Friends of Plant Conservation

Field Notes

NEWSLETTER OF THE FRIENDS OF PLANT CONSERVATION

Vol. III, Issue 1, March 2011

SUPPORT GROUP OF THE
NC PLANT CONSERVATION PROGRAM
NC DEPARTMENT OF AGRICULTURE
AND CONSUMER SERVICES
RALEIGH. NC

CALENDAR

March 6: 10:00-3:00

Trip to Pondberry Bay, Sampson County. No fee to Friends. Led by Rob Evans and Lesley Starke

RSVP by March I to kathyschlosser@ncplantfriends.org

May 14: 9:30—1:00

Penny's Bend Wild Blue Indigo Hike in Durham.

Led by NCBG's Ed Harrison Fee for Friends: \$5.00 Details on page 10

Summer: details TBA

Trip to Tater Hill preserve in Watauga County. No fee for Friends.

ACCESS TO PRESERVES
IS BY
PERMIT ONLY
Unless accompanied by NCPCP
staff.

FIELD TRIP TO PONDBERRY BAY—MARCH 6, 2011

Walk a Carolina Bay, See longleaf pine restoration, Find pondberry in bloom.

Join us on March 6th for the first Friends of Plant Conservation preserve visit. We will walk the preserve, learn the history of the land, the management plans, and observe progress made.

And, we can tell you that the Pondberry (*L. melissifolia*) should be in bloom— see the article on page 3!

Because of the fragile nature of our preserves, the number of participants will be limited.

To reserve your spot, send an email to:

kathyschlosser@triad.rr.com or call 336-855-8022

There is no fee for Friends members. If the trip is full when you email or call, your name will go to the top of the list for the next trip.

Directions to the Sampson County site will be provided when you call.

Bring: camera, sturdy shoes, raingear, water, workgloves (if you can stay to help), lunch.

For those with a little energy left after we explore Pondberry Bay, we will help drag some cut timber a <u>short</u> distance to a powerline. We will appreciate the help and many hands make short work.







PAGE Field Notes



Board of Directors

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Nancy Stewart
Information Processing Technician

From The President...

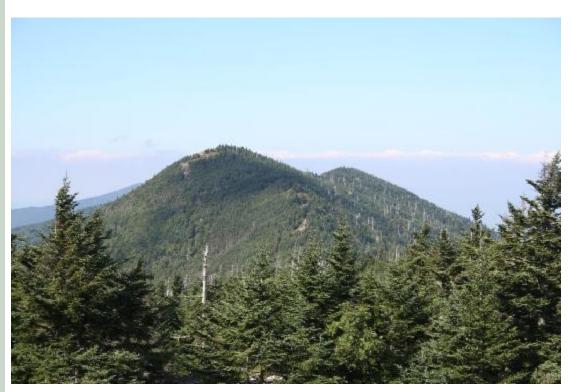
Spring, 2011

I visited the summit of North Carolina's highest mountain peak, Mt Mitchell, last summer and it brought back many old memories. My previous visit was 40 years ago during a Plant Ecology class during my freshman year in college. Trees were dying and I was told the culprit was acid rain. Legislation to form the EPA had been passed and Rachel Carson's "Silent Spring" was required reading in some biology classes. Overpopulation was predicted by the year 2000. Earth Day participation was considered a radical event (I participated in first Earth day by riding my bicycle to high school). The Vietnam War was going strong.

In 2011, the trees are still dying on the summit of Mt Mitchell and the culprit is now the wooly adelgid. During the past 40 years, habitat loss in North Carolina has been considerable. Hundreds of plant populations have disappeared. Many North Carolina cities have doubled or tripled in urban population and area. Nearly 400 plants and thousands of acres of habitat are imperiled. One thing I have learned is that great change can occur when enough people see the need.

Now is the time act to preserve plant habitats. Talk to friends and neighbors, invite a friend to join NC Friends of Plant Conservation, and let's make the next 40 years a time where we preserve more habitats than we consume.

