



The purpose of the Oklahoma Native Plant Society is to encourage the study, protection, propagation, appreciation and use of Oklahoma's native plants.

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Winter 2007

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ONPS website: <http://www.usao.edu/~onps/>

Email: chadwick.cox@cox.net

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FOR NEXT ISSUE IS
15 February 2008**

Gaillardia

The Oklahoma Native Plant Society Newsletter

CALENDAR

Note: the events dated below are followed by either a page number for further descriptions or the contact person.

Dec 1: ONPS board meeting, OCU at 10, contact Kim Shannon at (918) 425-0075 or okpenstemon@cox.net.

Dec 3: NE Chapter Meeting with Gloria Caddell discussing her research of Gypsum Botany. page 8.

Dec 21: NE Chapter Fabulous Wildflower Friday, page 9.

Jan 18: NE Chapter Fabulous Wildflower Friday, page 9.

Jan 28: Central Chapter Meeting, Kathy Furrneaux will talk about Oklahoma insects, page 10.

Feb 9: Indoor-Outing, page 7.

Feb 15: NE Chapter Fabulous Wildflower Friday, page 9.

Mar 9: Central Chapter tentative outing to inventory Lake Draper, page 10.

Note: all members are invited to all meetings, including board meetings, and are encouraged to bring guests.

ONPS THANKS THESE DONORS

General Fund

Sharon McCain in Memory of Ruth Boyd

Color Oklahoma Fund

Brandon Miller

PRESIDENT'S PARAGRAPH

Holiday Greetings ONPS Members and Friends,
The chilly months of fall have finally arrived and I have been spending as much time as possible outside. Soon enough, the coldness of winter will keep most of us inside. I am lucky that my job keeps me outside a great deal, in a variety of interesting places. While I was in Texas recently I saw many flocks of migrating birds; ducks, geese and cormorants mostly. The most impressive of the migrants was a relatively low-flying flock of sandhill cranes. It was easy to identify them by their long necks, gray color and distinguishing call as they flew overhead. A coworker and I heard them before we saw them. We stopped our work for a few moments to marvel at these birds. I wondered how many other people were fortunate enough to see the same flock that day, and did they feel privileged (as I did) to see such a natural wonder? I also wondered how the landscape looked to the birds above me. Just a few minutes later, while walking through a wooded area, I paused to look at my surroundings. There in front of me, at eye level, was a beautifully constructed bird nest. It had vertical supports of very fine, small twigs that held together the woven strips of bark that formed the majority of the nest. Its size, shape, construction materials, placement in the tree and even the type of tree it sat in led me and my colleague to believe that it was the nest of an endemic and endangered bird; the golden-cheeked warbler. Even though the bird was long-gone from this site for the winter months, I felt as though I had just seen one face-to-face. A glimpse of this warbler's summer residence was nearly as exciting as seeing the bird itself. The close timing of these two events made me feel very privileged, indeed. From a personal satisfaction standpoint, my day was complete; I had connected with the natural world. Whether at home or away, connecting with the natural world (even in the smallest of ways), is important and fulfilling. I encourage you to seek out a connection with the natural world during our upcoming cold seasons. Be patient and observant, these moments happen very quickly and usually with little or no warning. I hope you find a fall or winter connection to our natural world.

Our next scheduled get-together will be the Indoor Outing in February. Marilyn Stewart and other members of the central chapter are coordinating our meeting, which will be held in Norman, Oklahoma. I hope to see many of you then so you can tell me about your fall or winter connection episode.

Take care,
Kim

IMPORTANT GENERAL NOTICES

Photo Contest deadline extended to Feb. 1, 2008, see page 8.

Wildflower Workshop moved to the fall, page 8.



BOTANIST'S CORNER

Clark L. Ovrebo

It is my turn to write the "Botanist's Corner" for this issue of the *Gaillardia*. Being a mycologist, you might expect that the article would focus on mushrooms. I will not totally impose my bias by writing about mushrooms; rather, I will write about one of the interactions between fungi and vascular plants – the mycorrhiza association.

