Field Notes

Friends of Plant Conservation newsletter February 2017 / Vol. IX Issue 1

In this issue:

SMILES !

Lesley Starke, Cheryl Gregory, and Jenny Stanley recently attended a meeting of the Bog Learning Network and had an opportunity to socialize for a while at a BBQ restaurant one evening. It is obvious from the smiles, and from the considerably brighter atmosphere around the office, that NCPCP is almost back to full-speed.

We all owe a debt of gratitude to Lesley for running things for many months. After Rob's departure she assumed his duties on top of her own. Jenny Stanley, as Field Tech, also pitched in carrying some of Lesley's burden. They worked as a great team, especially after David's death in July.

As Lesley assumed the official title as Plant Ecologist, and Jenny moved into the role of Research Specialist, they both also carried on the David's work as Program Administrator, with the help and guidance of Nancy Stewart. Without Nancy, the entire program could have collapsed!

With Cheryl's arrival as Program Administrator in December, things started to return to normal, and Nancy was thrilled to have people back in the office with her. Cheryl jumped right in and has spent her time listening, reading, and figuring out where NCPCP stands and what needs to be done. We have all been impressed with her openness and her willingness to get out and help in the field as well as taking care of routine, and sometimes complex office work.

Things are looking up and each one of them—Lesley, Jenny, Nancy, and Cheryl—deserve our gratitude and appreciation.

VISIT OUR WEBSITE:

WWW.NCPLANTFRIENDS.ORG

JOIN OUR

FACEBOOK PAGE

Friends of Plant Conservation

Friends of Plant Conservation

and NC Plant Conservation Program

2017 Field Trip Schedule

Sign up early as group size is limited according to the site.

March 7 – 8:30 – 4:30 **RARE PLANTS DISCUSSION GROUP.** A gathering of academics, professionals, and interested non-professionals for the annual update on activities around the state. You are welcome to attend, too. If you want to order a lunch ($10 to be paid at door), RSVP by Feb. 17th. This is not organized by FoPC or NCPCP, but we participate every year. To be held in the Education Building at the NC Zoo in Asheboro. FOR DETAILS, SEE www.ncplantfriends.orgnews-and-newsletters.html

March 24 (Friday) – **PONDBERRY AT WHITE WOODS—**The season for pondberry blooms (*Lindera melissifolia*) and if we are lucky, bog spicebush (*L. subcoriacea*), and if we are super lucky pondspice (*Litsea aestivalis*) are on the menu for this trip to Sampson County. It's also bloom time for Eaton's lady tresses. Easy walking and a great time of year to visit this part of the state. Jenny Stanley can always turn up a few interesting things, and we'll be on the lookout for redbay ambrosia beetles.

April 7 (Friday) - **THIRD ANNUAL RING THE BELLS** – Oconee bells at Caraway Preserve. An easy afternoon stroll to the site of these charming plants found only in McDowell County. A longer walk, but still just a mile or two, takes you to the top of the property, in sight of Pisgah National Forest and some Table Mountain pines.

May – **TBA** **MAGNOLIAS FOR MAY and ENDANGERED PLANTS DAY—**A moderate afternoon walk through the gentle hills, valleys, and fields of Redlair with stops for the magnificent serving-platter size blooms of *Magnolia macrophylla*. Haywood Rankin, who grew up on this land, points out plants, historic areas, creeks, beaver engineering, and the South Fork of the Catawba River. Lots of habitat types and lots to see and enjoy. Morning talks on the state of endangered plants in North Carolina by area experts and what you can do. Lunch provided for all day participants $10 (details TBA). Afternoon walks.

July **TBA** – **INTERNATIONAL BOG DAY TOUR--** A visit to Bat Fork Bog (actually a fen) in Henderson County, home of *Sagittaria fasciculata*, bunched arrowhead,. Easy walks and plenty of bunched arrowhead to see, along with other bog plants. Bring bug spray if so inclined, and boots that you don't mind getting wet if the weather has been rainy. Easy walking and lots of mountain bog information along the way from some local bog experts.

August 12 (26th rain date) – **ON THE TRAIL OF *Liatris helleri*** at Paddy Mountain in Ashe County with Chris Ulrey and Lesley Starke. If headed to the top, this could be a strenuous trip, but we will be scouting around looking for Heller's Blazing Star…along with a lot of other blooming wildflowers. Wear your hiking boots, bring a lunch or snacks and enjoy a day out botanizing.

