

MONPS board sets date to plan

Columbia, Mo.,
Saturday, Dec. 6

All Missouri Native Plant Society members and friends are invited to attend the winter MONPS state board meeting on Saturday, Dec. 6.

If you want to have a voice in MONPS, now is your chance. This is a business meeting, so plan to stay all day.

The meeting begins at 10 a.m. and will end no later than 4 p.m. We will be meeting at the Dunn-Palmer Herbarium.

We will be ordering lunch in, or you may bring a lunch if desired.

The board will be planning the field trips associated with the quarterly board meetings. If you have a favorite site you would like to visit with the society, join the board in Columbia or contact an officer or board member before the meeting with your ideas.

Directions to Dunn-Palmer Herbarium

From the east: Drive west on I-70 to U.S. Highway 63 South (Exit 128); head south towards Jefferson City to the Stadium Blvd. exit.

Turn right (west) and go to the fourth traffic light (the street at this intersection is called College Avenue to the north and Rock Quarry Road to the south).

Turn left (south) and go about 1/8 mile on Rock Quarry Road.

Turn right into the driveway of the Museum Support Center (parking in front or along side driveway).

From the west: Drive east on I-70 to Stadium Blvd. exit (Exit 124); turn right (south).

Stay on Stadium Blvd. as it goes south and then turns east, past the MU football stadium and the Hearnese basketball arena.

Turn right (south) on Rock Quarry Road (stoplight here).

Drive south about 1/8 mile and turn right into the driveway of the Museum Support Center (parking in front or along side driveway).

Inside



Show your muscle, ironwood.
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Indiana banana, indeed!
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Perennis Chapter's hunt for beech drops meets success.
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Native plants belong in gardens.
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Fungi and more were found at the September field trip to LaBarque Creek watershed area in the eastern part of the state.
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Calendar of Events

Hawthorn Chapter

Monday, Nov. 10: Regular meeting at 7 p.m. at the Unitarian Church, 2615 Shepard Blvd. Our speaker will be Chris Starbuck. He will discuss his research growing bare root plants in gravel.

Saturday, Nov. 15: Wreath Workshop and cook out at the Ellifrits on Cedar Creek. Workshop will start at 10 a.m. Plan to eat at 3 p.m.

Thursday, Nov. 20: Lunch with Native Plant Enthusiasts! 11:30 a.m. at Felini's, 700 E. Broadway.

Thursday, Dec. 13: Holiday party at Nancy Langworthy's home. We will also conduct a quick chapter meeting at this time to elect officers (chapter representative, vice-president, and treasurer).

For more information contact Paula at (573) 474-4225.

Kansas City Chapter

Thursday, Nov. 20: Meeting at 7 p.m. at the Discovery Center, between KFC and Brush Creek at 4750 Troost, Kansas City, Mo.

Osage Plains Chapter

Monday, Nov. 17: Chapter meeting at 7 p.m. at Missouri Department of Conservation Clinton Office, 2010 S. Second St.

No meetings in December and January.

Ozarks Chapter

Tuesday, Nov. 18: Chapter meeting at 6:30 p.m. at the MDC Ozark Regional Office, 551 Joe Jones Blvd, West Plains.

Susan Farrington will present a program entitled "Wildflowers of Glacier National Park." This program will compare and contrast Montana wildflowers with their Missouri cousins.

No meeting in December. Regular chapter meetings are scheduled to resume Jan. 20.

Perennis Chapter

Sunday Nov. 9: 1 p.m. at Trail of Tears State Park Auditorium, Jackson, Mo. Jennifer Picker will present the results of her master's thesis from Southeast Missouri State University titled "A Comparison of Wet and Wet-Mesic Vegetation at Big Oak Tree State Park." For more information, contact Allison Vaughn at (573) 703-6448 or allisonjv@yahoo.com or Kent Fothergill at kent@csr-inc.com.

St. Louis Chapter

No meetings in November or December.

Share your knowledge

The core resource of the Missouri Native Plant Society lies in the knowledge base of its members and the members' willingness to share it. Anyone who has been on a MONPS field trip knows how willing people are in sharing their botanical savvy.