As you are out on your own or perhaps on an ONPS field trip, you observe an elegant wildflower or magnificent tree. What you may not realize is that within the tissues of these plants there is very likely a fungal partner that is essential to the survival of the plant. The association that I am referring to is the mycorrhiza association (myc – fungus, rhiz – root). It is a symbiotic-mutualistic association between the plant root and fungus. It is estimated that 95% of all vascular plants have this association. There are four types of mycorrhizal associations based in part upon the plant and fungus groups involved and the anatomy of the association: ectotrophic mycorrhiza, vesicular arbuscular mycorrhiza, orchid mycorrhiza, and ericoid mycorrhiza. We shall start with the ectotrophic mycorrhiza.

The ectotrophic mycorrhiza association (EM) is called called "ectotrophic" because the fungus mycelium forms a hyphal mantle around the young root tips. The mycelium penetrates into the root cortex but the hyphae do not penetrate into the root cells (therefore, intercellular penetration). The fungus mycelium extends into the soil and is instrumental in the uptake of inorganic ions such as phosphate, and water. That is the benefit to the plant. In return, the fungus receives carbohydrates from the tree. It is estimated that up to 10% of the plant photosynthate is allocated to the fungus.

The EM association is mainly restricted to woody plants. In Oklahoma, some of the trees that have this association are oaks, hickories, and pines. Cottonwoods and willows can also have EM. Sometimes the fungus/tree association is specific, sometimes the fungus can form associations with different trees including hardwoods and conifers.

And, a given tree can have numerous fungus associates.

The fungus groups involved belong to the Basidiomycota and Ascomycota. Many of the larger mushrooms that you encounter in an oak or pine forest are probably fruiting bodies of the fungal partner. Species of *Amanita*, *Lactarius*, *Russula*, *Cantharellus* (chanterelles) and the genera of boletes are examples. A few of the puffball allies are also ectotrophic. In the Ascomycota, the truffles (*Tuber* spp.) of edible fame are ectotrophs of oak. As you may know, truffle fruiting bodies are produced below ground and require a trained pig or dog to locate them by smell. Truffle-like fungi occur in the US but not the famous edible species.

An important application of the EM association is in the reclamation of poor soils that occur as a result of surface disturbances such as mining. Tree seedlings inoculated with fungi grow more vigorously than seedlings without.

The most unusual association involving ectotroph association has a third player. Many of you have probably seen Indian pipe (*Monotropa* spp.) in Oklahoma. This is a white, achlorophyllous plant that cannot make its own food. Indian pipe roots tap into the mycorrhizal fungus to obtain nutrients. Radioactive tracers injected into trees have confirmed that carbohydrates move from the tree to the fungus to the Indian pipe. Indian pipe is regarded as a parasite on the fungus, although the terms "epiparasite" or "mycoheterotroph" are more popularly used.

In the vesicular arbuscular mycorrhiza association (VAM), the fungus does not form a mantle on the root surface and the hyphae that penetrate the root also penetrate into the cortical cells (thus, intracellular penetration). Fungal hyphae that penetrate into the cells have also been termed "endomycorrhizae." The VAM (or sometimes just AM) is by far the most common type of mycorrhiza. If a plant does not have EM or one of the other mycorrhiza types discussed below, then it probably has VAM.

Gymnosperms, angiosperms, ferns and some bryophytes have VAM; however, there are several plant families that are totally lacking mycorrhizae such as the Chenopodiaceae and Brassicaceae.

The fungi involved belong to the Zygomycota, the phylum to which the black bread mold, *Rhizopus stolonifer*, belongs. This phylum does not produce large fruiting bodies, rather they form spores or clusters of spores (sporocarps) that are less than one mm in size. They are isolated from soil by sieving. This mycorrhiza association is ancient

and has been found in 400 million year old plant fossils. It is hypothesized that the fungal partner was essential for the "invasion of land" by plants.

The mycorrhiza association of orchids is most interesting. Orchid seeds are tiny with little food reserve. To get the germination started, a fungus invades the cells of the seed and forms coils called pelotons. The pelotons eventually degenerate and is the likely source of nutrients to the growing embryo and seedling. The fungus is able to break down complex food substrates in the soil on its own and then passes on nutrients to the orchid until the plant becomes photosynthetic. Even after the orchid becomes photosynthetic, the association may continue to exist. Some orchids are achlorophyllous and require the fungus partner their entire life. This is not a true mutualistic relationship. Like Indian pipe, the orchid is an epiparasite of the fungus. The fungus seems to gain nothing from this association. One fungus involved is *Rhizoctonia* which can be a nasty plant pathogen. What may be happening is that the orchid controls what is an attempt at parasitism by the fungus and the orchid is able to control the infection and utilizes the nutrients provided by the fungus.

