

CLAYTONIA

Newsletter of the Arkansas Native Plant Society

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Spring/Summer 2006

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The Mycorrhizal Fungi and Orchid Symbiosis or A See One, Do One, Teach One

by Carl Slaughter, MD

In my past surgical training and education there was a presumptuous proclamation we would promulgate about our ability to perform a particular surgical procedure. We would declare that we would observe one being performed, then we would perform one, and then we would be endowed with the skill and knowledge to teach others how to do the surgical procedure. (See one, do one, teach one)

This pretty well sums up my sentiment concerning today's topic about orchids and the mycorrhizal fungi. We all know that one of the characteristics that differentiate orchids from other angiosperms (vascular plants that have seeds inside an ovary) is that they have a multitude, sometimes in the millions, of very small seeds. They are small, because they lack endosperm. Endosperm is a layer of cells within the seed coat that is concerned with the nutrition of the embryo. Orchids lack this; so how do they receive their nutrition?

The orchid cannot survive without help; and the help comes from a group of fungi called mycorrhizal fungi. They supply the orchid with the needed food. There are a number of different fungi that can be involved in this endeavor. A few of the genera involved are: *Ceratophyllum*, *Moniliopsis*, and *Epulorhiza*. The genus *Epulorhiza* has five species that are associated with temperate terrestrial orchid mycorrhizae. How do they do this you ask?



Snowy orchid (Platanthera nivea). Known in Arkansas only from an 1883 collection from a wet prairie in Arkansas County. Photo (from Texas) by Carl Slaughter.

They penetrate the seed's testa and invade the embryo through its suspensor region. After penetration they produce pelotons, which are tightly interwoven coils of proliferating fungal hyphae. The seed, either in search of nutrition or as a protective measure, produces a substance that dissolves the pelotons causing the release of nutrient matter (carbohydrates, etc.) that the seed uses for growth and germination. The fungus does not just transfer nutrients from the ground or air into the seed, but sacrifices itself or some of its body parts.

Some fungi are more aggressive than others. The more aggressive fungi can overcome the seed and destroy it. The more timid fungi can be destroyed by the seed's hunger or protective measures. This is a very delicate relationship and the orchids must be good "fungus managers". According to Zettler, from the Illinois College, this relationship must last until photosynthesis occurs. We will forget about the amino acids and other organic compounds that are produced.

This orchid and fungus relationship is said to be a symbiotic one where there is mutual benefit to both subjects. The only benefit that I can see is that they get to eat each other. In my way of thinking, this is a parasitic relationship. Oh well, back to Pope's Pierian Spring. A mutual benefit has been shown between fungi and other non-orchid plants.

Some, if not all, of the *Spiranthes* (ladies' tresses) will spend one to several years beneath the ground without sprouting. I used to say they were just dormant (resting or non-vegetative) and leave it at that. Recently, several investigators have suggested that they are able to stay underground because the mycorrhizal fungi are able to supply them with the necessary nutrition that they require during their subterranean retreat. Does this mean that the need to initiate seed production stimulates the vegetative state?

In the distant past, in teaching medical school, in research activity, in writing papers and in talks and presentations, I never wanted the subject to be something about which I was knowledgeable. The subjects that I was attracted to were those about which I possessed a great deal of ignorance. My reasoning was – how would I learn anything if I presented subjects about which I was already knowledgeable. I could learn much more if I researched a subject about which I had a deficit of information. In the past I believed this, but now, after many years, I believe that it just goes back to that axiom of my student days: see one, do one, teach one.

And this article is one!

President's Greeting

On January 30th, my porch still sported an unburned petunia, in bloom, and on the ledge of the carport, a ruellia stubbornly refused to get blasted and render up the pot that I wanted to use for some pansies. Oh well, if we're not fretting over our clement weather, we're complaining about the inclement weather.

This year holds excitement for me and the Arkansas Native Plant Society. The Executive Board just met in January and we have made good progress in charting a course for the coming months. More about some of the particulars below.

As it is a new year, let me encourage you with all my august official powers (insert knowing wink here) to ensure that your membership to the Society is paid and current. During the recent mailing of the memorial issue of the Claytonia, I counted the number of delinquent memberships, and just the ones expiring in 2003 and 2004 numbered almost 80, out of a total membership of about 340.

We are certainly *not* cash strapped as a Society, but please remember that membership dues not paid equate to projects not attempted when we plan how to further the goals of education, conservation and preservation. Our primary income is from dues, and subtracting another 90 or so life memberships, you can do the math and see how this impacts our budget. Enough with the wet noodle beatings; we have plants to discuss.

I am very pleased to announce progress on the Carl Hunter memorial project we had announced at the Ft. Smith meeting in the fall. The Ozark Society, through its agent, the University of Arkansas Press, has agreed to give the ANPS a substantial discount in our campaign to place *at least* one of Carl Hunter's books in every public library in Arkansas. The libraries that already *do* have a copy often must restrict circulation to a reference book, and this donation should free up at least one copy to be checked out and see the light of meadow and mount.

The Executive Board agreed to set a goal of placing at least a single copy of *Wildflowers of Arkansas* in each library for the great price of \$4,860. The exact number I'm being deliberately vague about here in print since our partners, UA Press, indicated they didn't want to make any current retailers jealous of our purchase price. Trust me, it is a generous discount. We actively solicit

memorial donations to the Society to help reduce the amount of drain on the Operating Funds. Donations should be either given at the Spring Meeting or can be mailed to the treasurer.

I have also been actively seeking out either an Arkansas based company or a foundation in order to partner with ANPS on this worthwhile project. Any additional donation given from a partner could help us place perhaps a complete set of Hunter's book in each public library, and eventually even do the same for the school libraries in the state. At present I already have one favorable response and am hopeful I can announce something at the Mena meeting.