Many members of MONPS also have come forward to share what they have learned in articles for the *Petal Pusher*. Each of them has found that it is an exercise not in just educating others but in the process learning more about your topic. It is a growing experience for both writer and reader.

Please share your fascination of a plant, biome or hiking area with members of MONPS. Let the editor know if you have an idea or want to talk about some suggestions for an article. Please also send the editor names and contact information of people you think should write something for the *Petal Pusher*.

Contact Chuck Robinson at chuckrkc@kc.rr.com or call him at (816) 507-8328.

New members

- Beth Harlan, St. Louis
- Shirley Ellul, Montgomery City, Mo.
- Louis Ngeger, Warson Woods, Mo.
- Ted MacRae, Chesterfield, Mo.
- Ruth Lewis, Osceola, Mo.
- Paul Nelson, Bonnots Mill, Mo.
- Pam Schnebelen, Pacific, Mo.
- June Silverman, St. Louis
- Wayne Drda, St. Louis

Is your MONPS membership about to expire?

To find out, check the top line of your mailing label. If it shows the date 20080630, we have not received your dues for our new membership year, which begins in July. Unless we receive your dues renewal soon, this issue of the newsletter will be your last.

To renew, please use the form below or the form on the MONPS website. If you have questions about your membership status, please contact Ann Early (see back page for contact information).

INFORMATION ON JOINING THE MISSOURI NATIVE PLANT SOCIETY

SOCIETY DUES

(Chapter dues additional)
 Student dues \$5
 Regular \$10
 Contributing \$20
 Life \$200

CHAPTER DUES

Columbia \$6
 Kansas City \$5
 Osage Plains \$5
 Ozarks Native Plant \$5
 Perennis \$5
 St. Louis \$5

Make checks payable to Missouri Native Plant Society

Mail to: Missouri Native Plant Society
 P.O. Box 20073
 St. Louis, MO 63144-0073

Name: _____
 Street: _____
 City, state: _____
 9-digit ZIP: _____ Phone: _____
 E-mail: _____

(Circle all above that apply)

\$_____ Contribution for student research award (Hudson Fund)

* All contributions are tax deductible *

Ironwood by another name might be clearer

By Rex Hill
MONPS president

When I am walking with people who may be less familiar with Missouri flora than many of our members, I have a tendency to try to use common names, maybe followed by the scientific name, when pointing out a plant. It's always a fine line between being precise and frightening off potential new members.

Such was the case recently on the Saturday of our fall field trip at the La Barque Creek watershed near St. Louis. In one of the sandstone canyons were growing two understory trees that are often found in close proximity in creek bed areas. One, *Carpinus caroliniana*, is most often found there because of the wetter soils. The other can be found growing up dry slopes adjacent to wet areas but, because seeds travel downhill, like so many other things subject to gravity, *Ostrya virginiana*, also is found in these drainages. I referred to both of them as "ironwoods." Chuck Robinson, our inquisitive editor, was curious about my use of this common name.

Indeed, the use of common names for our plants can be deceptive, ambiguous at best. If I were to use "ironwood" in the Southwestern deserts that Martha and I frequent, I would be referring to the desert shrub, *Olneya tesota*. But in the West, I have also seen this common name used for New Mexico olive, *Foresteria neomexicana*, and birchleaf cercocarpus, *Cercocarpus betuloides*. This can be very confusing, particularly when trying to accurately name a plant. However, common names have been given to plants because of characteristics that served usefully to describe the value or use or appearance of a plant.

The name ironwood was used for all of these woody plants in reference to the perceived toughness of the wood. Indeed, in Missouri, the wood of *Ostrya virginiana* is second only to that of the dogwoods for strength and durability. In fact, its wood and that of *Carpinus caroliniana*, are at, or about, 50 pounds per cubic foot (lb/ft^3) dry weight. White oak, *Quercus alba*, weighs

in at $48 \text{ lb}/\text{ft}^3$ and tulip poplar, *Liriodendron tulipifera*, at $28 \text{ lb}/\text{ft}^3$. Water, by the way, is $62.5 \text{ lb}/\text{ft}^3$ in density. Were it not for their relatively small size, these trees would be much more valuable for their lumber.