The ericoid mycorrhiza is the final type and will be summarized briefly. This fungus/root association is found in families of the Ericales. This order contains plants like *Rhododendron* and *Vaccinium* (blueberries, cranberries). The fungi are mainly Ascomycota but sometimes Basidiomycota. The fungus penetrates into root cells and forms coils. Because ericaceous plants often frequent harsh environments like peat bogs or heathlands of poor nutrient level and low pH, the formation of ericoid mycorrhizas is likely essential to the survival of the plant partner.

I hope that this article has given you some new insight into the importance of what is happening below ground in the life of a plant and that the root/fungus association is key to the plants survival. The next time that you are enjoying the beauty of forest, prairie or even a agricultural field, don't forget to thank the fungi!



RECOVERING OKLAHOMA NATIVE TREASURES

Jo Meyerkord, Center for Plant Conservation

The Center for Plant Conservation salutes the Oklahoma Native Plant Society, because we know you appreciate your native plants! Native plants are the hallmark of home, the tapestry of the

familiar landscapes we hold dear. They are also incredible resources for food, fiber, medicines and unknown future needs of man. They deserve attention and good stewardship, yet today 15% of our native flora is documented to be in steep decline or considered at risk.

We know you value your Oklahoma natives for more than their role in your own identity and sense of place, and you want to preserve these precious assets. The U.S. Fish and Wildlife Service has listed one species in Oklahoma as endangered or threatened under the Endangered Species Act. Within the state, there are no laws designating endangered and threatened species specifically for the Oklahoma. The Center for Plant Conservation's Participating Institutions are currently working with nine Oklahoma native species, securing them against extinction. You can review them by clicking on "National Collection" on our website and searching for Oklahoma.

Headquartered in St. Louis, CPC is a network of 36 botanical institutions involved in the study, preservation, conservation and restoration of the nation's imperiled native plants. The network of botanists has been working with imperiled plants for more than 20 years. CPC's goal is to build local programs to recover all imperiled plants across the country, so that native plants are thriving again.

Many of the endangered plants of Oklahoma also occur in other states. Due to similar geography and habitats the range of a particular species may extend through multiple regions. Although there are not yet any CPC Participating Institutions located within the boundaries of Oklahoma, CPC's surrounding institutions are working with a number of native Oklahoma plants. Scientists from highly-regarded botanical institutions are working together to research, cultivate and restore these Oklahoma plants. Some of these institutions include the Chicago Botanic Garden, Missouri Botanical Garden, Holden Arboretum and Mercer Arboretum and Botanic Gardens.

Securing and restoring vulnerable plant species is challenging and involves many different scientific specialties. Collaboration is essential to succeed in restoring these species, and CPC is all about partnerships! CPC institutions are working in communities nationwide monitoring, securing seed and working with local and federal agencies to restore habitats and rare populations. Partnerships with the Oklahoma Natural Heritage Inventory and similar organizations make it possible to make a difference on the ground within the state. Find those working to conserve plants in

Oklahoma on our website, in our conservation directory, which is searchable by state.

The Southern Lady's Slipper (*Cypripedium kentuckiense*) is a tall orchid, with the largest flowers known of all the Lady Slippers. This striking plant gets its name from the way that its flower petals form together in the shape of a delicate shoe. However, the Southern Lady's Slipper is actually a highly specialized insect trap. Bees are enticed to enter the opening of the slippers by powerful inviting scents and reflections of light on the flowers. Once inside, the only way of escape is by a second opening. Exiting the flower therefore requires the bee to force its way past the stigma, the female reproductive part of the plant. In so doing, the bee deposits pollen brought on its body from a previously visited flower, thereby ensuring pollination.

Despite many efforts to grow these orchids for commercial sale, they have defied cultivation from seed. They are also extremely difficult to transplant from the wild. These factors have kept the demand for new wild-collected plants high, and this is a major reason for their decline. This orchid is a state listed as endangered in Tennessee and is a species of concern throughout its range. Even though they are protected from trade in most states, they continue to be heavily sought and collected. This is a problem plant enthusiasts can help solve. Plant lovers should avoid purchasing this imperiled lady's slipper orchid since they most likely have been gathered from the wild illegally.