September 22 (Friday)– **A GENTLE APPROACH TO CEDAR CLIFF** in search of *Silene ovata* (Ovate Catchfly) in bloom. Though heading to the top can be a challenge, poking around on a slow ascent may help us to locate the elusive Catchfly. There will be lots of other things to see: American bittersweet, spiked crested coralroot, beard lichen and more. Sturdy boots, lunch, and plenty of resting places will make this a great trip, and it you haven't been to the top, it's a must see. Moderate to strenuous, depending on how high you want to climb.

October 6 (Friday) – **ON THE HUNT FOR TIGER SALAMANDERS AND *OXYPOLIS CANBYII***. Tunstall Bay/McIntosh are known to be home to Canby's Dropwort and Tiger Salamanders, along with many other plant and herp species. Alvin Braswell, Lesley Starke, and Jenny Stanley will lead the way around this site in Scotland County.

Register: Nancy.Stewart@ncagr.gov or call 919-707-3755

MEET THE BOARD OF DIRECTORS

We asked a few to say a word or two about serving on the Board. Two more in the continuing series:

Andy Wood

Andy Wood is an ecologist, author, and conservation educator. He was education curator for the North Carolina Aquarium at Fort Fisher from 1987-2000, and state education director for the National Audubon Society from 2000-2012. Andy directs Coastal Plain Conservation Group, a nonprofit organization protecting rare plants and wildlife and their habitats. He is also project manager for Habitats Environmental Services, LLC, a community conservation consulting company specialized in habitat management, conservation landscaping, and endangered species monitoring.

Andy was on the initial board for FoPC, answering the call in the Fall of 2008. He continues to offer his expertise and creativity at every opportunity.

Crystal Cockman

Crystal Cockman currently serves at the Land Protection Director for The LandTrust for Central NC. She joined The LandTrust in summer of 2006 with the primary goal of working towards the responsible conservation and stewardship of ecologically important lands in the Uwharrie Region through joint efforts with landowners, governmental organizations, and other conservation entities.

Crystal received a B.S. in Environmental Science with minors in Earth and Ocean Science and English (2004) and a Master of Environmental Management degree in Environmental Health and Security (2006), both from Duke University. In her spare time, she enjoys backpacking, hiking, reading, flyfishing, and pretty much anything outdoors.

Crystal joined FoPC in 2013 as Treasurer and she now serves as an At Large member, offering her expertise in many areas.

There is a place on the Board of Directors for you!

We currently have 2 openings on the Board—one for Communications (newsletter) and one for Volunteer Coordinator. We also have committee openings in the areas of Education, Development, Communications, Volunteers, and Membership.

If you would like information on any of these positions, please contact Bob Shepherd—
Phone: 828-667-8467
Cell: 828-273-8603
shepbb@charter.net

Joan Schneier,

2016 Distinguished

Member

Presented in recognition of her work as a Steward on NC Plant Conservation Preserves. Joan is a quiet and hard-working volunteer, working where and when her work schedule permits. She serves as a model of stewardship, dedication, and commitment.

Presented at the 2016 FoPC Annual Meeting

If a man walks in the woods for love of them half of each day, he is in danger of being regarded as a loafer. But if he spends his days as a speculator, shearing off those woods and making the earth bald before her time, he is deemed an industrious and enterprising citizen.

~Henry David Thoreau

NCPCP Preserve Stewards

The Preserve Steward program has been revised, and the following Stewards have been assigned an access permit for one or more of the Preserves. If a workday is being held by staff or by a Steward under the direction of staff, the Steward may call for help. If you are nearby, or willing to travel a little, contact the steward for directions and details.

Access permits for any other purposes must be obtained from Lesley Starke (Lesley.Starke@ncagr.gov), and are granted for research or educational purposes in keeping with the mission of NCPCP. Anyone on a preserve will have a signed permit for the current year on display.