Bruce Williams
President, Friends of Plant Conservation



Field Notes

CURRENT STEWARDS

Bat Fork Bog: Tom Baugh Harvest Field: Kathy Schlosser

Mineral Springs Barrens: Lisa Tompkins

Hog Branch Pond: Charlie Kidder

Eastwood: Joan Schneier

Pondberry Bay: Dale Batchelor & John Thomas

Tater Hill: Mark Rose

Cedar Cliff: Jean Woods (pending)

There are 10 preserves that have yet to be adopted. If you are interested, contact Tom Harville at: tomhar@bellsouth.net

If you would like to join an existing team, volunteering for occasional workdays, contact Tom and he will find a Preserve near you in need of team members.

Join a growing group of Preserve Stewards

Do you have some time to spare? Are you willing to donate some of that time?

Sample activities:

- -exotic vegetation control
- -plant inventories
- -site maintenance
- -boundary marking
- -and a number of things necessary

to protect and

maintain North Carolina's Plant Conservation Preserves

If so, contact Tom Harville at tomhar@bellsouth.net



FRIENDS WORKDAY

47 cm; 3 mm; 18 floral; 23 leaf 78 cm; 7 mm; 12 flower; 43 leaf 19 cm; 1 mm; 0 flower; 12 leaf

—the numbers echoed through the Bay.

In January, Lesley Starke called together a small group of Friends to assist with a monitoring project in the Pondberry Bay preserve. As part of a long-term study, we identified locations with reasonably high concentrations of *Lindera melissafolia*, measured and laid out 4 plots, and counted the number of stems in each quadrant within the plots. As we were counting and measuring the stems, we also counted the number of

flower and leaf buds, calling the numbers out to one member who served as recorder.

The section we were in (site of an overgrown bay) is being thinned of loblolly pines to restore the natural habit. The Lindera will continue to be monitored to ob-

serve growth as the canopy is opened.

Join us on March 6th for the first Friends of Plant Conservation preserve visit. We will walk the preserve, learn the history of the land, the management plans, and observe progress made. And, we can tell you that the Pondberry (L. melissifolia) should be in bloom!

Thanks to volunteers:
Stefan Bloodworth, Duke Gardens
Katherine Magowan, Duke Gardens
A. J. Bullard
Dale Batchelor

John Thomas Mimi Westervelt Kathy Schlosser



NCPCP STAFF





Left: Jeff Stewart, Research Specialist, left NCPCP at the end of January for a better paying job. An incredibly energetic staff member and all-around nice fellow, we all are sorry to lose him, but happy that he has found a position that provides him opportunity and benefits. We look forward to hearing from him in the future.

Right: Nancy Stewart, Information Processing Technician, keeps the NC Plant Conservation Board, Scientific committee, Friends, and the office running efficiently. Many thanks to her for all she does!

NEW BOARD MEMBER: BOB SHEPHERD

Bob Shepherd was born and reared in Ashe County, N.C. He is married to Brenda Lawrence Shepherd, and they have two sons. He entered public service following his graduation from N.C. State University and receiving a masters degree (Economics) from Kansas State University. He served as a Lieutenant in the Army Reserve where he was assigned to the Defense Intelligence Agency. Then following five years of service as an Economist with the Economic Research Service of the U.S. Department of Agriculture in Washington, D.C., he began a career in regional planning and development that included four years with the Economic Development Council of Northeast Pennsylvania and twenty-nine years as Executive Director of the Land-of-Sky Regional Council in Asheville, N.C., retiring from that position in 2002. Since retiring, he has served as Interim Manager of three towns in the North Carolina mountains— Maggie Valley, Columbus and Tryon. He has also been a member of the Board of Directors of the HomeTrust Bank since 1987, where he chairs the Audit Committee.

His church and civic service has included chairmanship of many Western North Carolina committees, councils, and ministries; RiverLink; the N.C. Regional Council Directors Association, the N.C. Rural Economic Development Organization and the Lake Junaluska Advisory Council of the Foundation for Evangelism; and officer of Meals on Wheels and the American Red Cross.