Educating the public on native species is a crucial tool in spreading the word about Oklahoma's imperiled natives. Conservation education starts early. In a recent survey, a surprising number of students were unable to identify plants as being alive. Parents and educators may be interested in "Plants in Peril, a guide to exploring biodiversity and rare native plant conservation for middle school educators." This lesson plan was developed by CPC as a means of reaching youth with native plant information and helping start a dialogue with kids about native plants. Available at the CPC website by clicking on "Education Tools," the topics include biodiversity, rare native plants, challenges to saving plants in peril, multiple student activities, ideas for action projects, and additional resources.

While CPC's institutions are working everyday with our scientific standards and protocols to make a difference for Oklahoma's vulnerable plants, it is a big job. In addition to partnerships with agencies, there is a role in support, education,

and volunteerism for everyone who wants to help. You may already be active in helping control invasive species, monitoring rare plant sites, cleaning seed or entering data for a conservation project. If you're just getting started, the conservation directory is a good source of information.

Building support for plant conservation and stewardship is one of CPC's priorities. CPC has established a plant sponsorship program to build sustainable funding for vulnerable plants. For each sponsored species, funds are provided annually to CPC institutions to assist in restoration efforts. Sponsorship for the Southern Lady's Slipper was recently complete, so funds will soon be supporting work with this species. If you'd like more information about CPC or plant sponsorship for other species visit our website www.centerforplantconservation.org or call 314-577-9450. Let's work together to make sure Oklahoma's imperiled plants populations are restored for future generations!



BOOK REVIEW

Chad Cox

Botany in a Day. The Patterns Method of Plant Identification. Herbal Field Guide to Plant Families of North America.

Thomas J. Elpel

We are occasionally asked if we would review a book. For a serious botany book, the editor would seek a botanist to review but in this case the book is meant to help such novices as myself I tried this one. I simply went out and gathered a few specimens and proceeded to place them in their families using the book.

The first one was a vine in my yard that remains unidentified by the book or by my other resources. The second was buttonweed which with the book I tentatively placed in the madder family. Next, partridge pea was not placed in a family using the book because the regular pea flower was only listed under shrub or tree. *Stenosiphon*, false gaura, also not recognized since it was not listed in the irregular flowers. Neither it nor gaura were listed but after finding out it was an evening primrose I noted that the stigma was squared off at the end which would suggest it was divided into four parts. That according to the book would have given the correct answer but required that the person trying to identify the species would know the squared off end indicated a four divided

stigma. My next choice was a cleome as a substitute for our native clammyweed. This one was placed in the caper family based on 4 petals and sepals but with 6 stamens. And an euphorbia was easily recognized from the picture of the flower provided.

The author lists the most relevant area for the book is in Northern Rocky Mountain and he is located in Montana. He states that the book will not be as useful further from this area but still suggests that it would be very useful for our area. From my small, somewhat random sample, I doubt how useful the book would be to me. However, the book will be added to our library for others to test.



CONSERVATION CORNER

Chad Cox

Global warming will be a major force in reducing biodiversity. A precedent for this is the fact that warming periods are associated with previous mass extinctions. This would appear to be evident when considering whole groups of species required to move, especially for the plant community. Fragmentation of the environment that we have imposed will add to the problem.

Movement to ameliorate global warming, especially here in the USA, has been meager but more recently there have been hopeful signs that have been mentioned in this column. Following is another such hopeful force in the form of a coalition to strive for control of greenhouse gas emissions.

U.S. Climate Action Partnership (USCAP) is a coalition of 27 corporations with combined revenues of \$27 trillion and 6 advocacy organizations. This coalition's mission is to urge the federal government to:

- * cut greenhouse gas emissions 60-80 percent,
- * create business incentives and,
- * act swiftly and thoughtfully.

