by John Nelson. It turns out that an unusual, previously unrecognized species has been collected from a total of two populations in SC, both in association with the lower Santee River, in Charleston and Georgetown Counties. The plants are distinctive in the genus, with velvety, soft pubescence, white corollas, and obtuse lower leaves. The name of this new species will be shortly forthcoming. As a new species, it will prove to be absolutely endemic to South Carolina, growing nowhere else in the world, and one of the world's rarest plants.



Could this hedge-nettle be one of the world's rarest plants?

Ghosts of Collections Past Shed New Light on Previously Undocumented Species in South Carolina

During Heritage Trust survey work, mystery plants are often collected for later identification at the USC Herbarium. On one such collecting expedition to a site near Caesar's Head known for a federally-endangered lichen species, Heritage staff collected an odd looking aster. After the specimen was pressed and dried, Herrick Brown set about the task of keying out the species using the classic reference *Manual of the Vascular Flora of the Carolinas* by Radford, Ahles and Bell (1968). Surprisingly the specimen appeared to be *Aster acuminatus* Michaux, which according to the *Manual* was not known then to occur in South Carolina. The specimen was then keyed using a working draft of the *Flora of the Southern and Mid-Atlantic States* by Alan Weakley (2009), and while the specimen was determined to be the same species, its genus had changed

due to a taxonomic revision of North American asters and is now known as *Oclemena acuminata* (Michaux) Greene or 'whorled aster'. Oddly enough, Weakley's *Flora* also had no record of this plant in South Carolina.

Since no other published sources seemed to indicate that the whorled aster had ever been documented to occur in South Carolina, inquiries were made to regional herbaria including those at UNC Chapel Hill, Clemson and Furman University to see if there were any unreported specimens in their collections. While no SC specimen of the whorled aster was found in the collections at Clemson and the UNC, Furman had two! Correspondence with Joe Pollard, Curator of the Ives Herbarium at Furman, revealed that both specimens were collected in the vicinity of an old Boy Scout Camp near the North Carolina border. Interestingly, one of the specimens was collected by Wade Batson (our own Dr. B!) during his undergraduate studies at Furman. The other specimen was collected by Albert Radford (also as an undergraduate), but ironically this specimen was apparently forgotten during his work on the 1968 *Manual*. These important historic collections alerted Heritage Trust staff to the possibility of locating more whorled aster populations in South Carolina.

Recently, Heritage Trust staff embarked on a survey expedition to the Blue Wall Preserve in search of several rare plant species. Managed by The Nature Conservancy, the Preserve harbors a variety of natural plant communities which include several 'narrow' endemics (plants known only from a few areas in the world). The Preserve is also very close to the abandoned Boy Scout Camp mentioned on the specimens at Furman. Given the proximity of the survey site to the known localities of the historic whorled aster collections, the survey team paused for a close inspection of a cluster of curious plants that stood next to a small stream crossing. Noting the strong serrate leaf margins, prominent petioles and corymbiform clusters of flowering heads, it was evident that these were, as suspected, *Oclemena acuminata*. While herbarium specimens played a vital role in locating more populations of whorled aster in South Carolina, they did not foretell the extent to which this species was distributed. Along nearly the entire stretch of the Palmetto Trail that runs through the Blue Wall Preserve, several miles, visitors may witness the beauty of whorled asters whose occurrence in South Carolina is still poorly understood.

Inter-Agency Partnerships Play a Vital Role in Rare Species Conservation

With support from the United States Fish and Wildlife Service (USFWS), SC DNR Heritage Trust staff recently concluded a five-year survey of smooth coneflower (*Echinacea laevigata*) populations in South Carolina. Listed as Endangered by USFWS, smooth coneflower is the eastern-most representative of a genus predominantly found in the prairies of the American West. It is thought that past forestry practices and urbanization have been largely responsible for habitat degradation which has left this species with a tenuous existence. One might not readily imagine prairie-like clearings on the hills of upstate South Carolina, but in fact they are a natural phenomenon historically maintained by wildfires possibly sparked from lightning strike or set by Native Americans. Soil chemistry may also play an important part in maintaining these unique upland communities.