On a related note, the Executive Board also voted to again support the Arkansas Envirothon and the Audubon Camp, projects we have donated to in the past. We are proud to be sending contributions to those great educational activities, and appreciate those who organize them and help future generations understand the responsibility we all have of protecting our beautiful planet. Additionally, we will initiate an annual ANPS Award for \$100 at the Arkansas Science Fair (the state-level competition). The project that best exemplifies conservation, and when possible, Arkansas flora, will be selected for the honor.

During the Board's planning session, we addressed the structure of the officers of the Society and how best to balance the work among us. Previously, we had noticed the bylaws seemed to really assign no continuing duties to the President-Elect, so we pounced on that and reasoned that publicity and communications was a good area that needed an extra push. To that end, please note in this *Claytonia* a revision of the necessary bylaw to precede a vote in the General Meeting in Mena. There are also two other recommended changes. The Arkansas Conservation Coalition no longer is extant, so all references to it in our bylaws have been stricken. The other change proposed is the consolidation of the Historian duties with the Secretary position. It has been difficult to get substantive work in the Historian position, so we reasoned it has added to Board size without increasing Board output, challenging our ability to reach a quorum at some meetings.

There are more details of plans we will discuss for the Society at Mena, but I have waxed long already. Please make every effort to attend the Spring Meeting and, as I said last year, BRING A FRIEND!

Waiting for the blizzard that never comes,

Jason K. Anders
ANPS President

New ANPS Members

The following people have joined the Arkansas Native Plant Society since the last issue of Claytonia:

Mike Amason (Calion, AR)
Danny Barron (Chelsea, OK)
Yvonne Becker (Hot Springs Village, AR)
Cathie Connaughton (Conway, AR)
Josie Farrell (Hot Springs Village, AR)
Maranda Henley (Rison, AR)
Thomas H. Hooper (Fort Smith, AR)
Kathryn Huie (Drasco, AR)
Don Kurz (Jefferson City, MO)
Norman & Cheryl Lavers (Jonesboro, AR)
Bonnie Leonhardt (Muscatine, IA)
Donald Long (Jasper, AR)
Barbara & Donald Massey (Pine Bluff, AR)
Kathy & Andy Radomski (Almyra, AR)
Mark Robertson (Little Rock, AR)
Julie Sparks (Monticello, AR)
Susie Teague (Lonsdale, AR)
Michael Weatherford (Warren, AR)

We welcome these new members to the ANPS!

Proposed Amendments to the Bylaws

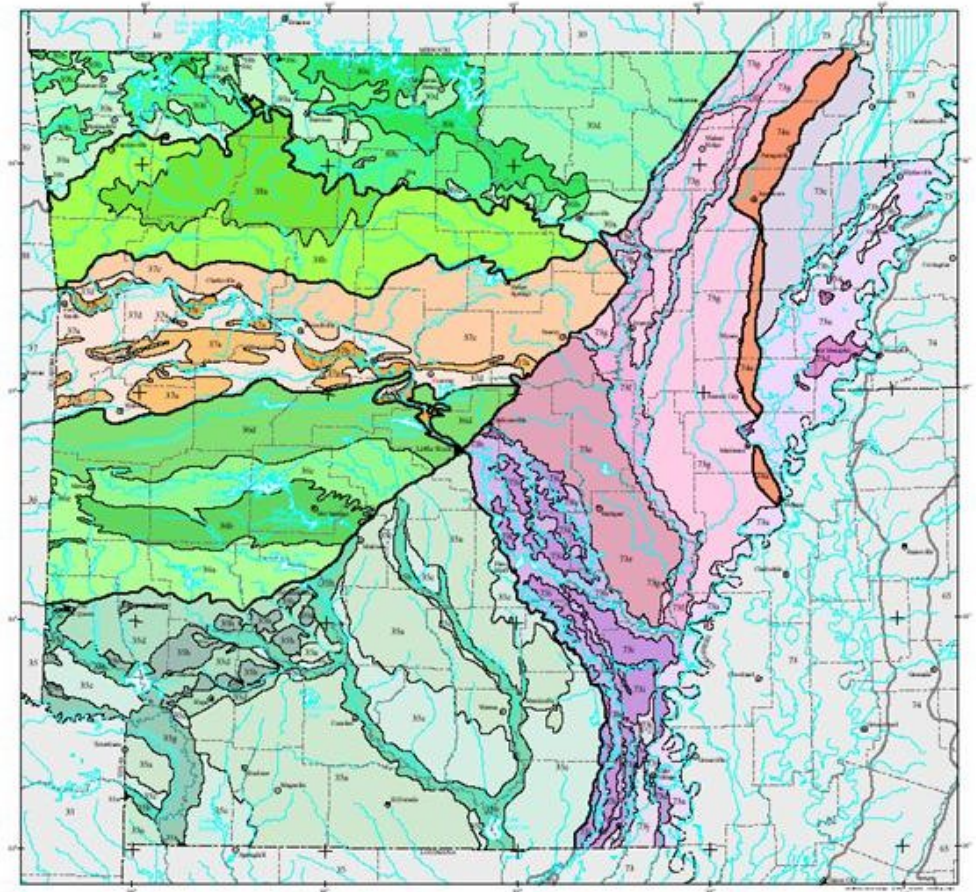
The Executive Board has reviewed the current Bylaws and would like to announce the following proposed revisions, to be voted on at the Spring Meeting in Mena:

- 1) All references to the Arkansas Conservation Coalition Representative have been stricken from the Bylaws. The Coalition no longer exists, so the references are all obsolete. The current directory already reflects this deletion, but formal approval to delete will be voted upon in the upcoming General Meeting.
- 2) It is hereby proposed that Article V, Section 1 be amended to delete the offices of Historian and Communications/Publicity Chairperson. The recent attempts by the Nominating Committees have proven that these positions are not generally supported by the membership and the functions have often remained undone. Further, the inclusion of the offices without persons hurts the Board in reaching quorums.

3) Article V, Section 4 will be amended to include the role of Communications and Publicity in addition to the other stated duties. The Board thought this a natural fit because the Vice-President had few previously assigned duties.