CORPORATIONS: Alcan, Alcoa, American International Group, Boston Scientific, BP America, Caterpillar, ConocoPhillips, Deere & Co., Dow Chemical Co., Duke Energy, DuPont, Exelon, Florida Power & Light, General Electric, General Motors Corp., Johnson & Johnson, Lehman Brothers, Marsh Inc., NRG Energy, Pacific Gas & Electric, PepsiCo, PNM Resources, Rio Tinto, Shell and Siemens Corp., and Xerox

ADVOCACY ORGANIZATIONS: National Wildlife Federation, The Nature Conservancy, Environmental Defense, Natural Resources Defense Council, Pew Center on Global Climate Change and World Resources Institute

USCAP partners support six recommendations for national action:

- * account for the global dimensions of climate change – U.S. leadership is essential for establishing an equitable and effective international policy framework for robust action on climate;
- * Recognize the importance of technology – The cost-effective deployment of existing energy efficient technologies should be a priority;
- * Be environmentally effective – mandatory requirements and incentives must be stringent enough to achieve necessary emissions reductions;
- * Create economic opportunity and advantage – a climate protection program must use the power of the market to establish clear targets and time frames;
- * Be fair – Solutions must account for the disproportionate impact of both global warming and emissions reductions on some economic sectors, geographic regions and income groups; and
- * Encourage early action – Prior to the effective date of mandatory pollution limits, every reasonable effort should be made to reduce emissions.



THE SAGA OF THE PRODIGAL POSTERS

Sue Amstutz

Once upon a time - about eight years ago, (as close as we can determine) - the 1994 set of ONPS Photo Contest Posters was loaned to the Nature/Visitor Center at the Wichita Mountains Wildlife Refuge in southwest Oklahoma. No record was made by the then- Central Oklahoma Photo Poster Curator as to where those 1994 posters were, when they were checked out, and who was supposed to be responsible for them at the display site.

Therefore, ONPS lost complete track of that wonderful set of photo posters. We had no idea of where they were for a number of years, and although we kept asking, "Where at the 1994 posters?", no answer was forthcoming. Then, out of the blue, on September 11, a phone call to Sue

Amstutz, Photo Poster Curator for Eastern Oklahoma, revealed the location of the long-missing 1994 posters! The call, from Chip Kimball of the Wichita Mountains Wildlife Refuge staff, informed us that Ms. Kimball, in doing some housekeeping in the storeroom closet at the Refuge Visitor Center, had found our 1994 posters tucked back among the stored items in the closet. Realizing that ONPS would no doubt want the posters back, Ms. Kimball utilized our ONPS website to locate Sue's phone number and called with what Sue has described as "The Call That Made My Day."

Thanks to some cooperative effort on the part of several ONPS members, we now have the posters back in our possession. Those who helped were Marilyn Stewart; Marilyn's daughter who actually picked up the '94s from the Wildlife Refuge; and Pat Folley, who brought the '94's to Sue at the time of the Annual Meeting at Sand Springs in early October. Being out of sight and therefore out of circulation for so long has naturally resulted in some deterioration of the set. The 1994 posters were mounted on the old 40" X 30" poster boards which we no longer use, so the Amstutzes are in the process of remounting them in our current 20" X30" format. They will also recover the newly remounted posters with mylar and prepare a new box in which the set will be housed. When repairs are finalized, ONPS will have an "old" set of posters that can be utilized in many new ways. Our appreciation is especially directed toward Chip Kimball, for without her eagerness to do some housekeeping, this saga would not have had such a "they lived happily ever after" ending.



ANNUAL MEETING REPORT

By Kim Shannon

The 2007 Annual Meeting of the Oklahoma Native Plant Society was headquartered at the Sand Springs Community Center on October 5th to 7th. This year we had 44 people who attended our meeting and field trips. Many people came from the Norman area and others came from Mustang, Noble, Pink, McLoud, Midwest City, Weatherford, Stillwater, Sapulpa, Claremore, Sand Springs and Tulsa.

Friday - Activities began around 6pm with registration and the addition of donated items to our auction tables. At 8pm, Carrie Henderson from the Oklahoma Centennial Botanical Garden gave a presentation regarding the Garden's

progress in fundraising and upcoming construction. We learned that the Garden received funds from the Centennial Project to begin development of the site with a lake and a visitor's center. The garden will be a diverse botanical garden with 15 major gardens that will encompass 60 smaller gardens and special features and structures. The majority of the garden site will be preserved for its ecological significance as a cross timbers site. Natural areas will surround the formal gardens. Carrie's presentation was a prelude to our field trip to the Oklahoma Centennial Botanical Garden scheduled for the next morning. The group dispersed near 9:00pm.