As you can see from the specific epithets for each of these Missouri trees, they are Eastern species, probably named early in the history of our country by people who relied on plant features and qualities for their existence. The common name, musclewood, is used for *Carpinus caroliniana* because its smooth-barked, fluted trunk resembles the sinewy limbs of a muscular person performing some difficult task. This bark is such a distinguishing characteristic, that it brings a sense of comfort when hiking in a creek bed, in that, all is right with the world and things are in their correct place. It is also called American hornbeam, blue beech, and smooth-barked ironwood, a common name listed in one of my favorite tree references, "A Natural History of Trees of Eastern and Central North America" by Donald Culross Peattie. This book and its companion on Western trees were my first introduction to trees, and his vignettes on each species are short stories of the tree's value and importance in earlier times.

Ostrya virginiana has been dubbed with the common names eastern or American hop hornbeam, the "hornbeam", in the case of both trees, being a loose equivalent to "hard tree". The "hop," in the common name of this tree, refers to the fruit which resembles that of hops. For me, this tree has special affinity, because it holds its leaves well into winter and a late season hike almost always has the dry, brown leaves of this tree in one's sight. This tree also has the common names eastern ironwood, and rough-barked ironwood, its bark appearing in longitudinal, stringy plates along the trunk. Both trees are members of the birch, Betulaceae, family and produce small nutlets that provide food for wildlife but are not sufficient in size to be of much value to larger mammals, such as humans.

These two trees were the source of much mystery, or at least confusion, when I was first trying to separate one tree from another. Both have simple, alternate,



Carpinus — smooth-barked ironwood



Ostrya – rough-barked ironwood



Carpinus – bracts with nutlets

somewhat oval leaves. They have relatively fine, or multiple teeth, and could easily be confused with the elms were it not for the relatively symmetric base of the leaves in both cases. Were I put in a room with samples of leaves from each of these two trees, I could easily confuse them. It is the other characteristics, the smooth, "muscular appearing" bark in one case, and the stringy, longitudinal plates, along with the persistent winter leaves in the other that help me to separate these species from others in the Missouri woods.

Hawthorn Chapter

Submitted by Nancy Langworthy, chapter president

The Hawthorn Chapter took August and September much more temperately, without the bustle of the preceding months. Besides, of course, it rained and rained and flooded.

Members enjoyed our monthly lunches at a downtown Columbia restaurant, talking plants, exchanging plants, brainstorming hike possibilities, and generally developing broader relationships with each other. That lunch at Felini's was the extent of our chapter activity for August; we used it to plan for our booth at the EcoArtFest at Cooper's Landing on the Missouri River south of Columbia in early September.

Eleven members helped at the all-day Cooper's Landing event, enjoying a great spot looking at the forested borders of the lazy Missouri, good food, a variety of great music, and a seriously diverse crowd of folks came to enjoy it all. The rain never materialized; we sold a number of plants propagated by our members and a few books along with hours of gardening and landscape advice.

Former Hawthorn president Nadia Navarrete-Tindall offered us a special guided tour (by photo) of her native El Salvador and its native plants as a focus of our September meeting. As you all know, the deluge hit the following weekend. Those of us who planned to go to the State Board meeting, were very disappointed.

Late in September Nadia organized the first Native Plant and Conservation Field Day at Busby Farm outside of Jefferson City. This event was sponsored by Lincoln University Cooperative Extension and was part of Nadia's responsibilities in her work there.

Our September lunch allowed us to finalize arrangements for our next hike and to start planning for the rest of the year. We started canvassing members for interest in serving as our chapter representative as well as other roles. We also discussed progress on the pocket park being established in Rocheport where we will plant a tulip tree and bench as a memorial to Marge McDermot, a longtime Hawthorn member who died last spring.

The chapter celebrated a glorious end to September with a botanizing and seed collecting walk through Marshall-Diggs CA in Audrain County. The prairie remnants there have been regularly burned, offering a great view of the effects of woodlands that have been opened and the prairie species that bloom in the clearings. Besides the predictable but collectable big and little bluestem, Canada wild rye, and mountain mint, we found Virginia lespedeza, prairie and rough blazing star, tall coreopsis, wood reed, quinine, and white indigo.