4) Article V, Section 5 will be amended to include the duties of archiving. The role of Historian is assumed to be dissolved, but the Secretary will be expected to be the keeper of records and archives of Society history.

The specific rewordings of the amended bylaws, as well as renumbering of sections after deletions, will be presented for review in print at the Spring Meeting. These summary descriptions are provided in the Claytonia in keeping with the spirit and intent of Article IX of the Bylaws. Please consider these changes in advance in order to be prepared to vote after discussion at the General Meeting.



Detail from the new Level IV Arkansas Ecoregion Map. Now available in pdf or hard copy. This map helps explain the distribution of plant species and communities.

New Arkansas Ecoregion Map & Poster Available

A number of state and federal agencies have collaborated to produce a large format (45" x 36"), two-sided, full-color map of the Level IV Ecoregions of Arkansas. This "Level IV" treatment takes things a step beyond the typical six division Level III treatment that you are probably familiar with (Ozarks, Ouachitas, Arkansas Valley, Coastal Plain, Mississippi Alluvial Plain, & Crowley's Ridge). This new map splits the typical six major divisions into seven (by splitting the Ozarks into the Boston Mountains and the Ozark Highlands) and recognizes a number of subdivisions of each (the Level IV Ecoregions). It recognizes the following: the South Central Plains (with 6 subdivisions), the Ouachita Mountains (with 5 subdivisions), the Arkansas Valley (with 4 subdivisions), the Boston Mountains (with 2 subdivisions), the Ozark Highlands (with 4 subdivisions), the Mississippi Alluvial Plain (with 10

subdivisions), and the Mississippi Valley Loess Plains (1 division).

This is more than just a map though. There are detailed descriptions of each of the 32 Level IV Ecoregions, discussing landforms, geology, soils, vegetation, climate, and land use. There are also a bunch of color photos and tables. The map also includes a smaller map showing the level III Ecoregions for the entire conterminous U.S., so you can see how Arkansas fits in to the bigger picture. It would be difficult for the reader to comprehend the immense amount of information contained in this poster without seeing it for themselves, so check it out.

The poster is available for download as a pdf file in the full format or in two abbreviated formats from the EPA website at www.epa.gov/wed/pages/ecoregions/ar_eco.htm. The map is also available for download as a shapefile for ArcView. Hard copies are available for purchase from the U.S. Geological Survey.

PLANT OF THE ISSUE: ARKANSAS TWISTFLOWER



Arkansas twistflower (*Streptanthus maculatus* subsp. *obtusifolius*). West Pulaski County. Photo by Theo Witsell.

Several years ago, near the end of April, I was climbing a steep sandstone outcrop near the top of Blue Mountain, the western-most peak of the Maumelle Pinnacles, west of Little Rock. I came up over a ledge to find an absolutely breathtaking display of color. Above the ledge was a steep open glade of blue-grey Jackfork sandstone, spotted with large patches of *Xanthoria*, a brilliant orange lichen. Scattered among these, on vertical rock faces and under small overhangs were patches of the fluorescent yellowish-green gold dust lichen (*Chrysothrix candelaris*). Wherever a little soil had accumulated there were tufts of the woolly lip fern (*Cheilanthes tomentosa*), brilliant yellow coreopsis, and four colors of Ohio spiderwort (white, purple, blue, and pink). Scattered among all of these was one of the most beautiful wildflowers I had ever seen, which I was at a loss to identify. This last species had big erect spires of brilliant four-petaled purple and pink flowers, and large, grey-green leaves with a waxy, whitish coating. I sat down smiling, in awe of this magnificent scene, framed with gnarly old post and blackjack oaks, with scraggly farkleberry shrubs and hoptrees growing here and there out of cracks in the sandstone.

I took a small piece of this last species home with me to key out and was thrilled to find that I had found something rare, a species whose common name alludes to its status as something all our own: Arkansas

twistflower. In Arkansas we have three twistflowers, all in the genus *Streptanthus*, of the mustard family (Brassicaceae or Cruciferae). All are rare, in one sense or another, and all are annuals. One, *Streptanthus hyacinthoides*, is found in Arkansas only in the deep Gulf Coastal Plain sand barrens of Ouachita, Nevada, and Miller Counties, but is also found in Texas, Oklahoma, and Kansas. The second, *S. squamiformis*, is a Ouachita Mountain endemic, occurring in both Arkansas and Oklahoma, but nowhere else in the world. The third, *S. maculatus* subsp. *obtusifolius*, is found only in the Ouachita Mountain and Arkansas River Valley in Arkansas. It was this last one that I had found that wonderful day atop Blue Mountain!

Arkansas twistflower cannot tolerate the dense shade that often accompanies richer, deeper soils, and so is confined to the most rocky and barren habitats. You can find it just west of Little Rock in sandstone glades and outcrops at Pinnacle Mountain State Park, in novaculite (chert) glades from Hot Springs to Albert Pike Recreation Area, and in shale barrens around Lake Ouachita. It blooms in late April and early May and is certainly one of the showiest plants in the flora. It is presently known only from Faulkner, Garland, Hot Spring, Howard, Montgomery, Pike, Polk, Pulaski and Saline Counties, Arkansas. Like most of our glade and rock outcrop plants, Arkansas twistflower responds very well to fire and has increased at a number of sites where regular burning occurs.



Typical Arkansas twistflower habitat in the Ouachita Mountains. Blue Mountain. West Pulaski County. Photo by Theo Witsell.