His current service includes: chairman of the Blue Ridge Parkway Foundation and the Givens Estates United Methodist Retirement Community, the Annual Fund of RiverLink and Co-Lay Leader of Acton UMC as well as Director of the UMC General Board of Global Ministries.

His public service has been recognized by the following awards: Circle of Excellence by the Leadership Asheville Forum, Outstanding Rural Leader by the N.C. Rural Economic Development Center, the Federal Co-Chairman's Award by the Appalachian Regional Commission, the Benchmark Award by the Land-of-Sky Regional Council, and the Critical Link Award by RiverLink.



www.ncplantfriends.org

Steward's Corner

BIG RAIN AT BAT FORK BOG

By Tom Baugh

In late November and early December of 2011 a major rain storm occurred primarily in Henderson and Transylvania counties of Western North Carolina. The storm, presaged by announcements from the National Weather Service office in Greer North Carolina (NWS, 2010) warning of showers, thunderstorms, and flooding, began around 2200 on Monday, November 29, 2010, and passed over and exited the area early on the morning of Wednesday December 1, 2010. The rain gauge at Bat Fork Bog Plant Conservation Preserve was made inoperable by the rising flood waters, consequently we do not have a specific measure of the rain that fell on the site. However, the National Weather Service plot of rainfall over the area surrounding the Preserve indicates that the Preserve received from 15-20 cm during the period of the storm.

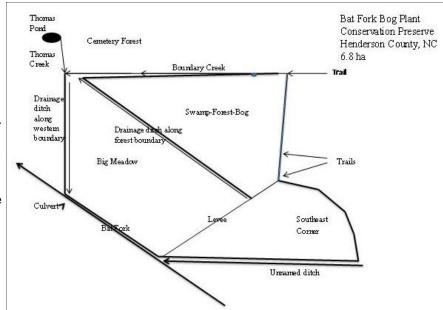
The hydrology of Bat Fork Bog Plant Conservation Preserve (Figure I) was recently described in Natural Areas Journal (Baugh and Evans 2011). At that time we mentioned anecdotal information of deep flooding within the Preserve. This recent storm was, however, the first opportunity for observation and some study. In this case we were able to gather rainfall information from the National Weather Service, Greer, North Carolina but were unable to obtain stream-flow data because the United States Geological Service does not gather data from adjacent Bat Fork.

The highest place in the Preserve is it's northeast corner. The Preserve is, essentially, a basin with uplands on the north and east and dikes on the south and west. During a major storm event, water enters the Preserve from overland flow from the surrounding uplands, through a culvert connecting the Preserve to adjacent Bat Fork, and possibly over the levee that separates Bat Fork

from the Preserve. During the event reported here, water filled the Preserve to such an extent that it was only possible to walk into the Preserve from the northeast corner for about 20 meters before it exceeded the 45 cm height of a pair of 'mud boots' (Figure 2).

At about 1430 on Wednesday December I, water remained so high in the Preserve that it was still impossible to penetrate any more than a few meters into the site in mud boots. However,

Figure 1 below





by 1430 on Thursday December 2, so Figure 2. much water had drained from the Preserve that it was possible to enter the site along all three of the maintenance access trails along the eastern boundary of the Preserve. By 1430 on Friday December 3, it was possible to reach the northwest corner of the Preserve. However, as late as 1430 on December 09, 2010, over a week later, most of the southeast bulge or salient of the Preserve

continued on following page...

BAT FORK FLOOD CONTINUED

remained under water.

Although conditions preclude an exact measurement of the amount of rainfall at the Preserve we were able to measure the depth of water covering the Preserve at its peak by measuring the height of the mud deposited by the flood water on the vegetation (Figure 3) at several places throughout the Preserve. These measurements give a depth of water of 122 cm over the top of the levee road in the southeast section of the Preserve and 114 cm over the top of the maintenance trail that follows the northern boundary of the Preserve.

We conservatively estimate the peak volume of water in the Preserve during the flood event at one meter deep. That would give us a standing volume of about 792,516 cubic meters. We know however, from the depth measurements given above that standing water exceeded one meter in depth. Consequently, we can assume that the Preserve held about one million cubic meters of water at its peak.