After field work was completed, data compilation began. In addition to corroborating existing records in the Heritage Trust Database, Heritage staff examined the label information on smooth coneflower specimens in the A. C. Moore Herbarium. Several other species of federal concern were also part of the herbarium search including: Radford's sedge (*Carex radfordii*), Fort Mountain sedge (*Carex amplisquama*), Biltmore's carrion flower (*Smilax biltmoreana*), and the white irisette (*Sisyrinchium dichotomum*). As a result of the herbarium specimen survey, Heritage staff was able to identify about 25 previously undocumented occurrences for these species of interest. Since many of these populations are found on federally held lands within the Sumter National Forest, this new information was then provided to United State Forest Service personnel to assist

them in making management decisions.

Heritage Trust staff will continue to document the occurrence of rare and threatened species. Future efforts will focus on properties held by the South Carolina Department of Natural Resources. The Herbarium and its Collections Database will play a significant role in supplying useful data to help direct field survey activities.

Herbarium Partnership with South Carolina PRT

On February 26, staff from the A. C. Moore Herbarium attended the second annual SC State Parks "All Taxa Biodiversity Inventory" (ATBI) Partners Meeting and will continue to serve in an advisory capacity with particular respect to botanical inventories, associated data collection, and database development. SC Parks, Recreation and Tourism (SCPRT) will be using Specify 6 to manage its data, with assistance from the herbarium. Specify 6 has proven to be a powerful tool in collections management, and can be of great benefit in facilitating access to historic specimen records. Further, SCPRT's application of Specify 6 potentially uses some methods of data collection and entry that could be employed by the herbarium staff as a means of expediting specimen processing. This partnership holds great potential with respect to development of state wide data standards and enhancing the utility of Specify 6 as a means of enhancing the accessibility of the herbarium's collection information. This partnership also holds the potential for internships with SCPRT and student projects in the herbarium.

Everyone likes Numbers

The A. C. Moore Herbarium now includes approximately 120,000 collected specimens, including 6,512 within the H. W. Ravenel Collection

of Converse College. Unprocessed specimens, our "works in progress" number about 10,000 specimens. Over the last year, and since the last *Florascope*, we have mounted and accessioned slightly more than 1,200 new sheets. Most of our new additions arise from field work in South Carolina, notably by staff of the SC Heritage Trust Program, as well as from material sent to us on exchange by other herbaria. Thirteen loans have been made in this calendar year, with a total of 651 specimens sent to other researchers for study. Approximately one-third of the Ravenel Collection has been repaired and accessioned, and is now available for study and loan.

As an example, we were fortunate recently to have the leading expert on North American hawthorns, Dr. James Phipps at the University of Western Ontario, borrow and annotate a large majority of the *Crataegus* within the Ravenel herbarium. Similarly, we sent all of the specimens of *Anacardiaceae* (poison ivy and sumacs) for Dr. Susan Pell's study at the Brooklyn Botanical Garden's Herbarium. Making these specimens available to other scientists would surely have pleased Ravenel, a graduate of South Carolina College, as he intended for his amassed specimens to be used and studied:

I shall be glad to have my old Alma Mater, to be the custodian of [the] collection-- the labors of my life. — from the personal journal of H. W. Ravenel, 1875.

One other number is of interest: 484. This is the number of separate plant identification requests we have had this calendar year through October 11. Identifying plants has become one of our hallmark public services, and we intend to continue this offering indefinitely. Our service is completely free, and available to the public.

You may have houseplant, a weed, or perhaps a tree or shrub from your yard or garden that needs to be identified. See contact information at the end of this issue of *Florascope*.

Herbarium Outreach

Several SC high school students participating in the **2010 USC Science and Engineering Fair**, held annually at USC's Columbia campus, toured the Herbarium on March 19. These students represent some of SC's most promising young scientists. (Editor's note: We hope that some of them grow up to become botanists!)

Several of the students were from Spring Valley High School, and they had learned that Dale Soblo, their teacher, had a number of plant specimens in the Herbarium. Dale was a graduate student at Clemson in the 1980s, studying under John Fairey. Most of the specimens at Moore Herbarium that Dale collected came from his project site at Stony Landing State Park, in Berkeley County. Those students really got a charge out of seeing their teacher's specimens.