We learned the differences among six goldenrods still in glorious bloom: tall, stiff, gray, showy, grass-leaved, elm-leaved. We ended it with a great lunch at Bek's in Fulton, still pulling off stick-tights.

Kansas City Chapter

Submitted by Daniel Rice, chapter representative

The Kansas City Chapter has had two events so far this fall. The first was our Sept. 18 chapter meeting. Our guest speak-

er was Dr. Paul Klewinski, professor of biology at William Jewel College in Liberty, Mo. He has been conducting research on one of our invasive exotics, *Lonicera mackii*, otherwise known as amur bush honeysuckle.

As I have written before, KC Wildlands has been waging war against this plant in several locations. Paul represents William Jewel College on the Partnership Council for KC Wildlands, and our war piqued his interest. With the help of his students, he began studying the plant in depth.

Several interesting facts were discovered. First, a 22-year old bush can produce more than 103,000 seeds. Second, the plant begins reproducing at age 4, when it will produce 2,000 to 3,000 seeds. Third, the greatest impact on the population is by removing four-year-old plants. This seems counterintuitive, but the math was there to back this up. This means that a greater effect in population control of the honeysuckle will be caused by removal of 4-year old plants instead of focusing solely on the older, larger ones! It was a great presentation.

The second event for the Kansas City Chapter was a plant sale at the Prairie Days celebration at Jerry Smith Park. Several members took the opportunity to divide the native plants growing in our gardens, and they sold well. In fact, we made \$218.00 to donate to the Hudson Fund. We did have a few plants remaining (22 to be exact), so I contacted Kimm Henry of the Urban Project to see if they would like them as a donation. She was thrilled to get them. They will be used in the overall plan of converting an 80-year old home in North Kansas City to an environmentally friendly home, using solar panels, a wind turbine and composting toilets.

The Kansas City Chapter's next meeting is scheduled for Thursday, Nov. 20, at 7 p.m. at the Discovery Center, 4750 Troost, Kansas City, Mo. Everyone is welcome to attend!

Osage Plains Chapter

Submitted by Brian Mohr

Late summer activities included two more field trips organized by the Harlans. Small but eager groups travelled to Paintbrush Prairie in July and to Chapelview Prairie in August.

The weather was warm, but it didn't stop the intrepid group from producing lengthy species lists from both outings. Many thanks to the Harlans for their dedicated effort arranging the trips and documenting the findings with both lists and photographs!

Our September meeting featured an interesting report from Melissa Underwood on blowout penstemon in the Nebraska sandhills. She participated in an ongoing research project during her time at the University of Nebraska, and the members found her discussion very informative. Marlene Miller was able to attend the meeting and gave a report on the state field trip to LaBarque Watershed.

Everyone was happy to see Marlene as her husband, Jack, continues to fight serious illness. The chapter has been lucky to enjoy Marlene's tireless work representing the chapter at the state level and wishes all the best for Marlene and Jack.

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Photos by Susan Farrington

Ellen Kaufman, Dearndia Higgins, Ruby Ball, Casey Galvin and Dan Drees share observations during a break during a Sept 21 field trip to see the rare Southern monkshood (*Aconitum uncinatum*) in Shannon County, pictured below. Missouri is the only state west of the Mississippi River to have Southern blue monkshood.

Ozarks Chapter

Submitted by Susan Farrington, chapter representative

Our August meeting was an evening field trip to Tingler Prairie, south of West Plains. Bill Summers gave us a great tour, not only helping us to identify both common and rare plants but also sharing with us the history of the property. We especially enjoyed the story he told about a previous owner finding a man at the sinkhole pond in the 1940's, a metal bucket strapped to his back, pulling plants and plopping them in his bucket. The curious farmer went to talk to the man, who turned out to be none other than Julian Steyermark. Thanks, Bill, for making this a great trip!

At our September meeting, Betty Queen taught us all about elderberries. We never knew there were so many uses for one plant! We especially enjoyed learning about the history of elderberry uses. Betty's elderberry tonic was especially popular: it was too tasty to be a "medicine."