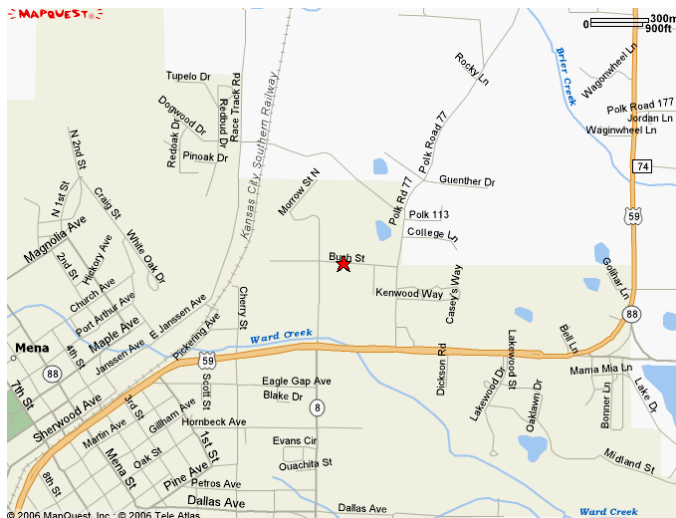
ARKANSAS NATIVE PLANT SOCIETY SPRING 2006 MEETING

APRIL 28-30, 2006

Rich Mountain Community College (RMCC) Mena, AR

The Friday and Saturday Meetings will be held on the campus of Rich Mountain Community College, 1100 College Drive. Registration, refreshments, and socializing will take place in the Tower Room of the Ode Maddox Building with programs to be held in the Lecture Hall of the Spencer Building (the two buildings are next to one another and are connected by a hallway).

The main highway in Mena is Hwy 71 and many of you will be entering town on this highway. Directions to RMCC from Hwy 71 are as follows: from the north (before historic downtown), turn right at the stoplight on Morrow Street North (this is the first stoplight from the north). Then turn right on College Avenue (also called Bush Street, as it is on the map below). RMCC is on the left. From the south (after going through historic downtown), turn left at the aforementioned stoplight on Morrow Street North and follow directions as above. (Hwy 71 is the wider line extending from the top right to lower left of the map. It is labeled as Hwy 59 on this map. The star indicates the location of RMCC.)



Registration will be in the Tower Room from 4:30 pm - 7 pm Friday. Lana Ewing will treat us to a slideshow program on the local flora at 7 pm! The Executive Board Meeting will follow the program.

Saturday morning we will be traveling to the Cossatot River State Park – Natural Area Visitor Center for a program/hike led by Park Interpreter and ANPS member, Stephen Walker. There will be several additional hiking opportunities throughout the day, all to be announced Friday night. At 7 pm our own Lori Spencer will give us a program on butterflies! The Business Meeting will follow her program.

Lodging information is provided below.

I look forward to seeing you all in the BEAUTIFUL Ouachita Mountains in April!!

If you have questions or need assistance, contact:

Brent Baker
btb2001@hotmail.com
479-970-9143

Lodging:

Sun Country Inn
1309 Hwy 71 N
Mena, AR 71953
479-394-7477
Toll free at:
1-877-394-7477
www.suncountryinn.com

This is the newest motel in Mena. It is just a couple blocks from RMCC on the main highway (71). Coming from the north on Hwy 71, it will be on the left a little before the first stoplight (see directions to RMCC) or on the right a little past the stoplight if you are coming from the south. We have 20 rooms reserved here at a discount rate of \$59 plus tax (13%). This rate is for 2 people per room; each additional person is \$6 extra. You must mention ANPS to get this rate and **must reserve by April 10**. Pets are not allowed at this one.

Limetree Inn
804 Hwy 71 N
Mena, AR 71953
479-394-6350
Toll free at:
1-800-536-4366
www.limetreeinn.com

This is an older motel, although it has had some remodeling. The standard rate is \$59 plus tax (13%) for a double room (2 people). It is also on the main highway (71) just a few blocks from RMCC. Coming from the north on Hwy 71, it is on the right immediately past the first stoplight (see directions to RMCC) or on the left immediately before the stoplight coming from the south. Small pets are allowed.

Budget Inn
1018 Hwy 71 S
Mena, AR 71953
479-394-2400

This is an older, smaller motel, and is a little cheaper. However, it is across town from RMCC on Hwy 71 South. Standard rates run in the lower to mid- \$40 range plus tax.

For those of you who like to camp or stay in cabins, a few possibilities are listed below (there are numerous other possibilities, some of which can be found at www.gomenaarkansas.com):

Queen Wilhelmina State Park
3877 Hwy 88 West (13 mi. west of Mena on Rich Mountain)
Mena, AR 71953
479-394-2863
Toll free at:
1-800-264-2477
www.queenwilhelmina.com

Tent sites (starting at \$9/night) and RV sites (\$17.50/night) are both available and can be reserved. In addition to campsites, the lodge offers rooms as well, with a double running about \$82/night.

Wolf Pen ATV Campground
559 Polk 61
Mena, AR 71953
479-394-0404
www.wolfpenatv.com

Tent, RV sites as well as cabins available.

Renegade Ranch
3680 Hwy 88 East
Mena, AR 71953
479-394-3848

Tent sites (\$5/night) and RV sites (\$12/night) are both available. Cabins are also available.

Shadow Mountain RV Park
3708 Hwy 71 South (6 mi. south of Mena)
Mena, AR 71953
479-394-3494
www.shadowmountaincampground.com

In Memory

Two former ANPS members were not included in the recent Memorial Issue of the Claytonia and deserve special recognition here. Oralee Price of Drasco and Gwen Barber of Russellville both died recently.

Oralee was a long-time ANPS member and led field trips in the Greer's Ferry lake area, including more than one to Big Creek Natural Area. She and her husband found the globally rare ovate-leaf catchfly at this site and documented it for the Arkansas Natural Heritage Commission. Oralee's family requested that interested people might make donations in her name and friends and family sent a total of \$300 to the ANPS. Thanks to all of them for their generosity in Oralee's name.

Gwen was also a long-time member of the Society. She worked recently at the Arkansas Tech University Herbarium, going through the entire collection confirming the identifications on the specimens for the Arkansas Flora Project. Her work in this capacity went a long way toward keeping erroneous reports out of the upcoming Flora Project publications. She did her masters thesis on the Flora of Franklin County, Arkansas and was a member of the Arkansas Vascular Flora Committee.