The USC Herbarium made its third annual appearance at **Satchel Ford Elementary School's Science Fair** on April 16. With Collections Manager Chanda Cooper on hand to answer students' questions about how plant specimens are prepared, what botanists do every day, and why herbaria are important, K-5 students were able to learn about various botanical "tools of the trade," watch a herbarium specimen being prepared, and discover several interesting plants growing in their schoolyard.

In March, the Historic Columbia Foundation invited the USC Herbarium to be a part of the planning pro-



Specimens of poison ivy, poison oak and poison sumac got a lot of attention at the Sparkleberry Fair.

cess for the **Henry Michael Powell Memorial Garden** at the Hampton-Preston Mansion. While plans for the garden are still evolving, we are excited about the ideas that have surfaced over the past six months and look forward to seeing this special children's area developed within the historic Hampton-Preston Gardens.

USC and Clemson set aside their differences for a day while the Herbarium sponsored a table at the 15th annual **Sparkleberry Country Fair** at the Clemson Sandhill Research and Education Center in northeast Columbia on April 24, 2010. In spite of rain, over 25,000 people attended the fair and enjoyed exhibits, food, carnival rides, and performances while learning about the theme of "Agriculture, Past and Present." Plantman made a special appearance to identify mystery plants for the public, and Dr. John Nelson, Curator, and Chanda Cooper were on hand to answer questions about the Herbarium and to pass out the ever-popular Herbarium bumper stickers.

On April 27, Chanda Cooper represented the Herbarium at the monthly meeting of the **Georgetown/Horry County Master Gardeners**. Several herbarium specimens, including one from the Henry W. Ravenel Collection of Converse College and several from the historic azalea collection of Brookgreen Gardens, were put on display while Cooper answered questions about the Herbarium's operations and the collection and preservation of plant specimens.

The Herbarium continues to be a partner in the **Nature-Based Inquiry Project**. This four-year

Chanda Cooper explains the science—and art—of making plant specimens.



project, which is funded by the Commission on Higher Education and presented by USC's Center for Science Education and Longleaf Environmental Learning Center in conjunction with the Georgetown County School District, is designed to help early childhood educators integrate the local environment into their lessons and use outdoor class-



Georgetown County school teachers get hands-on experience with plant identification.

rooms to foster student learning. Now in its third year, the Project has served 37 teachers at eight schools and will reach 15 more teachers at three more schools in its fourth and final session in the 2011-2012 school year. Chanda Cooper represented the Herbarium at two three-day summer workshops in June and July, providing botanical training and tips for integrating schoolyard flora into the curriculum, and conducted flora surveys at three participating elementary schools in September.

Historic Columbia Foundation March 5, 6

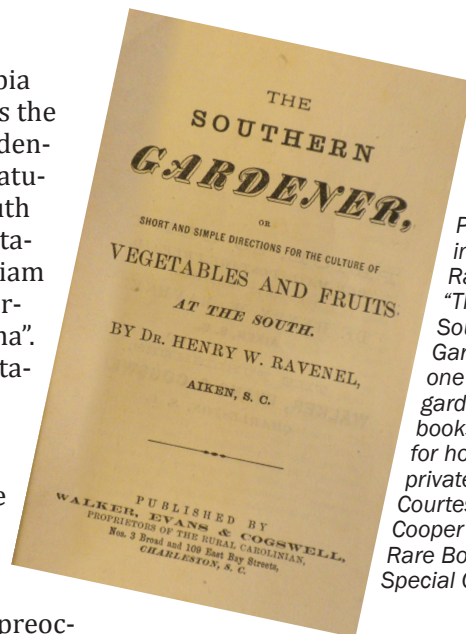
John Nelson was invited to represent the A. C. Moore Herbarium

at the annual Historic Columbia Foundation meeting. This was the Foundation's 3rd Annual Gardening Symposium, entitled "A Natural Pastime: Gardening in South Carolina". Dr. Nelson's presentation was entitled "Henry William Ravenel: the 19th Century Gardening Scene in South Carolina". Important within this presentation was the historic change in growing plants for purely utilitarian reasons in private gardens, to the increasing use of ornamental species, especially "new" cultivars. Additionally, this talk pointed out the change in gardening as a preoccupation suited mostly for women, to a more equitable outlay of time, both industrious and recreational, for both sexes. Primary sources included works available from the Thomas Cooper Library's Rare Books and Special Collections. Of course, numerous examples of cultivated plants of the time were available in the Ravenel Collection of Converse College, and these images were perfect for illustrating this fascinating construct between botany and social history.