The impact of storm events, such as the one above, raises a number of questions about how often flooding impacts the Preserve and what some of those impacts might be. Rains of this intensity are ranked as a "seven to eight year event" that usually occur "...during the summer to early fall with remnant tropical systems" (Dixon, personal communication) We know, however, from reports of residents living adjacent to the Preserve that the site floods seasonally, if not several times a year. Although many of these floods may not be of the intensity of the event described here, they will have some impact on the Preserve. Based on the cursory observations of this one event it doesn't appear as if the movement of this large volume of water poses a serious threat to the Preserve from erosion or siltation. We are curious, however, as to how storm events such as this contribute to the nutrient budget of the Preserve.

Wetlands of any type are relatively rare in the Southern Appalachian Mountains and this is particularly so in terms of those classified as bogs (Baugh et. al., In press). Rainfall and temperature in the Southern Appalachian Mountains, and heavy storm events, are expected to increase in response to global climate change (IPCC, 2001). As Schultheis



Figure 3.

et al. (2010) point out, how rising temperatures and rainfall balance out remains to be seen.

In summary, the seasonally atypical storm of late November and early December brought substantial flooding to Bat Fork Bog Plant Conservation Preserve in Henderson County, North Carolina. Although this Preserve is reportedly subject to seasonal flooding, this was the first time that such an event came under professional observation and study.

Tom Baugh Hidden Springs

Page 6 Field Notes

THE ELUSIVE SAGITTARIA CONTINUED

In the December issue of this newsletter was a story about Sagittaria fasciculata, a plant protected on a NCPCP preserve. Sagittaria has been the subject of concern for a number of partnering agencies, including the N.C. Botanical Garden and the US Fish & Wildlife Service. This is a part of the continuing story.

ike Kunz and Andy Walker took custody of 500 Sagittaria fasciculata (bunched arrowhead) plants three years ago (2008), moving them from a site in South Carolina to the N.C. Botanical Garden via cooler.

Carolyn Wells, USFWS Biologist/Botanist working with threatened and endangered plant recovery, called Mike when she learned that the site was scheduled for development, with the possible ultimate destruction of habitat for the plants. Wanting to be sure the genetic type was saved, Carolyn thought the NCBG was the safest place to keep a large number of plants.

The consulting firm and area botanists working on the site plans were cooperative and interested, moving some of the plants to another possibly suitable area nearby, and amendable to assistance from the NC Botanical Garden. Mike and Andy went to the site, carefully extracted 500 plants from the muck of the seepage area in which they were growing, rinsed off as much mud as they could, packed them into a cooler and headed for home.

Once back at the NCBG, he prepared to plant them in a prepared bed: a simulated seepage bed consisting of, basically, 4 connected raised beds, each about one inch higher than the other.

To mimic the seepage habitat crucial to the survival of S. fasciculata, water through the beds, top to bottom, twice a day spring through fall, keeping the water moving and the soil comfortably wet and oxygenated. No water is required during winter months, and the soil stays boggy.

The plants appear to be thriving, and though they have not been counted, Mike says there are more now than when they were first put into the bed. As you see, they are blooming, and they are reproducing, most likely asexually. It is the habit of *S. fasciculata* to reproduce with plants appearing every foot or so along the stolons. These plants do produce seed, but as they are the only plants in the



Sagittaria fasciculata in NCBG beds.

area, Mike is not worried about genetic corruption. Pollination is most likely by means of small flying insects.

Asked about the future of these plants, Mike hesitated a bit. He answered that the best place for them would be a site near the parent population, within the same watershed and on protected land. That site does not currently exist. There are some sites that fit the habitat description, but they are still private lands. So for now, the plants will be maintained ex situ.

Efforts are ongoing to secure an appropriate site, and when that happens, Mike and the NCBG will release many of the plants in their care. In order to preserve the genetic material, some of the plants will remain at the NCBG, where they will serve as the parent source for restoration efforts in other sites.

This is a long-term project, Mike explains, with the ultimate goal of preserving one of the Carolina's most endangered species.