We had a small but enthusiastic group for our September field trip to see the rare and beautiful southern monkshood (*Aconitum uncinatum*). Casey Galvin drove down from St. Louis for the trip, and Bob and Ruby Ball drove from Springfield to join four of us



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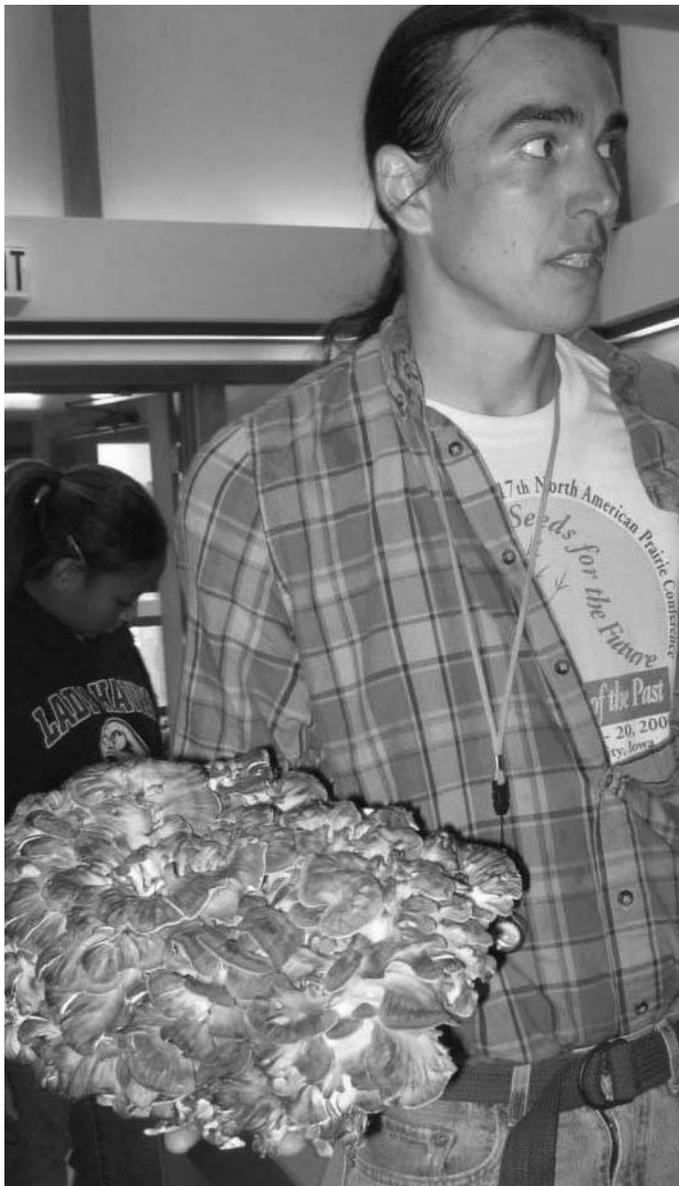


Photo by Allison Vaughn

Chris Crabtree holds a Hen-of-the-woods (*Griphola frondeosa*) that he found on the Shepherd's Point Trail at Trail of Tears State Park during a Perennis Chapter beech drop viewing field trip.

from the Ozarks chapter. We visited a monkshood site that was discovered two years ago. The population consists of about 200 plants, but only a small handful of stems were blooming. This species is reasonably shade tolerant, but appears to require some canopy openings to bloom well, and seems to be more of a dry-mesic woodland plant rather than a true forest species.

We also visited another known population which Casey had observed seven or eight years ago. He reported that there had been numerous blooming plants at this site, but we were disappointed to discover that the site has become very overgrown with brush, and we found only one blooming stem. There was evi-



Photo by Allison Vaughn

Beech drops (*Epifagus virginiana*), one of hundreds of plants found along the Shepherd's Point Trail at Trail of Tears State Park on Oct. 5. Beech drops are parasitic on beech trees ("*Epifagus*" translates to "upon the beech.") They lack leaves. The flowers are reddish, brown or yellowish, and *E. virginiana* flowers August to October.

dence of old beaver activity, so we surmised that beavers had previously opened up the canopy, but have since moved on and ceased their "management".