A tour of the Herbarium was provided on Saturday to a nicely-sized crowd. At this time the specimens from Ravenel's collection were on display, along with the accessioned material of the main collection.

A new face In the Herbarium

We present to you Mr. Allen Hord, who has been our data management specialist for just over a year now. He comes from Greenwood, SC. Allen is a USC graduate, and a former biology major with an emphasis in botany, who graduated in 2008. While an undergraduate, Allen was no stranger to the Herbarium, as part of the Spring Flora (BIOL 527) class, and got his



Published in 1871, Ravenel's "The Southern Gardener" was one of several gardening books designed for homes and private gardens. Courtesy Thomas Cooper Library, Rare Books & Special Collections.

first inclination toward working here during the class field trip to see the collection.

After entering thousands of records into the database, he now thinks of himself as something of a Latin expert, not to mention German and Swedish!

Master Naturalist Finds Rewarding Hours as Herbarium Volunteer

Among its various missions, the Herbarium is involved in an array of educational offerings. One of these offerings involves hands-on teaching for volunteer helpers. Over the years, the A. C. Moore Herbarium has been fortunate to have a "small army" of dedicated helpers. Very recently, we partnered with Clemson University's Master Naturalist Program.

The Master Naturalist program provides a natural "habitat", so to speak, for those who love the natural world and want to make a difference in its future. Students' goals in this program are to increase their knowledge of (mainly) South Carolina's plants, animals, and ecosystems,

their interactions and the human impact on the natural environment. Graduates are expected to devote 24-36 hours per year in service activities that promote environmental stewardship, exposing themselves to natural, scientific and/or educational settings. "Herbarium Volunteer"... "Master Naturalist needing service hours"...could these two people be one and the same?

For Susan Creed, a 2008 graduate of the Master Naturalist program, this match came at a very good time. Stimulated while a student in USC's Fall Flora class (BIOL 526, in 2009), Susan looked for an opportunity to meet her service requirements and at the same time increase her botanical exposure. Presto! An Herbarium Volunteer was born.



Susan Creed, a masterful naturalist and herbarium assistant!

For Susan, a number of things make the Herbarium a rewarding place to be. It's great to be able to have a part in the scientific and educational mission of the Herbarium. It's satisfying to handle plant specimens, to mount them properly, and to try to identify them. And, not least, it's pleasant and stimulating to work with people of similar interests who are willing to share their knowledge and experience with one who values this gift.

Each Tuesday afternoon Susan looks forward to her time in the Herbarium. Two hours well spent. A good match. She recommends it to others.

(Editor's note: There is always something interesting happening in the Herbarium, and we could always

use assistance for various projects. If you are interested in volunteering, call us at 803-777-8196. For more on Clemson's Master Naturalist Program, call (864)656-4859.)



Plantman makes rare appearances

That indefatigable botanical superhero, Plantman, continues to amaze us. As you might expect, identifying plants for people all over the world (the universe!) is a very time-consuming job, and yet he is able to spend as much time at his home base, the A. C. Moore Herbarium, as he can. Even better, he has been able to

make surprise appearances at various public events. Plantman's goals, beyond identifying plants for people, is to increase awareness of the importance of botanical diversity both globally and locally, and to get people excited about learning more about plant life. He is available for K-12 classroom meetings with schools, as well as with gardeners and other "applied" botanists. Due to his very tight schedule, it may be difficult to book him, but arrangements may be made through the herbarium, by calling either Chanda Cooper or John Nelson at 803-777-8196.

We appreciate these very kind gifts!