BAT FORK BOG, Henderson Co.:	Tom Baugh
BIG POND BAY, Cumberland Co.:	Joan Schneier
CARAWAY, McDowell Co.:	*Pending*
CEDAR MOUNTAIN BOG, Transylvania Co:	Torry Nergart
DENSON'S CREEK, Montgomery Co.:	Nancy Adamson
DURHAM PRESERVES, Durham Co.:	Jarrod Morrice
TATER HILL, Watauga County:	Matt Estep
ENO DIABASE, Durham:	Herb and Pat Amyx
HARVEST FIELD, Randolph County:	Kathy Schlosser, Mimi Westervelt
MINERAL SPRING BARRENS, Union Co:	Lisa Tompkins
PONDBERRY BAY, Sampson Co.:	Bill Scott

Grassland Balds and Megaherbivores

A Review by Crystal Cockman

Slide from Dr. Peter Weigl's talk at the Friends of Plant Conservation Annual Meeting 2016.

Dr. Peter Weigl of Wake Forest University gave a presentation at the Friends of Plant Conservation annual meeting at the N.C. Botanical Garden this past week on grassland balds. Grass balds are areas of naturally occurring treeless vegetation dominated by grasses, sedges, and forbs on sites below treeline in predominantly forested regions. You may have seen such balds on areas like Roan Mountain and Carvers Gap. The explanation of their existence has been described by a variety of manmade and environmental factors over the years, but Dr. Weigl suggests that they are "natural and ancient and largely owe their origin and persistence to past climatic extremes and the activities of large mammalian herbivores," also known as the climate-herbivore hypothesis.

The alternative theory is that these balds are isolated artifacts, not natural landscapes, that are a result of Native American activities or agricultural practices of European settlers. Weigl suggests instead that these balds are natural and are a result of climatic changes and the feeding activities of large grazers and browsers over long periods of time, recommending that we should preserve whole bald landscapes and the diverse species found there.

Grasslands, including Piedmont prairies and Coastal plain savannas, are historically known to have existed in the southeast and so grasslands and unforested areas were known from this region. Forested areas on mountain peaks were believed to have been driven down by severely cold climates and were replaced by grasslands or tundra. Native Americans were not thought to use these high peaks for permanent settlement, so their influence there was limited. Certainly European settlers helped maintain balds by grazing livestock, but the balds are known to predate European settlement, and descriptions of balds go back to the 17th century.

Balds are home to a variety of what Weigl calls "rare, endemic, relict and disjunct plant species." These species are light-dependent and cannot exist in forested habitats. He further states that they must have existed over large enough distances and for long enough periods of time to speciate. These include such species as Gray's lily and Roan mountain bluets. Balds that grow over have a significant decrease in vertebrate diversity, as well.

Dr. Weigl began his talk by describing an item he had in his hand – a fossilized tooth of a tapir. Tapirs are one of a number of Pleistocene megafauna that once existed, which includes species such as mammoth, mastodon, muskox, bison, elk, and ground sloths. Excavations at Saltville in Virginia resulted in the finding of many of these megaherbivores. In addition, large grazers still play a role in other parts of the world in maintaining grasslands and savannas, like elephants in Africa.

The loss of the North American megafauna came around 11,500 years before present, and early settlers found large populations of elk, bison and deer that had filled that niche on mountain grasslands. In the late 18th century elk and bison were locally extinct, but by the 1830s domestic grazers took their place. Neither are thought to be as effective as the original megafauna. There are other grassland areas in other parts of the world as well that are similar to the grass balds of the Appalachians. The polonina in Poland are one such habitat that Dr. Weigl has studied. They also support rare plants and have large herbivores including European bison, red deer, wild horses, and wild cattle. In addition to fossil data, there is a record of megafauna left by drawings on the walls of caves in this region. There are also grass balds in the Oregon Coast that have a similar history and rare species.

Though there are other explanations for grass balds, Weigl makes a good case for the climate-herbivory hypothesis. Whatever the origin, it remains that these balds are disappearing as a result of woody plant invasion. Weigl said that in the 1990s the U.S. Forest Service introduced sheep and great pyranese dogs to control the blackberry vegetation, and this resulted in the reappearance of some rare animals. Restoration of these natural bald landscapes is necessary to protect rare biotas, scenic vistas, and historical places, and can be accomplished through herbivores, cutting, mowing and fire. Thinking of these areas as complex landscapes that support rare species indicates the need for management to protect them for generations to come.

*Citation: Peter D. Weigl and Travis W.Knowles. Temperate mountain grasslands: a climate-herbivore hypothesis for origins and persistence. Biological Review (2014).