Katherine Schlosser with the assistance of Mike Kunz, Conservation Biologist at the NC Botanical Garden and a board member of the Friends of Plant Conservation.

IS THAT ALL THERE IS?



Rhexia aristosa.

Over the past two years, several articles on Pondberry Bay and *Lindera melissifolia* (pondberry) have appeared in this newsletter, but pondberry is not the only imperiled plant protected on this preserve.

The others include Astragalus michauxii, Litsea aestivalis, and Rhexia aristosa. Rhexia aristosa (awnpetal meadowbeauty) grows in the same Carolina bays in which pondberry is found, being well-suited to the

moist conditions and subject to the same threat—changes in hydrology.

No one seems to understand why the genus name Rhexia was chosen by Linnaeus, in 1737, to represent this group of plants. Rhexia is derived from the Greek *rhexio* meaning breaking or bursting, with reference to the belief the plant described by Pliny had curative benefits for wounds. Apparently, Rhexia is not the same plant as that described by Pliny, leaving us in confusion as to Linnaeus' choice of the genus name.

By 1705, Leonard Plukenet, English botanist and gardener to Queen Mary, had described five taxa that were subsequently placed into Rhexia by Linnaeus. Plukenet, of course, was using the polynomial system, in which the plant we know as *Rhexia mariana* var. *mariana* is described in his monumental work as:

Lysimachia non papposa Terrae Marianae, leptoneurophyllos, flore tetra- petalo rubello, folio & caule hirsutie ferruginea hispidis (Phytographia 1700, p. 123; 1705, pi. 428, f. 1). (1)



Figure 1. N. L.

Rhexia aristosa, the species of interest to us, was described as a new species by Nathaniel L. Britton in 1890, based on specimens collected by E. H. Kilmer and J. C. Gifford in Egg Harbor City, N.J. (2) Britton did mention that it had also been collected by J. D. Smith in Sumter County, S.C. What Britton did not say is that Thomas Walter, in his 1788 Flora

Carolinana (Fig. 2), listed a plant as "Rhexia mariana?" which matches the description for R. aristosa. (3) In the world of taxonomy, I suppose the "?" entered by Walter, indicating his recognition that this plant did not entirely fit as R. mariana, didn't deserve mention as Britton attached his own name to the plant. At least he recognized the efforts of Kilmer and Gifford. To be fair, it seems that many botanists overlooked the work of Walter, including Michaux:

In 1788, Walter published his Flora caroliniana in which he described five new species of Rhexia. However most botanists, beginning with Michaux (1803), were reluctant to accept the Walterian names. In fact, Michaux unnecessarily re-named all Walter's species, recognized as valid by him, with the exception of R. lutea. Even this species was not credited to Walter, and consequently Michaux was erroneously cited as the authority for it for over a hundred years...

...The Walter specimen "Rhexia 362" appears to represent his "mariana ?," and it is

clearly *R. aristosa* Britt., a species not described until 1890. Only a photograph of this specimen (BM) was examined, but the identity of it is quite certain since only *R. aristosa* has the long, aristate calyxlobes and the long bristles around the rim of the hypanthium. (4)

James suggests that though Britton named the species for "its aristate petals, the name could more appropriately have had reference to the aristate calyx-lobes, a feature characteristic only of this species" (and more recently Weakley): (5)

Aristate refers to a bristlelike part or appendage, such as the awn of grains and grasses, and which can be seen in Figure 3.

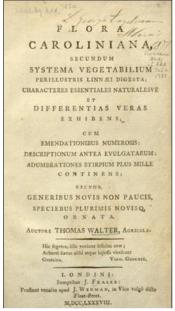


Fig. 2. Thomas Walter's 1788 Flora Caroliniana.

