
PLANT Conservation

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TWO NEW GEORGIA INSTITUTIONS JOIN CPC NETWORK

The State Botanical Garden of Georgia and the Atlanta Botanical Garden have been invited to become full Participating Institutions in the Center for Plant Conservation (CPC). Our network is now comprised of 36 of America's leading botanical institutions.

"We are delighted to have the opportunity to work with these gardens as a part of the CPC network,"



▲ Dr. James Affolter is a tenured Professor in the University of Georgia Department of Horticulture and Director of Research of the State Botanical Garden of Georgia.

said Kathryn Kennedy, president and executive director of CPC. "These are challenging, but exciting times in plant conservation. Both of these institutions represent valuable partners in CPC's efforts to increase capacity and coordination for plant conservation needs nationwide."

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PTILIMNIUM NODOSUM AND THE ROAD TO RECOVERY

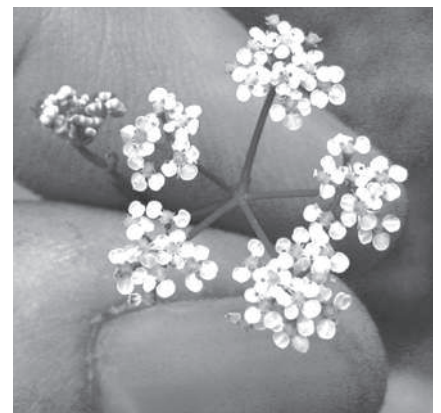
by: Johnny Randall, Ph.D., Assistant Director, North Carolina Botanical Garden

Harperella (*Ptilimnium nodosum*) is a member of the carrot family (Apiaceae) with 13 remaining populations in the eastern United States – down from 26 in 1988 – and having only one location in each of both Virginia and North Carolina. Just over a year ago, North Carolina Botanical Garden (NCBG) staff, volunteers, and cooperating staff from the Natural Heritage Program, NC Plant Conservation Program, and the U.S. Fish and Wildlife Service

reintroduced 800 individuals to an historical site on the Deep River in Piedmont, North Carolina. The plants were propagated from North Carolina's National Collection seed of the eight remaining individuals rescued from this rapidly declining population in 1997.

Ptilimnium nodosum is particularly interesting to NCBG because

Please see *P. nodosum Recovery*, Page 3



▲ Harperella (*Ptilimnium nodosum*) has tiny white flowers that occur in heads, or umbels.

DIRECTOR'S LETTER: A TIME OF REFLECTION

Honoring admission of two new Georgia institutions, this issue gathers examples of work of CPC institutions in the Southeast. We're pleased to see the network growing, adding expertise and energy for hands-on work that is a treasure for now, to recover our most vulnerable species, as well as for future stewardship, education, and advocacy.

It's often difficult for CPC network scientists and their helpers, toiling with few resources, to recognize they are making real progress. To them, within a single season,

progress seems excruciatingly slow. Restoration takes time, often decades. In my years as a U.S. Fish and Wildlife Service employee, managers were aware of that frustration in energetic and committed staff, and encouraged us to maintain perspective, showing us that looking backward we'd see progress more easily than evaluating it in the short-term.

I unintentionally got some of that perspective myself last month. We all noted with sadness the death of Lady Bird Johnson, probably our most effective public spokesperson



for the value of native plants and the need to conserve them, and our landscapes. She worked on many individual projects, from roadside beautification and parks to wildflower research and native plant use—and was a part of a group of pioneers who started a movement. She and other unsung leaders, like members of the Garden Club of America concerned about over-

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The Center for Plant Conservation is a national not-for-profit organization hosted by the Missouri Botanical Garden in St. Louis and governed by an independent Board of Trustees.

A network of 36 botanical institutions, the Center's mission is to conserve and restore the rare native plants of the United States.

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PARTNERSHIPS HELP ROOT FOUR-PETAL PAWPAW

CPC is all about partnerships! Some of the best are the relationships formed between CPC's institutions. The network scientists are close knit and help each other like family.

Recently, Cincinnati Zoo and Botanic Garden's Center for Conservation and Research of Endangered Wildlife (CREW) turned to Cheryl Peterson, conservation program manager, and her team at the Historic Bok Sanctuary for help in rooting the the four-petal pawpaw (*Asimina tetramera*). Valerie Pence, director of plant research at CREW, has been working with the species for almost a decade developing alternative propagation and cryopreservation protocols, since Pawpaw seeds do not store beyond two weeks. CREW was successful in the first stage of tissue culture protocol, but was having trouble with one of the most difficult stages, acclimatizing the propagated plantlets from the test tube into potted conditions.