Both of these fine long-time members of the ANPS will be missed. Our thoughts are with their families.



Downy lobelia (*Lobelia puberula*) . Photo by Craig Fraiser

ARKANSAS NATIVE PLANT SOCIETY

FALL 2005 GENERAL MEETING MINUTES

Barbara Little moved that the minutes from the Spring 2005 meeting be accepted as they appeared in the *Claytonia*. Don Culwell seconded and the minutes were unanimously approved.

Barbara announced that the auction on Friday night brought in \$1,764.00. She passed out the financial report, noting one correction. The current balance was \$21,506.12, totaled among all funds. Jean Crone moved that the financial report be accepted. Gene Ford seconded. All agreed.

Eric Sundell gave a report on the status of the Arkansas Flora Project's upcoming *Checklist of the Vascular Flora of Arkansas*, saying that the final touches were being put on the checklist now by staff at the U of A Fayetteville Herbarium and Dr. George Johnson of Arkansas Tech. The new checklist will be very different from the ones in Ed Smith's *Atlas and Annotated List of the Flora of Arkansas* (1988) and his *Keys to the Flora of Arkansas* (1994), with many new species added and some omitted (on the basis of erroneous reports). Eric said he hoped that two more years of work would get the new Atlas out. Several people asked if the checklist would be available online. Eric said not immediately. Mary Ann King pointed out that the existing online version of Ed Smith's Atlas (on the Texas A & M Bioinformatics website) will conflict with the new effort and suggested that this be brought up at the next Arkansas Flora Committee Meeting.

Burnetta Hinterthuer reported that the Executive Board is exploring ideas of what the Society will do to memorialize Carl Hunter and asked the membership for ideas. Carl Slaughter asked that people send in writings for the memorial issue of the *Claytonia*. Theo Witsell said that only two pieces had been received so far. Jason Anders remarked that this is an issue to memorialize any member of the Society who has passed on. Jason said the deadline is Thanksgiving.

Jason reported that Society member Lou Burrows had died.

Eric said he wanted to formally thank Jason for writing the second obituary for Carl Amason that appeared in the *Arkansas Democrat-Gazette*. Many members echoed this sentiment and said that it did a good job of setting the record straight after an earlier obituary characterized Carl as a recluse (not true!).

Theo reported that, due to financial and time constraints, the *Claytonia* would come out twice a year, not four times as has been the goal.

Thera Lou Adams pointed out that the mailing list needs cleaning up, having a number of deceased persons still on it. Eric asked that if anyone knew of a deceased person still on the list (see the new directory), they should please let him know.

Burnetta said that the Executive Committee will meet in January and get the issue of a memorial for Carl Hunter and Carl Amason worked out. For now, donations in Carl Amason's name will be set aside. It was reported that the Louisiana Native Plant Society had sent \$200 in memory of Carl Amason. Eric reported that he had also received several donations in his name.

Burnetta said that she will take over as chair of the Scholarship Committee with Eric Sundell and George Johnson on the Committee. She will report on the committee's activities at the Spring Meeting. The Nominating Committee is seeking a nominee for Vice President for when Brent Baker rotates into the President Elect position.

Jason reported that the Executive Committee voted to take the proceeds from the auction, which normally go into the Aileen McWilliams Scholarship Fund, and put them into the General Fund to be sure there were enough finances to publish the next *Claytonia* and cover other expenses. This was voted on and approved. Jason also noted the need to vote on the amended bylaws as published in the last issue of *Claytonia*. Mary Ann moved to approve them as published. Jason seconded. It was approved unanimously.

Thera Lou announced that Carl Amason's property was now owned by his nephew, who needs help in identifying plants in Carl's gardens. She asked that anyone who could help in this effort call Carl's number and offer to come down and help. She suggested that we pick a date and offer to send a team down to help. The date was discussed and set for October 29, 2005.

Jason Anders moved to adjourn. Jean Crone seconded.

Respectfully submitted,
Theo Witsell (Acting Secretary)

Classifieds

Invasives Species Field Guide Needs Help from ANPS Members— Jude Jardine is still working on updates to the Invasive Species Field Guide. She needs good photos of a number of common exotic invasive plant species. For a list of images needed, please contact Jude at jkjardine@netscape.com or call 501.676.5535.

Announcements

Botanical Training Center Workshops

The Institute of Botanical Training is offering a number of plant identification classes throughout the Midwest in 2006 which will cover a variety of topics. Classes this year will take place in MO, IL, IN, KY, OH, MI and WI. Workshop topics include: Wetland Flora, Advanced Wetland Flora, Midwestern Flora, Ozarks Upland Flora, Prairie Flora, Tree Identification and "Grasses, Sedges and Rushes". Workshops are 3-4 days long, depending on the topic and take place primarily in the field. These classes are perfect for people who need to hone their botanical skills for professional purposes, or for serious amateur botanists.

The 2006 Workshop Schedule and detailed information is posted on their website at www.botanytraining.com. To register for a course or if you have questions, please call 317-430-6566. Participants who register before April 1, 2006 will receive \$50 off the price of a class.

New Website Featuring Arkansas Plants and Scenic Images

ANPS member Craig Fraiser has launched a website that features some outstanding photos of Arkansas plants, waterfalls, and other impressive scenery. You can visit the site and post comments at <http://www.pbase.com/cmf46>.

Audubon Ecology Summer Camp

The Arkansas Audubon Society is sponsoring an Ecology Camp for 11 and 12 year old kids at Camp Clearfork west of Hot Springs in the Ouachita Mountains. This summer's camps, each 6 days, will run June 11-16 and June 18-23. Great facility, great food, great great staff, and great great experience for kids. More information and

application form for the camp are at www.arbirds.org or folks can e-mail Liz Fulton, the Executive Director, at efulton@aristotle.net or phone her at 501.663.9380.