Rhexia aristosa Britton, Awned Meadow-beauty, Bristly Meadow-beauty. Cp (DE, GA, NC, SC): clay-based Caro-

RHEXIA CONTINUED

lina bays, depression meadows, and limesink ponds (dolines); rare. June-September. This species has a very local and disjunct range extending (strictly on the Coastal Plain) from NJ south to AL. The long yellowish bristles at the summit of the calyx/hypanthium are diagnostic. (6)

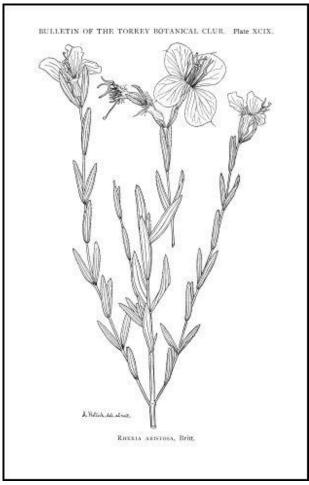


Fig. 3 This illustration, appearing in the article in which Britton names R. aristosa, is by Arthur Hollick, who along with several others, worked with Britton to establish the N.Y. Botanical Garden.

Rhexia aristosa Britton, Awned Meadow-beauty, Bristly Meadow-beauty. Cp (DE, GA, NC, SC): clay-based Carolina bays, depression meadows, and limesink ponds (dolines); rare. June-September. This species has a very local and disjunct range extending (strictly on the Coastal Plain) from NJ south to AL. The long yellowish bristles at the summit of the calyx/hypanthium are diagnostic.

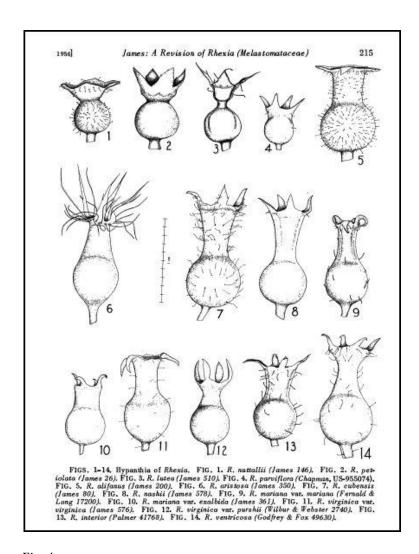


Fig. 4

The bristle-tipped hypanthium can be seen in number six in Figure 4 (from James).

The hypanthia illustrations also are good indication of the charm of Rhexia species, or, as called by Henry Thoreau in his September 14, 1851 journal entry, little cream pitchers. In spite of their attractive but short-lived flowers, the seed pods are apprealing for their color, but more so their shape. The seeds are held within the "pitcher," spilling out easily when jostled by birds, insects, wind, or once the stems begin to collapse.

Rhexia aristosa is a clonal perennial with pink-ish flowers from early summer to early fall, and is usually found in grass and sedge dominated Carolina Bays, vernal pools, or pond cypress savannas. It requires wet soil, but germinates/sprouts during periods of decreased water.

RHEXIA CONTINUED

Rhexia aristosa is on the NCPCP list as Special Concern-Vulnerable due to the loss of wetland habitat. We are unlikely to see this plant in bloom on our March 6th visit to Pondberry Bay, but we may see evidence of the plant emerging. Step carefully in the Carolina Bays!

Katherine Schlosser

- (1) James, Charles W. "A Revision of Rhexia," *Brittonia*, Vol. 8, No. 3 (Jul. 16, 1956), pp. 201-230 Published by: Springer on behalf of the New York Botanical Garden. Stable URL: http://www.jstor.org/stable/2804737. Accessed: 16/02/2011 13:10
- (2) Britton, N. L. "A New Species of Rhexia." Bulletin of the Torrey Botanical Club, Vol. 17, No. 1 (Jan. 15, 1890), pp. 14-15 URL: http://www.jstor.org/ stable/2476826. Accessed: 13/02/2011 09:21
- (3) Bounds, Richard R. "Rare Species of Rhexia," *Castanea*, Vol. 52, No. 4 (Dec. 1987), p. 306. Available online: http://www.jstor.org/stable/4033408 (Accessed2-13-2011).
- (4) James, p. 203.
- (5) James, p. 222
- (6) Weakley, Flora of the Southern and Mid Atlantic States, Working draft, 8 March 2010. Section Rhexia / Richard LeBlond p. 529-30

CONNECTIONS

Tom Baugh

Shallow depressions in the sandy mud alongside a woodland stream.