During 2010, the A. C. Moore Herbarium received very generous gifts from a wide variety of friends and supporters. The W. T. Batson Endowment for the A. C. Moore Herbarium continues to benefit the activities within the herbarium; gifts made to the herbarium are managed within USC's Educational Foundation, and are made available as needed. For instance, salaries for part-time employees at the Moore Herbarium are supported entirely through the

Endowment, as are day-to-day purchases of supplies (rubber stamps, minor computer accessories, etc.) as well as major acquisitions such as herbarium paper, archival glue, other expendable supplies, and computer software and hardware. Our heartfelt thanks go to those who have made donations in these economically trying times.

Our list of supporters now includes the Lexington County Master Gardeners Association and the SC Midlands Master Gardeners Association. The A. C. Moore Herbarium applied for grants and was funded through both

of groups. As a result of their very generous donations to our Endowment, we have been able to make a major purchase of herbarium paper, shipping boxes, cardboard ventilators (for pressing plant specimens), as well as a video camera. We hope to generate informative videos of botanical subjects, including field trips, and make these avail-

able through our web site. And, these donations have provided us with enough start-up hardware to begin digitizing our collection.



Clockwise from top left: In August, Plantman greeted Kate Goodrich at the Botany 2010 meetings in Providence, RI. Kate received her PhD degree from USC in 2005 under the direction of Rob Raguso.

In conjunction with McKissick Museum's "Grass Roots" exhibition, Basket Day was held in April. Plantman swooped down to explain the botanical importance of the enduring tradition involved in making grass baskets along the Southeast coast.

Aspiring young botanists were charmed by Plantman's phytological ways at the Sparkleberry Country Fair, held at the Clemson Sandhill Research and Education Center in April. So much interesting plant "things" to examine!

Plantman surprised everyone by showing up at the September 14 live airing of SC ETV's award-winning *Making it Grow!* series. Here he is with Amanda McNulty --and her hat-- as well as John Nelson, the "Mystery Doctor with the Mystery Plant".

Specify 6 A bigger, better database.

Migration of the A. C. Moore Herbarium database from Specify 5 to Specify 6 was completed for approximately 70,000 specimen records. During the transformation, a few data cleanup tasks were easily accomplished as well. The success

the Herbarium has experienced with this effort was duly noted by Specify software staff and other regional institutions who recently have been able to incorporate the 94,000 name taxon tree developed by herbarium staff into their own Specify 6 databases. This sets USC as a source for regional nomenclatural standards. Given the flexibility of Specify 6, users can login securely and enter data from anywhere in the world. This feature has made possible a pilot program which will allow the Newberry

College Herbarium to begin cataloging its collection of about 20,000 specimens in its own database maintained on a server at the Moore Herbarium. Under this configuration, staff at the Newberry College Herbarium was able to install Specify 6 and login in less than 20 minutes. This accomplishment is a proof of concept that such an arrangement significantly reduces the amount of IT resources needed for remote data contributors to successfully begin their collection information in a database.

And the Winner Is...

The results are in from the first-ever Moore Herbarium Picturing Plants Art Contest! We received over 50 entries, and boy, was it tough choosing a winner! To help with the judging, we enlisted plant scientist Dr. Beth Krizek, Thoreau scholar and scientific illustrator Dr. Laura Walls, and USC First Lady Patricia Pastides. First-, second-, and third-place winners were chosen in two age categories, and several honorable mentions were also awarded. First-place prize packs included a copy of *A Guide to the Wildflowers of South Carolina* (USC Press, 2002), a plant press, and a florascope. Congratulations to all of our winners and entrants!



Professor Beth Krizek of USC's Department of Biological Sciences served as one of the judges.