P. NODOSUM RECOVERY

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their publications manager, Laura Cotterman, discovered the Deep River population in 1986 when she was a botanist for the NC Natural Heritage Program. And the herbarium curator, Alan Weakley, contributed to the research that supports the proposal that three distinct taxa are comprised within the *Ptilimnium nodosum* species "complex."

Because of the strong culture of support among CPC's institutions, the CREW team sent plants to Cheryl at the Bok Sanctuary where they've had great success in growing them in their greenhouse. With the success of the potted plants, Cheryl's team planted the rest of them in the ground as the next step. The CREW team is working hard to send additional plants to increase the population's size in the wild in Florida.

The team consulted Dr. Anne Cox, the expert in *A. tetramera*, biology, who was very generous in planning the restoration efforts and suggestions for possible sites these plants can be outplanted, once they are a viable size.

In addition to propagating the plant, throughout collection in the field, the botanists carefully gathered many genotypes to build the ex situ collection. Thankfully, the CREW team has been able to develop

The reintroduction is funded by the National Fish and Wildlife Foundation, through CPC sponsorship by the Virginia Native Plant Society, and bolstered by the related research of student, Sara Marcinko. Her project, supervised by NCBG director, Peter White, and assistant director, Johnny Randall, centered on the breeding system and habitat characterization of *P. nodosum*.

▼ The four-petal pawpaw (*Asimina tetramera*) is an aromatic shrub or small tree in the Annonaceae family.



methods for cryopreserving tissue from each tissue culture line to build a frozen tissue collection as an alternative, because the seeds cannot be stored in a typical seed bank.

Two other similar species also benefited from this collaboration. It is hoped that the work underway for Rugel's pawpaw (*Deeringothamnus rugelii*) and Beautiful pawpaw (*Deeringothamnus pulchellus*) will also be successful. ☺

Sarah is also a Beattie Fellowship recipient and is determining the effects of floodwater duration and frequency on *P. nodosum* growth and reproduction.

It was particularly challenging to reintroduce an emergent aquatic plant that occupies the uncertain habitat of riverine gravel bars. The reintroduction was designed as an experiment to test the efficacy

Please see P. nodosum Recovery, Page 5

FEDERAL PARTNERSHIP PROVES SUCCESSFUL IN EVERGLADES

The job of restoring America's flora is a big one, even as dedicated and competent as CPC's scientists, students and volunteers are. It is a job we cannot complete alone. Without the legislative safety net, protected sites, and professional staff our state and federal agencies provide, it would be impossible.

When the CPC network and federal agencies are able to partner, amazing work emerges. Over the last four years the Center has been working with national level Department of the Interior funding from the National Park Service to collect and securely store a core seed bank of the federally listed plants that occur on National Park Service lands across the country. It has been a satisfying project for the CPC institutions and Park managers. Seed has been secured; new sites have been discovered; students and

▼ The Fairchild Garden team heads out for collection in Everglades National Park.



volunteers have learned about our national plant treasures; and new partnerships have been formed or existing ones strengthened between our institutions and their nearby National Parks.

A great example of this partnership is the seed collection work Fairchild Tropical Botanical Garden is completing in the one of the nation's most vulnerable and precious habitats: Everglades National Park.

Eight species are targeted: small Garber's sandmat (*Chamaesyce garberi*), Pineland sandmat (*Chamaesyce deltoidea* subsp. *pinetorum*),

Mexican alvaradoa (*Alvaradoa amorphoides*), smooth strongbark (*Bourreria cassinifolia*), Cape Sable thoroughwort (*Chromolaena frustrata*), Cuban snake-bark (*Colubrina cubensis* var. *floridana*), twospike crabgrass (*Digitaria pauciflora*), and Blodgett's silverbush (*Argythamnia blodgettii*). Thousands of seeds have been collected from six of these species so far and the collecting continues as the other species come into flower and fruit. Once collected the seeds are cleaned and shipped to the National Center for Genetic Resources Preservation in Fort Collins, Colorado for storage.