Saturday - After a quick continental breakfast at the community center, the group carpooled and caravanned to the Botanical Gardens site. At the site we met Dr. Jay Walker, our field trip leader for the morning. Jay has been volunteering his time and energy at the botanical garden in order to start and maintain the nature trail system. Jay and Dr. Ron Tyrl collaborated on the plant identification guide to the most common plants that occur along the trail system. Jay brought many copies of the plant ID guide titled, 'A Walk in the Woods'. During our walk we traveled through typical cross timbers; the site was dotted with old post oaks, gnarled blackjack oaks and many hickories. The most impressive tree we saw along the trail was the 'witness tree' nominee. In honor of the Oklahoma centennial, this large post oak has been nominated to be a witness tree as it was most likely present at the site 100 years ago as Oklahoma became a state. This post oak has a 77" trunk in circumference and may have not only witnessed the beginning of Oklahoma, but the birth of the United States more than 200 years ago.

After a lunch break, the group met again at the Sand Springs community center. Our next field trip site was the Keystone Ancient Forest. Once again we caravanned to the site where we were met by a group of newly trained docents. Two groups went separate ways for either a short hike or a longer one. Once again we were treated to old post oak, blackjack oak, eastern red cedar and hickories. We even found ladies tresses' orchids in bloom.



We finished Saturday with a group dinner at the community center, a membership business meeting with the election of new officers, presentation of the Service Award and the silent auction. There were few changes to the current board roster except for the addition of Drs. Bruce Smith and Connie Murray as new directors-at-large. Sue Amstutz presented Tina Julich with the 2007 Service Award. Our third annual silent auction raised approximately \$460.00 for the general funds of the Oklahoma Native Plant Society. The ONPS board met Sunday morning to discuss current issues ranging from conservation to Color Oklahoma. All in all, the 2007 Annual Meeting was an enjoyable weekend spent with new and longtime friends, both of the human and botanical persuasion. Many thanks to all who attended!



2008 INDOOR-OUTING

Marilyn Stewart

Central Chapter will be hosting the Indoor/Outing this year on February 9 at the O.U. Botany Building. We plan to spend the rest of the afternoon at the Sam Noble Museum on the O.U. campus. Our theme this year will center on our connection with plants. How do we use plants? How do they use us? What is this bond we seem to form with them?

More information will be out soon, be sure to save the date!

2008 PHOTO CONTEST

Tina Julich

Changes have been made to the 2008 photo contest, which should give more people a chance to enter their winning photos! Since the 2008 Wildflower Workshop will be held in October instead of May, the deadline for submission to the photo contest has been extended to be February 1, 2008. The winners will be announced in the Gaillardia in the summer issue and the awards will be presented at the ONPS Annual Meeting/Wildflower Workshop to be held in October.

The special photo category for 2008 was decided to be "Fungi". Hopefully we will receive some photos for this new category this year. With an abundance of rain throughout the year we should have better chances of catching these sometimes-elusive organisms.

For more information on the 2008 photo contest please check the ONPS web site or email Tina Julich, contest coordinator, at tjulich@hotmail.com.



2008 WILDFLOWER WORKSHOP

Lynn Michael

The 2008 Wildflower Workshop is going to be new and exciting in a variety of ways. After 30 years of having workshops in May, we have decided to try a fall workshop to see some later blooming species. Another new idea is combining the Wildflower Workshop with the ONPS Annual meeting. With that in mind, we are looking at dates around the last weekend of September 2008 or the first weekend of October. Ideally, the workshop would begin as usual with the classes and lectures on Friday and the field trip on Saturday. Then, Saturday night we would continue the meeting with the ONPS Annual meeting and banquet and the business meeting on Sunday. Lastly, the location for this year's workshop is new and exciting. Tentative plans are for the workshop to be in Idabel, Oklahoma at the Museum of the Red River. This area in the very southeastern part of Oklahoma has never been the sight of a Wildflower Workshop. It is overflowing with beautiful scenery and fun and interesting places to see and visit. You will want to see the berries of the *Callicarpa americana* in their native habitat and the *Baccharis halimifolia* with its distinctive