Audubon Arkansas Natural History Workshops

The Arkansas Audubon Society is also sponsoring adult natural history workshops in the fall at Ferncliff Presbyterian Camp just west of Little Rock. There will be two to three workshops, each running Friday noon to Sunday noon, Oct. 6-8, 2006. Dr. Eric Sundell will be teaching a tree identification workshop for beginners and intermediates. Dr. Jim Edson will be offering a geology, rocks & minerals, and land forms workshop with evening activities on monarch butterflies (Jim is also the monarch coordinator for Arkansas and does a lot of butterfly banding, larvae raising, milkweed growing, and monarch watching work with school kids). There may be a third workshop on insects. Folks interested in attending should contact Barry Haas at bhaas@sbcglobal.net. Each workshop will have room for 12 participants and will include board and for folks from the hinterlands, motel-type rooms at Ferncliff. The food and accommodations are excellent.

Arkansas Flora Project Memorials

A donation was made to the Flora of Arkansas Project in memory of Lou Burrows from Don Crank.



Yellow honeysuckle (Lonicera dioica). Photo by John Pelton

*Oh, take me home to Arkansas,
Where redbuds bloom,
Where the streams flow clear.*

*I have a bond with Arkansas,
And when my days are done,
I'll die in Arkansas.*

- Song by Bill Shepherd

UPCOMING EVENTS & FIELD TRIPS

April 1st 10:00 a.m. Johnson Pear Farm/Round Mountain. South of Fayetteville on Hogeeye Road. Meet at 9:30 a.m. at the U of A Baseball Field on Razorback Road, just south of Hwy. 16, and we will car pool or follow the leader to the site. This site is now an Ozark Regional Land Trust site; a group has formed to explore environmentally-sound housing and land-use options for a portion of this land. The group is hoping to identify species that are rare/endangered and those that are invasive. Call Burnetta at 479-619-4394 for further information or if you are interested in volunteering with the group in identifying plants.

April 7th & 8th Arkansas Academy of Sciences Meeting at Lyon College in Batesville. For more information see www.lyon.edu/webdata/groups/science/aas_2006/.

April 22nd 7 p.m. Prairie Mole Cricket Count on Chesney Prairie, Siloam Springs, AR. For the past three years, Joe Woolbright has invited ANPS members to help count prairie mole crickets on Chesney Prairie. The success of the count is always dependent on the weather and varies from year to year. If you are interested, please give Joe a call at 479-427-4277 the week before the 22nd to make arrangements and for directions on where to meet. You will get to see this amazing prairie that Joe has helped restore as well as many early wildflowers. Last year, the shooting stars were resplendent.

April 28-30th Mena, Arkansas. State ANPS Meeting. Rich Mountain Community College. See detailed info elsewhere in this issue.

May 13th 10:00 am. Trip to Larry Buford's property near Taylor, Arkansas. Larry will lead this trip to see his collection of trees and shrubs. Larry has 85 kinds of oaks on his place as well as many more unusual trees and a large collection of daylilies. Directions: from Magnolia, take 371 south to Taylor. Continue south 6 more miles to the Welcome community sign (note: this is almost in Louisiana). Turn left onto Columbia County Road 21. Larry's house is the second one on the left. Give Larry a call at 870.859.4786 so he knows how many to expect.

May 20th 10:00 a.m. "Hole in the Rock" - Bill McNamara will lead us to Hole in the Rock. This natural area is located near the Sweden Creek Natural Heritage site. Park opposite the Elkhorn Road at the Elkhorn Church parking lot which is just north of Hwy. 21, across from the Sweden Creek road that leads to Hole in the Rock. We will meet there and carpool to the site. Please contact Burnetta at 479-582-0317 so she can get a head count.

May 27th 10:00 am. Moccasin Creek Field Trip. Susan Hooks will be leading a field trip to a site on Moccasin Creek

in Garland County on May 27th at 10:00 am. The hike will be on trails and is easy walking. The site has yellow lady slippers, green trilliums, wild ginger, pawpaw, etc. It also features a shale glade. Meet at the Castleberry Store at the intersection of Hwy 7 and Hwy 298. Bring a lunch. Contact Susan Hooks for more info or to reserve a spot. 501.321.5323 or email: shooks@fs.fed.us.

May 27th 10:00 a.m. Zee Reader purchased land in the King's River drainage that she is hoping to preserve, perhaps as a wildlife refuge. The land has a large cedar glade, bottomland fields, and fronts a tributary of King's River. Perhaps we will find earleaf gerardia habitat on the glade; this is a species we found two years ago at Saunders Heights in Berryville. If coming from Fayetteville or points west, meet at Pine Mountain Village parking lot in Eureka Springs at 9:30 a.m. and there will be a guide to follow to site. PMV is just past the intersection of Hwys. 23 and 62 about 1/4 mile on the left. If coming from the east, meet at the Frontier Outpost, a convenience store that is just west of Berryville city limits. A guide will meet you there. Zee and Steve Smith will give us a tour of the property. Call Burnetta if you have further questions 479-619-4394.

June 10th 10:00 a.m. Field Trip to the Shortleaf Pine-Bluestem Ecosystem Restoration Area, Ouachita National Forest, near Waldron, AR. Bring a sack lunch, water and comfortable hiking shoes.

The pine-bluestem project is an ongoing effort by the USDA Forest Service to restore a once widespread habitat in the Ouachita Mountains. The project area includes approx. 200,000 acres in western Arkansas and eastern Oklahoma. This habitat consists primarily of shortleaf pines and mixed-species hardwoods, in open stands, with the openness obtained by thinning harvests and maintained with prescribed burning. This is habitat for the Red-cockaded Woodpecker, a Federally-listed Endangered species, plus numerous other plants and animals that require the open, sunny conditions of woodland habitat. The flora is highly diverse and includes showy species like pale-purple coneflowers, rare insects like the Diana fritillary, and many species typical of Tallgrass Prairies.