Partnerships forged, like this one, are very important. Not only do they provide funding for particular seed collections and restorations, but they increase the number of botanists working together on the ground to save our imperiled flora. ☺

YOUR FRIENDLY NEIGHBORHOOD CONSERVATION GARDEN

by: Johnny Randall, Ph.D., Assistant Director, and Mike Kunz, Conservation Ecologist, North Carolina Botanical Garden

The public and private gardens affiliated with the Center for Plant Conservation (CPC) have a particular commitment to the conservation of rare plant genetic diversity and their ecosystems. CPC Participating Institutions also tend to support and practice natural area management, administer conservation agreements, restore damaged ecosystems, reintroduce rare plants, cooperate with other

conservation organizations and agencies, and train field botanists. North Carolina Botanical Garden (NCBG) protects the lands that interface with urban areas and practices recovery efforts with the federally endangered harperella (*Ptilimnium nodosum*), smooth coneflower (*Echinacea laevigata*), rough-leaved loosertrife (*Lysimachia asperulifolia*) and other National Collection species.

Of NCBG's 900 acres, over 97% are natural areas, most of which have an urban interface and exist in a generally fragmented landscape. One of the means with which we increase our natural area acreage, stitch together land patches into effective wildlife and plant life corridors, and create buffers is to incorporate adjacent lands through outright purchase and conservation easement acquisition.

Please see *Neighborhood Garden*, Page 5

P.NODOSUM RECOVERY

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of using streambed stabilization treatments in comparison to planting in the natural cobble.

The day after the planting, heavy rains caused the Deep River to rise to nearly eight feet over the reintroduction site and within one week the site flooded three additional times. But, despite repeated flooding over the growing season and unexpected Canada geese predation, approximately half of the original plants survived.

By the end of the season over 150 of the quill-leaved plants reached approximately 30 centimeters in length and dozens of flowering scapes rose to knee-height. Within the axils of the branching scape, plantlets formed, under whose weight plants were laid down where many plantlets rooted. With any luck, some other plantlets detached

▼ A single flowering scape of *Ptilimnium nodosum* has fallen over and rooted at the plantlet-bearing axils.



and found their way downstream, on to an available gravel bar and established a new site.

During the following winter and spring the plants were completely submerged. On the first opportunity to monitor survivorship in early spring, with the site still under approximately eight inches of water, we were unable to find any

plants! But, as of the last inspection in June 2007, the team counted 125 individuals, 107 of which occurred in the coconut fabric plots, one of the two stabilization treatments.

Attrition of the original planting was expected, but the team is already seeing on-site sexual and vegetative reproduction. They will follow the progress of the reintroduction over many years and strive to fulfill the CPC-guided goal - “to recover the nation’s vanishing flora.” ☺



▲ Reintroduction day on the Deep River with a little help from our friends.

NEIGHBORHOOD

GARDEN *continued from page 4*

A key element to achieving this goal is creating and maintaining good relationships with adjacent home- and land-owners, our local municipalities, and the utility organizations that manage right-of-ways on our properties. Through these good relations we have gained support for practicing ecologically responsible landscaping, stream protection, prescribed burning in natural areas, and considerate right-of-way management.

Our conservation garden practices have also attracted the attention of local developers who seek partnerships and advice on their construction designs and open space conservation requirements. In response to this we created the Principles for Conservation Development. The framework of the Principles are to inventory and protect significant natural areas; protect water quality; cluster development, natural areas, and corridors to prevent habitat fragmentation; minimize

environmental impacts; and landscape and restore areas to achieve highest and best use for conservation.

This is just a glimpse at NCBG’s land conservation efforts, which keeps the team forever alert to the next opportunity, but simultaneously apprehensive over the progression of habitat loss. We will continue to promote our conservation garden and cultivate our ongoing good neighbor policies. Learn more at www.ncbg.unc.edu ☺

MEET THE NETWORK: ANITA TILLER, MERCER ARBORETUM

Since she was a young girl, Anita Tiller has been interested in science. From bird watching as a toddler to exploring the nearby Elk River as she got older, Anita grew up in Huntsville, Alabama knowing nature would always be a major force in her life.

Anita received her undergraduate degree from the University of Alabama in Huntsville. Shortly after, she earned her Master of Science at University of Florida, Gainesville. Joining Mercer Arboretum in 2000 as a botanist and conservation manager, Anita is committed to preserving our environment for future generations, especially for her own daughter.

What was one of your proudest moments as a conservationist?