Old Growth dwarf palmetto, by Andy Wood

ANDY WOOD found some old-growth dwarf palmetto (*Sabal minor*) today (2-9-2017) in a New Hanover swamp protected with a conservation deed. The plants are growing in a freshwater tributary to Howe Creek, in northeast New Hanover County. The largest plant trunks are greater than 15 inches in diameter and the fronds reach more than eight feet high. No known age yet, but I'm working on it. The property where they dwell is owned and protected by the Northeast New Hanover Conservancy, a local land trust. Sadly, saltwater intrusion is in their future.

Shelf Fungi, photo by Jenny Stanley

When you see fungi such as these, it is an outward sign that the tree is in serious trouble. Once "wood-rotting" fungi infect a tree there is little to nothing the tree can do to defend itself, and the tree will eventually die. They enter trees through injuries (cuts, broken stems, beetle holes, etc.), and once in they begin producing what you see on the outside of trees while on the inside they are slowly chewing up the wood.

With the exception of sulfur shelf or chicken-of-the-woods, *Laetiporus sulphureus,* and hen-in-the-woods *(Grifola frondosa),* fungi are not edible. Even these two exceptions are bothersome to many people.

Fungi are mostly so tough and woody that they are difficult to break loose from the tree. Some species have been used for medicinal purposes (often as a vermifuge), the fungus being ground to a powder and made into a tea.

When you see shelf fungi, give the tree a pat and wish it well.

Baby Snapping Turtle, Kathy Schlosser

Spotted by Jenny Stanley near the parking lot at Penny's Bend after an Annual Meting 2016 visit to Eno Diabase Preserves and identified by Alvin Braswell. Alvin assumed the youngster had been washed up onto the trail following heavy downpours and flooding a few days before. He seemed to be headed back to his watery home.

Red Maples v Oaks: a losing struggle?

Red maples are in bloom now, reminding the stewards at Harvest Field Preserve that it is time to re-start the struggle against red maples (*Acer rubrum*). They are lovely trees, with soft, broad-surfaced leaves that shade against the sun and provide glorious color in the Fall. That's all part of the problem. Harvest Field appears to be a primarily xeric site with thin, poor soil, large fields of beautiful white quartz, scattered oaks and shortleaf pine, and the Federally endangered Schweinitz's sunflowers (*Helianthus schweintizii,* listed in 1991).

Among the threats to the sunflowers are the usual development, roadside right of way maintenance, and encroachment by exotic species. Of greater significance in spots like Harvest Field is a process known as mesophication, or the change from a xeric site to mesic, or moister habitat.

Mesophication often begins with a cycle of fire suppression or wind damage which opens the door to encroachment of fire-sensitive species. Those species, such as red maple, produce thin, generally flat, high moisture content, low lignin content leaves (lignin content influences the rate of leaf decomposition) and grow crowns that densely shade the forest floor. Their shade blocks solar radiation to the soil, keeping it from drying out. Their leaf fall, being flat and full of moisture, decay quickly and begin to build up soil moisture and hunus which favors seed germination of their own species. The full canopy also blocks wind movement, again adding to the develop of rich, moist, cooler conditions which are neither favorable to oaks and other fire-dependent species nor to frequent fires, also required by oaks and fire-dependent species.

Oak leaves tend to curl which makes them less likely to mat against one another and the forest floor even through the winter. The spaces created between leaves allows air to dry out the soil, and for low intensity fires to move through quickly. They also have a high lignin content which slows the decomposition rate adding to the xeric nature of the habitat.

Fire suppression puts into place a cycle that increases the density of fire-sensitive species (maples) and favors permanent alteration of the site. A further problem is the re-sprouting ability of trees such as red maples. If damaged by a fire red maples re-sprout from the base with multiple stems. If you cut those stems back, you get even more.

On a site with red maples becoming the dominant species, there is a tipping point that makes it almost impossible to restore the site to its pre-fire-sensitive invasion. Frequent fire is required, and if that is not possible, there are studies suggesting that restoration efforts (cutting down the fire-sensitive species and treating the stumps with herbicides) are better moved to a

Q. falcata, southern red oak; *Q. alba*, white oak; *Q. velutina*, black oak, and *Q. muehlenbergii*, chinkapin at HF.

SW corner of Harvest Field showing snags following burn of 2014.