fall blooming period. Beaver's Bend is just a short trip away and is a fascinating place. We have been told of a personally held acreage that has been planted in native trees and plants with trails and plant lists that we might be able to arrange to tour. The museum holds an entire *Acrocanthosaurus atokensis* dinosaur, dug up just minutes from the museum (looks like a T-Rex, but it's not). The museum has "regional archaeological material, as well as modern and contemporary examples of beadwork, basketry and ceramics from North America", the curator also spoke of plant fossils at the museum and will put out displays of things that he thinks will interest us. The Red Slough Wetland Management Area is a popular and widely known area of bottomland hardwoods famous as a birding spot. There is just so much to see and do I wish everyone would take a week and stay there instead of just a few days. McCurtain County is home to more of the record holding great trees of Oklahoma than any other county in Oklahoma, with forty- eight champion trees. Fort Towson is just a short trek away where one can imagine the lives of the fort settlers in 1824 Indian Territory. So keep your calendar free, as you won't want to miss out on all the exciting new aspects of the wildflower workshop coming to you in the fall of 2008.



CHAPTER ACTIVITIES

Northeast Chapter
Sue Amstutz

Northeast Chapter's next meeting will be Monday, December 3, at the Garden Center in Tulsa. Following a brief business meeting and election of 2008 Chapter officers, the evening's program will feature ONPS' State Vice President, Gloria Caddell. "The Botany of the Gypsum Outcroppings in Northwest Oklahoma" is the subject for Gloria's presentation and will feature current research being done by Gloria and her graduate student on the specialized gypsum habitats located in the Northwest quadrant of the state. The meeting will begin with our regular potluck supper at 6:00 p.m.

The Northeast Chapter has had three field trips this fall. On September 22, six members plus Tenkiller State Park Naturalist Leann Bunn

surveyed two areas of Tenkiller as part of our ONPS project to assist state park naturalists in identifying and cataloging the native plants which grow in various parks. Even with limited participation, the two areas surveyed yielded a fairly lengthy list of wildflowers, shrubs, trees, vines, and ferns. The lists, following tabulation and correlation, have already been sent to the park for Leann's use. The Chapter will return to Tenkiller in early spring of 2008 to continue the Tenkiller Project begun this fall by noting spring wildflowers in bloom in the park.

Nine members and guests took part in a wonderful excursion on October 13 to Natural Falls State Park in far eastern Oklahoma. A beautiful day, a sparkling waterfall descending into a sapphire blue pool, and an amazing amount of botany made this trip memorable for all who attended. We were even present for a wedding taking place in the formal garden of the park!

Sunday afternoon, November 4, found six members and one guest enjoying the warm, glorious splendor of autumn at Redbud Valley in Rogers County. Fall foliage was to have been the primary focus of this trip, but fruiting prickly pear cactus, cliffbrake ferns, numerous berried vines, and an absolutely perfect day to be outside added to the pleasure of this final field outing for Northeast Chapter in 2007. During the winter months, Chapter members will continue to meet on the third Fridays of December, January, and February at Panera Bread on East 41st Street in Tulsa for Fabulous Wildflower Fridays (formerly called "Happy Hour") for socializing and planning for 2008. We also look forward to the ONPS Indoor Outing in February.

Cross-Timbers
Elaine Lynch

Our fall field trip took us to the home of chapter members Pat and Les Imboden. Ron Tyrl led the field trip on September 1st. The temperature and rainfall this year produced "A Great Year for Grasses" with abundant growth and lots of seed. Big bluestem in some places in our area reached heights of eight to nine feet tall. The Imbodens have worked to create a quail habitat around their house by encouraging the native plants, especially grasses. Their property has a meadow-like appearance interspersed with mowed trails. After we botanized, we enjoyed socializing and

refreshments in the shade, including fresh pears from one of the Imboden's trees.

Jim Ownby spoke at our potluck dinner on November 9th. He talked about the "Wildflowers and Flora of South Africa". Dr. Ownby is professor emeritus of the OSU Botany Department. He visited South Africa in August 2006 with his wife Dr. Charlotte Ownby. The area featured in Dr. Ownby's talk is located on the western coast of South Africa. It is isolated by oceans and desert. It has a greater variety of native plant species than North America and 73% of them are endemic to that area. It even has its own plant kingdom, the Cape Floral Kingdom. Dr. Ownby told us about the private reserves that have become crucial in preserving endangered habitats. Wildflower tours are very common during the late winter/early spring, when the Ownbys were there. The Ownbys are both talented photographers. Their beautiful photos of native plants were featured during the presentation.