When our volunteers mention the importance of the Center for Plant Conservation (CPC), Millennium Seed Bank (MSB), All Taxa Biodiversity Inventory (ATBI) and

invasive plant monitoring projects. I suggested that the MSB, ATBI of the Big Thicket National Preserve and citizen invasive programs be offered to our Mercer volunteers because these programs heighten the public awareness of local, and global, environmental concerns.

Do you do any work with future conservationists?

Presently, I work with the Klein-Collins High School ECO Club students. Their club has adopted one of Mercer's trails and removes invasive plants from these trails as their service project. The same group participates in the national Envirothon competition and placed first in Texas for Wildlife this year. These kids are already conservationists. This year, again, one of these students will be my summer intern at Mercer.

My husband, daughter, and I set up a mini Natural History Museum of fossils and artifacts for Laura's



◀ Anita Tiller and daughter, at the All Taxa Biodiversity Inventory Project Kick-off.

elementary school science hall display case. We enjoy sharing our treasures with the school, and it saves us time dusting at home! We also serve as science club mentors for the children at her school.

What do you do in your free time?

I nurture my daughter and her friends and their families and my husband, his family, my family and our friends and pet cat, Cedric. I practice sustainable gardening and just installed my first rain barrel at home, with at least two more to go. We track our resident box turtles for the Texas Parks and Wildlife Department (TPWD) Watch program and certified our yard as a Best of
Please see Meet the Network, Page 9

It gave me some perspective. In and around 1983 and 1984 their vision and work began to pay off. They moved public policy and communities. Those were the years the Center for Plant Conservation and the Lady Bird Johnson Wildflower Center were founded, and later the Plant Conservation Alliance. Getting them organized and putting their work in action has been quite
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DIRECTOR'S LETTER

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collection in the wild, and a few progressive institutions (like the New England Wild Flower Society and the North Carolina Botanical Garden) raised national awareness of native plants, and found a curious and concerned public.

Twenty three years ago I had the amazing experience of working with Lady Bird in the earliest days of the Wildflower Center. Recently I returned and walked around places where many worked hard to get it started, in Austin and the LBJ Ranch. I went through old photographs. Many amazing people in them are no longer with us.

COOL TOOLS: AUTOMATIC SEED WEIGHER

by: Jennifer Ison, Chicago Botanic Garden

The seed biology lab at Chicago Botanic Garden has a one of kind automatic seed weigher. The equipment was originally designed to weigh and count pills for the pharmaceutical industry. However, we have been able to adapt the system to work with seeds!

A group of seeds is placed into an agitator that shakes the seeds to separate them, moving each seed towards a shoot that leads to a balance. After the seed goes down the shoot it passes through an infrared light which tells the agitator



▲ A great time saver, this cool tool has saved the Chicago Botanic Garden's staff and volunteers many valuable hours.

to stop. The balance then weighs the seed and transfers the weight to a spreadsheet on a computer. Once the seed weight is transferred to

Please see Seed Tool, Page 10

WORKPLACE GIVING HELPS CPC GROW AND DIVERSIFY FUND RAISING

CPC has been accepted as a participant in the combined federal campaign for the 07/08 season. Federal employees designate their gifts to organization's identification number. This year the CFC has adopted a new numbering system; CPC's assigned number is 11524. CFC is the world's largest and most successful annual workplace charity campaign, with more than 300 CFC campaigns throughout the country and internationally that help to raise millions of dollars each year. Pledges made by federal, civilian, postal and military donors during the campaign season (September 1st to December 15th) support eligible non-profit organizations throughout the world. For more information visit www.opm.gov/cfc.

CPC is also a participant in Earthshare Missouri, a workplace giving program for the environment that is available to state and private companies for payroll giving.

Workplace giving is convenient and efficient and it is a great way for agencies and companies to reinforce the culture of philanthropy in your community. Ask your employer if your office participates in a giving program that includes environmental organizations.

Some employers have matching programs for employee philanthropy as well, which effectively multiplies the value of your gift! ☺

DIRECTOR'S LETTER

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an effort, and still is. Think about it, and take a look at their websites (there were no websites in 1984 either)! These organizations have achieved a lot, and are still at it. They have the commitment and potential to do more.

Conscious environmental stewardship work is a blink in the timeline of mankind. The plant conservation effort is younger still. This is a cause for great hope, and great pride. There is a lot of work to do, but so much has been accomplished that we are confident we have the community supporters, organizations, professional workforce, and the volunteers to do the job. That's quite a legacy from Mrs. Johnson and her many kindred spirits. One we cannot let die out.