Meet at the Forest Service office in Waldron at 10 AM. The office is located just off the intersection of US 71 and 248 at Waldron. Note the sign at this intersection. The office is visible in the southwest corner of the intersection. If you are traveling on 71, turn West on 248, travel no more than one block, and make the first left turn onto the drive to the Forest Service office.

For additional information about the pine-bluestem project, contact Forest Service biologist Joe Neal 479-637-4174 (Waldron) or 479-521-1858 (Fayetteville).

BOOK REVIEWS

The Orchids of Lovell Hollow and Heartsong Retreat Center: An Enumeration and Description of the Wild Orchids of Lovell Hollow in Newton County, Arkansas

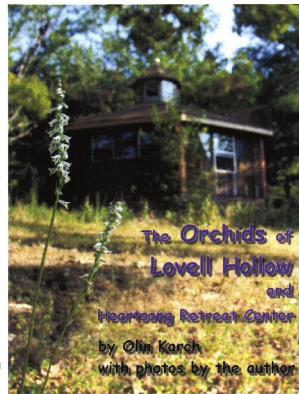
Text and photos by Olin Karch

This full-color 29 page booklet features very detailed treatments of 14 species of native orchids that the author found and photographed in Lovell Hollow adjacent to the Upper Buffalo River in Newton County, Arkansas. It is extremely well done, with beautiful photographs (three or more per species) showing various parts of each plant. The treatments include

common and latin names, blooming period, range maps (by both state and county within Arkansas), habitat, description, ecology, history of use, and natural history. Also includes a nice introduction with general information about orchids, a chart showing in which months the foliage and flowers of each species can be seen, and an index.

A must for anyone interested in Arkansas' orchids!

Copies are available from the author for \$15 postpaid.
Write to Olin Karch / HC 62 Box 826 / Deer, AR 72628
— *Reviewed by Theo Witsell*



This remarkable update of the 1985 book by the same name is one of the most exciting and comprehensive works on the ecology and native plant communities of the region. Ever. Without a doubt, this will be the bible of ecologists and land managers in Missouri for years to come. It is applicable to much of Arkansas as well, not only the Ozarks and the Mississippi Alluvial Plain, which we share with Missouri, but to other areas as well. It also explains a lot of the principles of conservation planning, ecological land management, and ecological restoration that are being adopted by state and federal agencies and private conservation organizations.

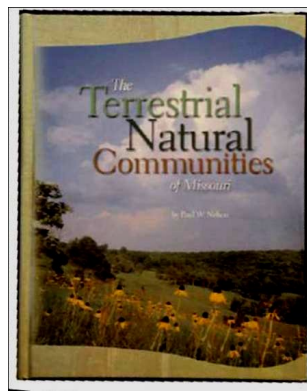
Chapters include Biogeography of Missouri, Ecological Management, Conservation Goals and Planning, and Describing Terrestrial Natural Communities. There is also a lengthy bibliography, a detailed glossary, and five appendices including a key to the natural communities.

A total of 85 types of 9 different general communities are described in detail. The general communities, followed by the number of types of each, are: Forest (15 types), Woodland (18 types), Savanna (6 types), Prairie (12 types), Glade (5 types), Cliff/Talus (11 types), Stream Edge (3 types), Wetland (13 types), and Cave (2 types). As an example, under the general prairie community, the following types are treated: 1) dry loess/glacial till prairie, 2) dry-mesic loess/glacial till prairie, 3) mesic loess/glacial till prairie, 4) dry limestone/dolomite prairie, 5) dry-mesic limestone/dolomite prairie, 6) dry-mesic chert prairie, 7) dry-mesic sandstone/shale prairie, 8) prairie swale, 9) sand prairie, 10) hardpan prairie, 11) wet-mesic bottomland prairie, 12) wet bottomland prairie.

The Terrestrial Natural Communities of Missouri (Revised 2005 Edition)

By Paul W. Nelson

Hardcover. 567 pages. 300 color plates. Produced by the Missouri Natural Areas Committee. Available from the Missouri Department of Natural Resources. Cover price = \$29.98, plus \$6.00 s&h. Call 1-800-334-6946 or download an order form at www.mostateparks.com/ternatcom_order.pdf.



For each general community (e.g. forest, savanna, etc.), there is a discussion describing the general character and structure of the community, natural and manmade disturbances, threats, protection and management, and animals (from bison to ants). Each community type entry includes a section on vegetation description, physical characterization, natural processes, dominant plants (canopy, understory, shrubs and vines, herbaceous layer, even lichens for some communities!), characteristic plants, plants restricted to the community (if any), community variation and subtypes, associated natural communities, presettlement distribution and size, representative sites, status, threats, and management considerations. There are also color maps showing the range and abundance of the type in Missouri.

BOOK REVIEWS

This book includes a wealth of historical data outlining the effects of human activities on the landscape from prehistoric times to today. Nelson draws on all the available evidence, from studies of pollen profiles in the soil to tree growth ring and fire scar analysis to archaeological evidence, to document and explain the changes in plant community structure and composition in the region.

Perhaps the most impressive thing about this book, aside from the staggering amount of information and detail, is the wealth of excellent color photographs and artwork! These, combined with an abundance of color maps, charts, and tables, make this a very well-illustrated volume.— *Reviewed by Theo Witsell*

Editor's note: *Two books with the same name have come out in recent years on the subject of Ozark wildflowers, and it seemed like a good idea to review them together. Thanks to Bill Shepherd for doing the bulk of the careful work of reviewing these.*

Ozark Wildflowers: A Field Guide to Common Ozark Wildflowers. Don Kurz. 1999. Falcon Publishing. Introductory matter. 355 species illustrated with color photographs by the author, another 84 species discussed. 262 pp. Softcover, \$19.95.

and **Ozark Wildflowers: An Ecological Guide to Flowering Plants in the Region.** Thomas E. Hemmerly. 2002. University of Georgia Press. Introductory matter. Illustrated with "more than 250" color photographs, all but one of them by the author. "More than 600 species" differentiated in text. 240 pp. Softcover, \$24.96.