Red Maple v Oaks continued...

site that has not yet reached the tipping point.

There is further work to do to decide what exactly that tipping point is and how it is determined, but it is a study that should be undertaken. Harvest Field shows signs of having been an oak-shortleaf pine-hickory savanna, but to put it on a trajectory toward restoration, much work is needed.

Harvest Field is also complicated by a burn in 2014 that left a large area of pine snags on the SW corner. It is a tinderbox that could feed a low-intensity fire into a much stronger blaze possibly leading to further damage inland.

There are other elements of mesophication—climate change and herbivory—to consider. At Harvest Field there are deer around, but there are also hunters in the area which may add some protection.

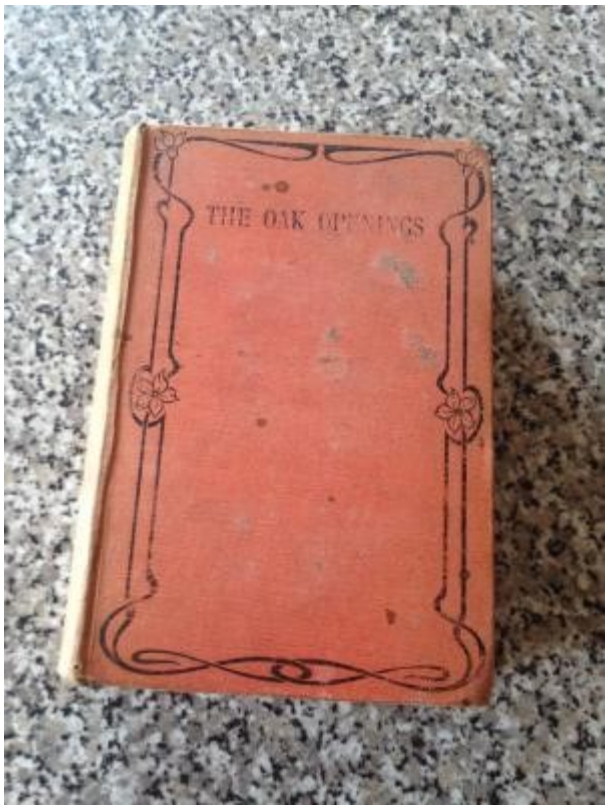
The forest floor at Harvest Field is not yet completely mesic, but the cycle is underway. Continuing the struggle with chain saws and herbicide seems the best answer at this point.

Wish us luck!

Habitat: Schweinitz's sunflower occurs in full to partial sun and is found in areas with poor soils, such as thin clays that vary from wet to dry. It is believed that this species once occurred in natural forest openings or grasslands. Many of the remaining populations occur along roadsides.

Oak Openings

now known as savannas



The region was, in one sense, wild, though it offered a picture that was not without some of the strongest and most pleasing features of civilization... Although wooded, it was not, as the American forest is wont to grow, with tall straight trees towering toward the light, but with intervals between the low oaks that were scattered profusely over the view, and with much of that air of negligence that one is apt to see in grounds where art is made to assume the character of nature... In places they [the oaks] stand with a regularity resembling that of an orchard; then, again, they are more scattered and less formal, while wide breadths of the land are occasionally seen in which they stand in copses, with vacant spaces, that bear no small affinity to artificial lawns, being covered with verdure. The grasses are supposed to be owing to the fires lighted periodically by the Indians in order to clear their hunting grounds.

~James Fenimore Cooper, *The Oak Openings*, 1848

Tiger Salamanders in North Carolina

Sandhills: Eastern Tiger Salamander
Ambystoma tigrinum Threatened Species
Photo from www.ncparks.gov

If you register for the October Field Trip to Tunstall Bay there is a chance you might see a Tiger Salamander (*Ambystoma tigrinum*). For those accustomed to seeing cute little salamanders, this one can be a surprise. Reaching to 13" in length, it is the largest terrestrial salamander in North America. That doesn't come close to the aquatic Hellbender salamander which can be 2' long or more. Hellbenders are found in our far western counties, so there is little chance of stumbling across one at Tunstall Bay.