It's clear our job now is to move on to the next level. We need to help the nation expand its understanding, appreciation, and concern for our native flora, in the most collaborative and positive way possible. We need to show them the progress we can make and share our stories and sense of hope. We know we can save these species and meet the challenges of habitat degradation and global climate change. Let's build on this foundation and harness today's energy, talent and partnerships to make it happen!

Sincerely,

CPC MEETING NURTURES ENTHUSIASM FOR PLANT RECOVERY

Picture a cross between a big family reunion and a scientific meeting... that is CPC's national meeting, where our Board of Trustees, conservation officers from our institutions, national office staff, and guests meet, mix and discuss our passion for plant conservation. Held on May 3-6, the event began with a warm welcome to the Chicago Botanic Garden by Sophia Siskel, president, along with a welcome from the neighboring Morton Arboretum by Clem Hamilton, vice president of arboretum programs

and director of research. Kathryn Kennedy, executive director of CPC set the tone of the meeting with her presentation, "Growing Strong," reviewing CPC's progress and challenges while the rest of the CPC staff delivered more detailed progress updates.

The group heard from over 25 of CPC's Participating Institutions on their current programs, gaining support from their peers. The Conservation Officer's meeting provided a forum for discussion

on topics ranging from reworking the organization's mission statement to developing a stance on climate change.

Friday evening's dinner was graciously hosted by the Chicago Botanic Garden. Christina Walters, research leader and plant physiologist, of the USDA-ARS National Center for Genetic Resources Preservation, was awarded the CPC Star Award for her accomplishments and leadership in conserving genetic diversity of wild populations. The Star Award recognizes someone who has made great strides for plant conservation. Walters

has been a member of CPC's Science Advisory Council since 1995. Her renowned seed physiology and storage research, combined with her generous advice and problem solving have been invaluable for CPC. Chris believes passionately in the value of native plants as the bedrock of sustainable agriculture as well as environmental quality for the U.S. At the training portion of the event, Walters provided extensive information on seed banking.

To wrap up the meeting, the group visited the 900 acre, Illinois Beach Nature Preserve and National Natural Landmark. Timothy Bell, of Chicago State University and Marlin Bowles of the Morton Arboretum, led the field trip to see the restoration project for the federally-threatened Pitcher's thistle, (*Cirsium pitcheri*). The shoreline sand deposit contained beach, dune and swale topography with prairie and savanna vegetation.

Thank you to all that put in their time and hard work to make this National Meeting such a success. We couldn't have done it without you.

The 2008 National Meeting is set for April 24-27 and will be held in sunny Florida at the Fairchild Tropical Botanic Garden. ☺



▲ Tim Bell points out *Cirsium pitcheri*, on the sandy swales of the Illinois Beach Nature Preserve

CPC WELCOMES TWO NEW MEMBERS TO THE BOARD

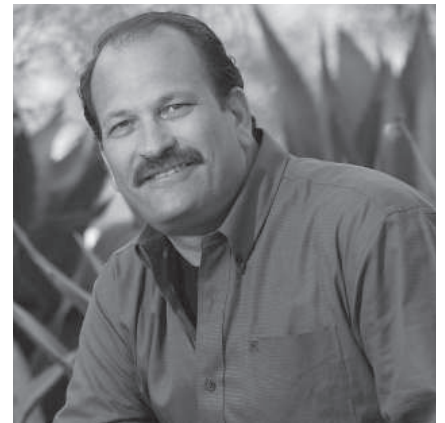
Chipper Wichman, director of the National Tropical Botanical Garden (NTBG) and Kenneth Schutz, executive director of the Desert Botanical Garden were elected to the Board of Trustees during the most recent Board of Trustees meeting.

Chipper Wichman began working at the National Tropical Botanical Garden in Hawaii as an apprentice gardener in 1976. He rose to be director of the Limahuli Garden at NTBG, and ultimately director of the entire institution in 2005. One recent notable achievement is the development of plans to construct the first green building on the island of Kaua'i, NTBG's new Botanical Research Center. The project will be completed in early 2008. Chipper is well known as a tireless advocate of

conservation and restoration of the Hawaiian flora.

Kenneth Schutz has been the executive director of the Desert Botanical Garden since 2001. Since his arrival, Schutz has put particular emphasis on growing local audiences; increasing the diversity of staff, board and visitors; expanding programs and services for K-12 students and teachers; and linking the Garden's research programs to Arizona State University. He brings strong administrative and planning skills to CPC.