We are lucky to be living in affluent times, a day when collections of beautiful wildflower portraits can be published in books that address the floras of states already well covered by earlier field guides that were themselves well illustrated with color photographs. We are referring, in particular, to the book by Carl G. Hunter that covers Arkansas wildflowers and those of Edgar Dennison and Bill Summers covering Missouri wildflowers. Neither of the two new books reviewed here was truly needed in the sense that people

needed their predecessors.

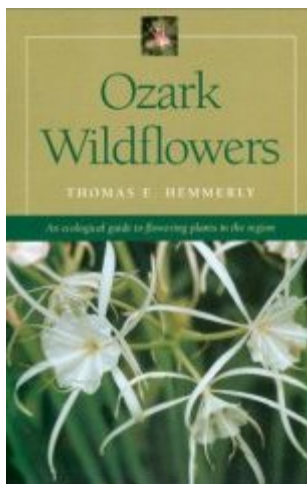
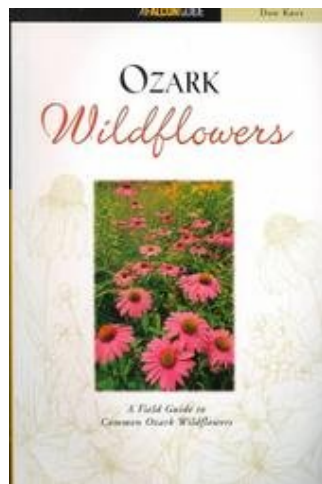
But that's all right. If a book gives pleasure and is instructive, no further reason for publishing it is required.

One would hope, however, for accuracy in information. And that goal is unequally achieved by the two authors.

The reader of the Hemmerly tome gets fair warning that there are going to be problems when he reads in the second sentence of the Author's Notes that the Jot-em-down Store of old-time radio duo Lum and Abner was set in "Pine Bluff, Arkansas." (As many will recall, the fictitious general merchandise store was located, not in Pine Bluff, but in the fictitious village of Pine Ridge, a name that eventually was assumed by a hamlet in Polk County in order to cash in on the fame that the imaginary town acquired.)

To be charitable, we wonder if Hemmerly originally had another title in mind for his book, perhaps with a wider geographical focus, and that his publisher suggested the title that was finally used. Unfortunately, the final product fails in several particulars to measure up to the promise of the title, perhaps because too little time remained for revising the contents to conform with it. Though Hemmerly uses an

extremely broad definition of the "Ozarks," a definition that encompasses the Ouachita Mountains, his book still includes a few plant species that can't be considered part of the Ozark flora even by Hemmerly's expanded definition (e.g. silky camellia, known in Arkansas only from Ouachita County, and two-wing silverbell, known in Arkansas only from Lafayette Co., both counties located entirely in the West Gulf Coastal Plain).



While both books are remarkably free of typographical errors (though the Hemmerly opus misspells *Spiraea* twice on p. 152 and again on p. 153), Hemmerly does manage to make several errors of plant identification. These are worth pointing out, lest they mislead the unwary.

- The photograph on p. 59 supposedly representing foxglove beardtongue (*Penstemon digitalis*) portrays another white-flowered species of that genus.

- Similarly, the plant labeled on p. 95 as the common meadow parsnip (*Thaspium trifoliatum*) is actually hairyjoint meadow parsnip (*T. barbinode*) and the "*Coreopsis palmata*

" on p. 99 is actually *C. grandiflora*.

- On p. 105 a species of green eyes (*Berlandiera* sp.) is misidentified as ash sunflower (*Helianthus mollis*).

- And the common bluestar "*Amsonia tabernaemontana*" on p. 183 is shining bluestar (*A. illustris*) instead.

- More seriously, the plant identified on p. 207 as the harmless false nettle (*Boehmeria cylindrica*) is, in fact, wood nettle (*Laportea canadensis*), a nettle that can cause considerable pain when its leaves or stems touch human skin.

Hemmerly's loose grasp of Arkansas county geography shows on p. 134, where he puts Jefferson County in the "Ozarks," and on p. 152, where the central Arkansas population of steeple-bush is placed in the Ozarks "near the Arkansas River." (It is entirely within the West Gulf Coastal Plain.)

What is Hemmerly talking about on p. 68 when he states that "the genus *Prunus* includes native Ozarkian trees called cherry and peach" [emphasis added]? A native peach? Certainly news to us!

Such gaffes should have been corrected before the book went to press, and could have been if an appropriate specialist or two had been asked to review the material at the right step in the production process. One wonders who the "two anonymous reviewers" mentioned in the acknowledgments might have been, as they appear to have been poorly chosen and let so many inaccuracies slip by.

The photographs in both books will please regardless. Both volumes were printed in Korea, and the quality of the color reproduction does the Korean printing firm or firms credit. All the more remarkable because the photographers presumably were not present in the printing plant(s) and thus were unable to critique and adjust the color balance as the pages rolled off the press.

Both Kurz and Hemmerly organize their books according to flower color rather than by plant family. While this arrangement sometimes frustrates those who prefer to group families together, each book has a good index, so everyone should be able to find what they are looking for.

A quick look at the numbers presented at the head of this review will indicate that the potential book buyer can get more for his or her money by choosing the Kurz work. One explanation is the increasing cost of publication; so the earlier volume costs less. On the other hand, Kurz limits his scope strictly to the Ozark Mountains as that region is commonly understood, so his book does not deal with species that distinguish the Ouachitas.

But isn't it great that there is so much interest in our native flora! We'd raise no objections to publication of even more books on the subject. — *Reviewed by Bill Shepherd and Theo Witsell.*

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The purpose of the Arkansas Native Plant Society is to promote the preservation, conservation, and study of the wild plants and vegetation of Arkansas, the education of the public to the value of the native flora and its habitat, and the publication of related information.

CLAYTONIA

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