We held a short business meeting after the dinner to elect officers and discuss future activities. Alice Richardson gave a report on the Annual Meeting at the Sand Springs Community Center. Paul Richardson and Elaine Lynch were re-elected as Chairman and Secretary/Treasurer, respectively. Olen Thomas decided to step down as Vice-Chair to pursue other activities. Unfortunately, we did not receive any nominations or volunteers to run for the Vice-Chair office. We are asking anyone interested to contact Paul Richardson (405-377-4831, speedy154@juno.com) or Elaine Lynch (405-624-1461, mneslynch@yahoo.com). A few suggestions were made for future programs but nothing was decided. Suggestions for field trip locations or potluck speakers can be sent to Paul or Elaine.

Dale Chlouber, one of our members and the curator of the Washington Irving Trail Museum, gave a short presentation during the business meeting on several projects of interest to us. They include the Washington Irving Trails project, making the Cimarron River in Payne and Logan Counties a scenic river, and some research projects to emphasize local attractions and early Oklahoma exhibits. We plan to request time at the December ONPS board of directors meeting for Dale to make an expanded presentation to determine the degree of interest and involvement by ONPS in these projects.

Central Chapter
Marilyn Stewart

September 15th, we met at Pat Folley's home for an absolutely wonderful morning of looking and wandering around at the usual break-neck ONPS speed. Pat was quite patient as she explained what everything was about ten times per stop. Lots of people, great fun, and conversation that lasted until afternoon. One of those days that reminds me how glad I am to be a member of such an interesting and diverse group.

October 29th we heard Susan Chambers talk about natives for western Oklahoma. Susan always has something interesting to say about every plant, whether it is cultural or historical so we always learn something.

Also on October 29th, several of us met with officials from Oklahoma City at Lake Stanley Draper. They are interested in making/keeping the area one that is more natural than the other OKC lakes for people to enjoy. At this point they are asking for ONPS help in inventorying some of the areas around the lake. On November 11th, we met and started to identify plants; the lists are not all compiled at this time, but we have at least 75 species thus far. Not bad considering the time of

year! This will be an ongoing project and anyone is more than welcome to join us.

November 26th—Chad Cox will talk about nonnative invasive plants of Oklahoma. We will meet at 7:30 in Conference room North at OSU/OKC. The first thirty people who attend will receive the book, *Nonnative Invasive Plants of the Southern Forest*.

January 28th — Kathy Furrneaux, Entomologist, will speak about insects of Oklahoma and their relationship with our native plants. OSU/OKC, 7:30

February 9th, Indoor-Outing, page 7.

March 9th, A tentative inventory outing to Lake Stanley Draper. Watch for notice.

WELCOME THESE NEW MEMBERS

J. Connor Ferguson, Norman
Barbara Markwardt, Tulsa
Bonita and Mark Miser, Skiatook
Luke Del Greco and Karyn Olschensky, Edmond
Doug Willis, Tulsa

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Oklahoma Native Plant Record

Volume 7 of the *Oklahoma Native Plant Record* will be ready for shipment the first of December. Be sure to get your order in now so you'll receive it before the Holiday rush.

Charles S. Wallis' Ph.D. thesis, "Vascular Plants of the Oklahoma Ozarks", our historical article this year, is a widely used and cited source that has never before been published. We are proud to publish the digital text version that will make it available for global access via the internet.

Also in this volume Bruce Hoagland again presents articles based on data from the Oklahoma Natural Heritage Inventory. One gives us an updated perspective on Wallis' work. The other, co-authored with Amy Buthod, represents work done as an inventory of vascular plants at the future Oklahoma Centennial Botanical Garden in Osage County.

As part of our goal to encourage new authors, we enthusiastically present Caleb Stott's undergraduate work, "Cross Timbers Savannas: A Review of Relevant Literature", co-authored by Mike Palmer and Kelly Kindischer.

Dr. Palmer also provides us with a bibliography of checklists for Oklahoma's vascular plants. This will prove to be extremely valuable to researchers as renewed interest in biodiversity arises with environmental issues tied to global warming. It also includes an indexed table that enables the researcher to determine the most applicable checklists for their needs.

If you know of other previously unpublished articles that were overlooked for publication, but are often cited, please let us know. We want to get them into the digital age and the hands of today's researchers.

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For Gaillardia material only, use the editor's address:

Chad Cox
2241 Ravenwood
Norman, OK 73071-7427
(405)-329-8860
Email: chadwick.cox@cox.net

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