Depressions made by a wandering raccoon, an animal so well adapted to feed on the clams buried beneath the surface of the sand that they fish by touch alone.



Connections.

The clams strain minute plankton, clarifying the water, cleaning it until it sparkles--growing inside their shells until a passing raccoon senses their presence beneath the sand--and....

Connections.

The plankton--tiny children of the sun using the basic elements of nature to create the stuff of life, to build their own living plant-selves from the sun and minerals that surround them in the water.

Connections.

Standing -- on the verge of the crystal waters watching the connections unfold, watching the interconnectedness take place.

Stepping -- carefully least I erase the trace of what has passed here...of the connections that have taken place.

Wondering -- where I--and mine--belong in this web of life.

Sensing -- in those shallow wadings and wanderings the elements of nature flowing through me.

Knowing -- that someway, somehow I and mine have become separated from the primal patterns shifting and blending in the waters of this stream.

Understanding-- that the separation is only temporary--can only be temporary, is only illusion.

Standing -- again-- in the shadows at the edge of the pond.

Watching -- these connections in my delight and in my fear.

Published previously in Rapid River Arts Magazine, Asheville, NC.

MAY 14TH PENNY'S BEND WILD INDIGO HIKE



We are partnering with the NC Botanical Garden for this easy hike.

Penny's Bend Wild Blue Indigo Hike Led by Ed Harrison Saturday May 14, 2011 9:30 – 1:00

General public \$10, NCBG member \$5 Friends of Plant Conservation member \$5

You must register for this event.

You may register in person at the NCBG Education Center OR call the Garden at 919-962-0522, weekdays 8 - 5, to verify space availability and then please fill out the registration form (available at **www.ncplantfriends.org**—see below) and mail with your payment to:

North Carolina Botanical Garden attn: Education Department University of N. Carolina at Chapel Hill Campus Box 3375 Chapel Hill, NC 27599-3375

Payment can be made by check, VISA, or MasterCard. Make checks payable to "NCBG" with "program registration" in the memo line.

To access the registration form, go to <u>www.ncplantfriends.org</u>

Select "Events" from the list on the left.
Go to May 14th Event
Click on the link to the registration form—fill out the form and print a copy.

Wild blue indigo photo courtesy of Dorothy Pugh, taken at Penny's Bend. http://www.dpughphoto.com/index.htm

LETTER TO THE EDITOR

I very much enjoyed your article on bunched arrowhead. A related detective story that you may enjoy is the attached, which discusses the rediscovery of *Sagittaria macrocarpa*. As you can see from the drawing, its leaves are extremely slender and not at all like *S. fasciculata*, even though the fruits are similar in size. But a hundred years ago there were so few specimens of these species (and others) that botanists weren't sure where to draw lines.

Enjoy!

Bruce

Bruce A. Sorrie NC Natural Heritage Program

Editor's note: With permission from Bruce, we have posted a copy of the referenced journal article on our website:

Go to: www.ncplantfriends.org

Select: Links to Related Information and Organizations Scroll down to: Additional Information and Resources Click on: Reinstatement of Sagittaria macrocarpa.

Many thanks to Bruce for sending this!

Friends of Plant Conservation Membership Renewal and Application

| | Ι | □ New Mem | bership, Renewal |
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| N | ame(s): | | |
| Ac | ldress: | | |
| Ci | ty: | | Send completed form and check to: |
| State: Zip: | | | Friends of Plant Conservation Mail Service Center 1060 Raleigh, NC 27699-1060 |
| Pł | none: | | |
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| | I am willing to receive the newsletter via | email to cons | serve resources. |
| | I am interested in a FoPCP license plate | e when availab | ble. |
| Memberships/Gifts: | | | Indicate activities of interest: |
| | Student Member Individual Member Family Member Affiliate Member Please include the number of members in your organization Sustaining Member Life Member (Five (5), \$100 yearly installment Gift | \$5 \$15 \$25 \$25 \$50 \$500 ats) | |