Winners in the 9-and-under age category:

1st Place: Alyssa Launi, Age 7, Westmont, IL (Shown Left)

2nd Place: Kathleen Conrad, age 5, Columbia, SC

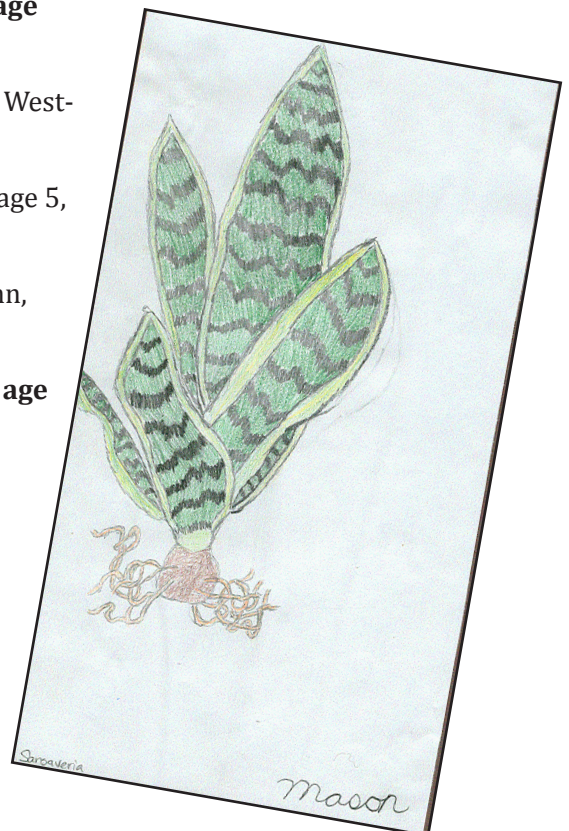
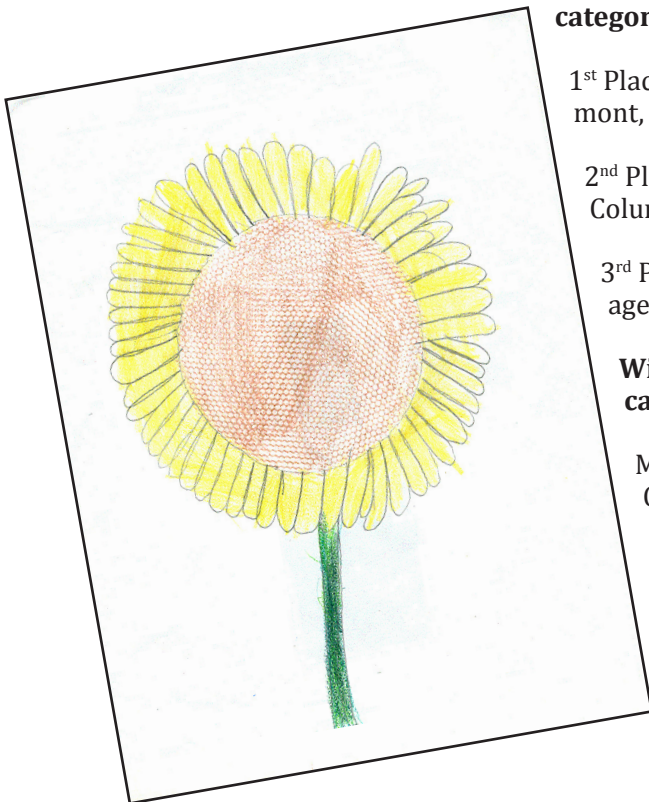
3rd Place: Michael Kaufmann, age 7, Columbia, SC

Winners in the 10 to 14 age category:

Mason Thigpen, age 11, Columbia, SC (Shown Right)

Taylor Wideman, age 14, Columbia, SC

Jamison Wright, age 11, Columbia, SC



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www.herbarium.org

We Need Your Help!

If you have received this newsletter in the mail, it may be because you have taken advantage of the Herbarium's free plant identification service. This service continues to be free for all citizens, and we intend that it will always be available free of charge, with no request "limit" from users.

You may be interested in supporting the Herbarium through a donation to our Endowment. Funds from the Endowment are regularly used to support student employees and to acquire equipment and supplies. Your donation is, of course, tax-deductible. Donations may be

made by check, written out to "USC Educational Foundation", and with a note reading "Batson Endowment-Moore Herbarium"--those four words are important! Checks may be mailed directly to:

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If you would prefer not to receive this newsletter, please call 803-777-8196 or email nelson@sc.edu so that we can remove your name from the mailing list.



Florascope

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ARTS & SCIENCES