It would be exceptional to encounter either one, but the Tiger salamander is just small enough not to be traumatic when stumbled across. Finding one is the trick, actually. The Tiger salamander is on the Federal list as a threatened species, making is harder to find. On top of that it spends most of its life in burrows it digs out in sandy soils.

It needs a terrestrial site suitable for burrowing, and a nearby body of at least temporary water for breeding purposes. If an abandoned burrow of a small rodent is available, it may use that. Tiger salamanders are predators known to eat small rodents, worms, snails, frogs, and lizards.

Males head for breeding pools in December, females a few weeks later. Eggs, laid underwater in batches of about 100, begin to hatch within a few weeks, depending on water temperature, and metamorphose in 2 to 6 months.

After metamorphosis, tiger salamanders generally head for land. At about one year old, they are ready to breed.

Adult salamanders are preyed on by birds, snakes, and mammals. They lucky ones can live as many as 20 years.

One of the main threats to tiger salamanders is the introduction of fish, which will eat the eggs, to their breeding ponds. The loss of wetlands, disease, and the "pet" business also play a role in the population decline of these creatures.

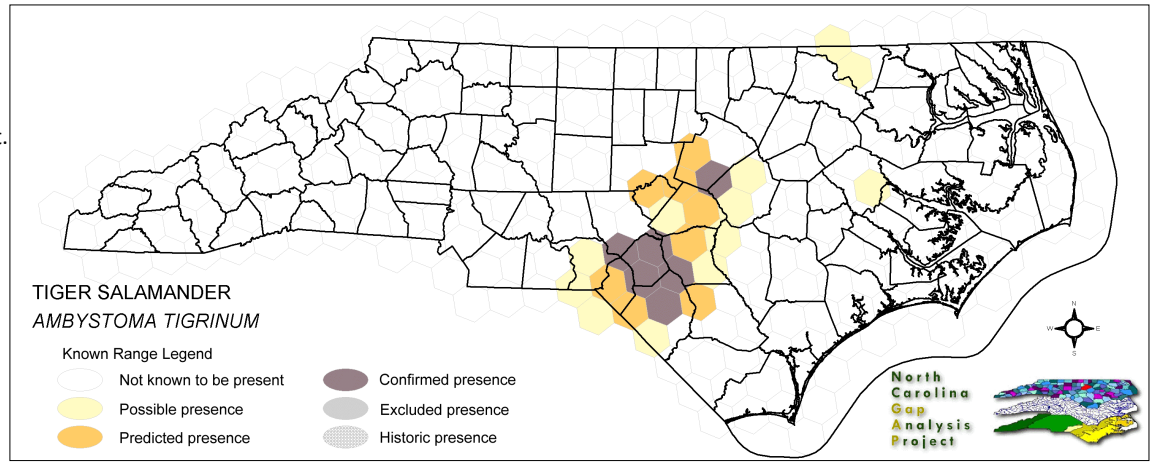
References:

1. ARKive.org http://www.arkive.org/tiger-salamander/ambystoma-tigrinum/video-02a.html
2. Herps of North Carolina http://herpsofnc.org/tiger-salamander/
3. NC-GAP Analysis Project, Dept. of Zoology, NCSU. http://www.basic.ncsu.edu/ncgap/sppreport/aaaaa01140.html
4. NC State Parks, Salamander ID Sheets, S. Becker, 2014. http://www.ncparks.gov/sites/default/files/ncparks/37/Salamander-ID-Sheets.pdf

This data was compiled and/or developed by the North Carolina GAP Analysis Project.

NC-GAP Analysis Project
Dept. of Zoology, NCSU
Campus Box 7617
Raleigh, NC 27695-7617

http://www.basic.ncsu.edu/ncgap/sppreport/aaaaa01140.html



Listen. Olga Ziemska, 2003
Plaster hands atop birch logs.
Installed at the Centre of Polish Sculpture, Oronsko, Poland

Art allows us to question values, morals, philosophies, religions, science, physics, and our selves.
Giving us the tools to help understand and see further into the nature of the world-
that is above, below and in-between.
We utilize science to explain our physical world, but art can be utilized to explain our soul.

Reweaving the fabric of reality. Probing the inner pieces of atoms to see into the interior of stars.
Answering the questioning mind quietly-- carefully.
Exploring all the mirrored paths of consciousness with extended hands.
Opening the doorway to the infinite.
Being still to listen.