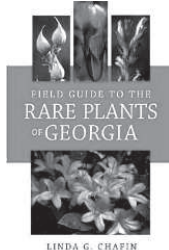
CPC is excited to welcome these fresh faces to the Board of Trustees and looks forward to their leadership and guidance. ☺



▲▲ Chipper Wichman ▲ Kenneth Schutz

NEW BOOK: RARE PLANTS OF GEORGIA

Written by Linda G. Chafin, conservation botanist at the State Botanical Garden of Georgia, this comprehensive guide to Georgia's rare and endangered plants provides photographs and botanical illustrations perfect for field use. 170-plus plants are listed as threatened, rare, or of special concern by the Georgia DNR. ☺



DAVID PRICE NEW DIRECTOR AT BOK SANCTUARY

David Price, former director of horticulture at the Historic Bok Sanctuary, has been appointed president of the Lake Wales, Fla., institution. Price was director of horticulture at the Sanctuary for nearly 20 years. As president, Price will oversee a staff of 47 employees and administer a \$5 million annual operating budget. ☺

MEET THE NETWORK

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Backyard Habitat with TPWD and the National Wildlife Federation. my daughter and I volunteer for the Texas Master Naturalist program and maintain trails, recycle and assist programs for our community environmental organization, The Woodlands G.RE.E.N. I try to keep up with Harry Potter and all my other reading. We kayak, hike, travel for adventure, bike, cook for fun for and with family, friends...and for the birds as time permits. ☺

NEW INSTITUTIONS

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The State Botanical Garden of Georgia and the Atlanta Botanical Garden both have deep commitments and long histories of support for conservation and a solid record of accomplishment for the plant biodiversity of the state and the region. The Gardens worked in a collaborative effort establishing the Georgia Plant Conservation Alliance (GPCA) in 1995. GPCA is a network of public gardens, government agencies, and environmental organizations committed to preserving Georgia's endangered flora. The alliance initiates and coordinates efforts

to protect natural habitats and endangered species through biodiversity management and public education. From rigorous scientific research to hands-on stewardship projects with elementary schools, the combined resources, expertise and outreach strategies of GPCA members provide powerful tools for plant conservation in Georgia.

"Plant conservation is the cornerstone of our research program and forms an important component of our teaching and public service programs as well. We're delighted to join CPC in what we believe will be a mutually beneficial relationship to protect and conserve our native flora," said Dr. Jeff Lewis, director

of The State Botanical Garden of Georgia.

Atlanta Botanical Garden executive director Mary Pat Matheson explained, "We are pleased to be formally included in the CPC and recognized for our work in the Southeast as a leader in plant conservation. The importance of this national collaboration for native plant conservation cannot be overstated."

Visit these new institutions' websites and the GPCA online at:

www.atlantabotanicalgarden.org

www.uga.edu/botgarden

www.uga.edu/gpca/ ☺

SEED TOOL

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the computer, the agitator resumes shaking until the next seed falls down the shoot. The system can be set to weigh a certain number of seeds or an undetermined number of seeds.

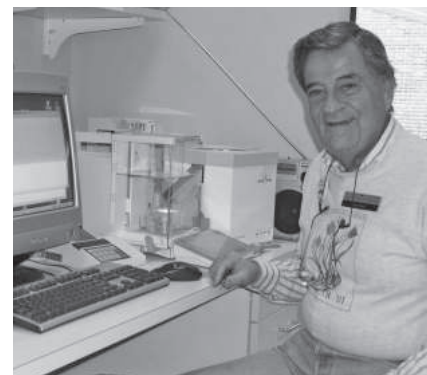
The automatic seed weigher has been useful for a number of research purposes including population biology research on two rare thistles (*Cirsium hillii* and *C. pitcheri*) and prairie fragmentation research using *Solidago* species. It is also used to estimate maternal effect and seed viability. The equipment has been extensively used for *Asteraceae* seeds because a number of taxa in this family have achenes (seed coats)

that will expand and appear mature even if they do not contain an embryo.

For the genus *Echinacea* (purple coneflowers) the equipment got a workout for several studies (<http://echinacea.umn.edu/>.) We know that *Echinacea* seeds weighing more than 2 mg have a 97% chance of being viable and seeds weighing less than 2 mg only have a 9% chance of germinating. We have used individual seed weights to study pollen limitation in fragmented prairie habitats. In one study alone 30,111 seed of blacksamson echinacea (*Echinacea angustifolia*) were weighed to determine if individual seeds contained embryos.

Unfortunately, since the equipment was originally designed for pills,

▼ Most seeds are weighed by volunteers, including Art Abt, who alone has weighed 19,629 seeds.



seeds weighing less than 0.4 mg do not typically work on our set up. Still, the automatic seeder weigher has become an essential piece of equipment in our seed lab.

For more information about the system contact Jennifer Ison at jison@chicagobotanic.org or visit <http://www2.uic.edu/~ison/> ☺

FOURTH OF JULY MAILING: A BIRTHDAY GIFT TO THE NATION

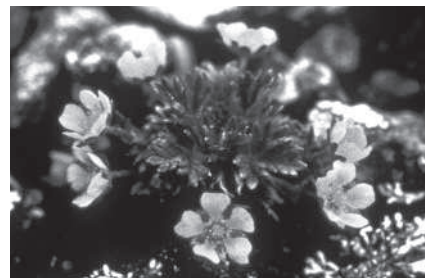
CPC celebrated the nation's birthday by asking our Friends to make a gift that will continue to give far into the future. We asked you to support a campaign providing funds to sponsor plants in our National Collection.

Plant sponsorships provide ongoing funding for work with imperiled species. Sponsorship funds are placed in an endowment to generate an annual assistance payment for CPC's Participating Institutions. They use these funds to help sustain seed collections and restoration efforts. These funds are also used to support related data management and conservation activities at CPC's national office.

We know our Friends are concerned leaders for conservation. We are using the funds raised through this campaign as leadership gifts and will ask corporate, foundation, and other donors to match them to double their impact. While a full sponsorship is a great accomplishment, any sized gift supports progress for these species!

We sent this appeal on the Fourth of July holiday, because saving our imperiled plants is a great gift to the nation. We want to show our pride and optimism, and highlight environmental stewardship as an important national value. It's an Independence Day birthday party

▼ With the help of plant sponsorship funds Robbins cinquefoil (*Potentilla robbinsiana*) was recently delisted from the Federal Endangered Species List.



for recovery to celebrate America's unique species, and simultaneously make a statement of our commitment to the future. If you would like to support our campaign, please call our office at 314-577-9457. Your gift will make a difference for imperiled plants. What a great birthday present! ☺

GIVE THE GIFT THAT KEEPS ON GROWING!

The Center for Plant Conservation's efforts are made possible by the [Friends of CPC](#). All Friends receive a complimentary subscription to CPC's newsletter, *Plant Conservation*. Friends also receive our [Friends benefits](#), with distinctive botanical illustrations of the imperiled plants that your gifts support. The benefits feature artwork by renowned botanical illustrator Bobbi Angell.

Please use the form below either to renew your support or enroll as a new Friend. **Your gift will contribute in an important way to the vital work of saving America's most imperiled plants.**

Please send this completed form and payment in the enclosed envelope, or mail this form to: Center for Plant Conservation, P.O. Box 299, St. Louis, MO 63166

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- Enclosed is my check for \$ _____ payable to the Center for Plant Conservation.

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PLANT PROFILE: BUNCHEDED ARROWHEAD (*SAGITTARIA FASCICULATA*)

A member of the water plantain family, *Sagittaria fasciculata*, more commonly known as bunched arrowhead, is native to remote mountain bogs in North and South Carolina. Known only from two counties, this species is severely threatened and has a global ranking of critically imperiled (G1).

The plant produces edible tubers once collected heavily by Native Americans as a food source. Growing between 6-13 inches, this species' white flowers appear in May and June in whorls of 2-3. The leaves grow up to 12 inches and taper downward to attach at the base of its long stalk. Each flower

has three petals and three sepals. In June and August the stems of the lower flowers ascend in tiny, single-seeded fruits.

This aquatic herb is severely threatened due to loss of habitat by livestock disturbance, development and change in water flow to the area. Just one of many imperiled plants in this fragile habitat, the bunched arrowhead is forced to compete with its neighbors for valuable nutrients in their fading environment. The North Carolina Botanical Garden is working with the bunched arrowhead and has conducted one site restoration and reintroduction in a historical mountain bog. ☺

▼ Bunched arrowhead is not sponsored. To sponsor or help sponsor this plant, please contact CPC at 314-577-9540 or cpc@mobot.org



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