On the way out of this site, we stopped along the dirt road to look at some tall larkspur (*Delphinium exaltatum*), another beautiful and rare plant. We thought we saw some blooms on the plants (which usually bloom in July-August), but it turned out to be more monkshood. So our little group discovered the sixth known population of monkshood in Missouri, growing right along with the tall larkspur. All six populations are in a very small geographic area, and it appears that we'll need to do some management to open up the canopies somewhat to encourage reproduction.

Perennis Chapter

Submitted by Allison Vaughn, chapter representative

Members gathered at the Trail of Tears Visitor Center the morning of Oct. 5 where we were treated to a brief discussion on the park's natural history by Park Naturalist and Perennis member Denise Dowling. Having worked at the park for several years now, Denise knew exactly where to find the beech drop populations. Last winter's ice storm and the spring's 12 inch rain event (which led to at least 9 landslides in the park) have had serious impacts on the park's natural resources, with downed trees and branches

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scattering the woodland floor. Nevertheless, the beech drops were thriving and the increased light encouraged a woodland floor rich with broad beech ferns (*Phegopteris hexagonoptera*, formerly *Thelypteris hexagonoptera*).

The beech drop fieldtrip coincided with President Kent Fothergill's BioBlitz of Trail of Tears S.P. Member Chris Crabtree offered his mycological expertise, finding a fine specimen of hen-of-the-woods along the way and several other mushrooms next to the trail. Kent and his wife, member Kelly Tindall, collected an insect that closely resembled a sort of wooly aphid to discover which species lives in the park (and in high numbers on beech trees). *Solidago petiolaris* was in full bloom that day, and doll's eyes (*Actaea pachypoda*) were in fruit on a steep north facing slope.



Photo by Martha Hill

George Yatskievych leads a class at Meramec Community College on how to identify members of the Asteraceae family by using keys and visual clues

St. Louis Chapter

Submitted by Martha Hill, chapter representative

George Yatskievych, our chapter president, has once again come through to schedule some very interesting speakers for our August and September meetings.

On Wednesday, Aug. 27, we heard Malinda Slagle, a restoration ecologist, give a talk on "The Plants and Pollinators of the Litzinger Road Ecology Center." Although many of us know Malinda from our chapter meetings, I believe most of us didn't know that she is also an entomologist. Malinda's photos of bees, butterflies, wasps, and other pollinators of many of our common native plants were fun and interesting to look at, and her presentation of facts about the numbers of these insects present in local state parks and the Shaw Nature Reserve (and Litzinger, of course) caused a good amount of questions and discussion at the end of the hour.

Our last speaker for the year was Casey Galvin, a noted nature photographer, who gave a program on "Plants of the Southeastern U.S. and their Regions." We met on Wednesday, Sept. 24, and were treated to a delightful slide show of many plants we don't normally see in the St. Louis area, but that are considered rare or are found only occasionally in the southeast. Casey talked about the area that includes the southeast piedmont and Appalachians and the different types of terrain and soil. With

that in mind, it was easy to see how the plants could be so different from our own in Missouri. We got a chuckle from hearing that *Dicentra cucullaria* (Dutchman's breeches) is considered exceptionally rare and that people congregate to find even one in a suspected location. Ah, the things we take for granted!

George Yatskievych has had a very busy month. In addition to giving a curator's talk at the Missouri Botanical Garden on plants of Missouri, he gave a class at Meramec Community College on the Asteraceae family and how to identify its members with keys and visual clues. We had a nice size group of about 18 students (most from the St. Louis MONPS Chapter), meeting for two nights and a field trip to the Shaw Nature Reserve on Saturday, Sept. 27.

Keys have always been a little daunting (at least to me), but George helped us go through the keys very easily, and I can honestly say that many of us found them easy enough to try on our own. We keyed out several species of *Symphotrichum* and *Solidago*, along with a few *Eupatorium*. I don't think I've ever heard the term "chaffy bracts" before, so that was a new one on me. Surprisingly, he brought in some *Ambrosia* (ragweed) for us to dissect, but also some prettier stuff (*Symphotrichum novae-angliae*).

October Member's Night: The audience was scheduled to share slides and/or pictures with everyone and usually there is a "guess what this is" thrown in the mix. Meet on Wednesday, Oct. 22, at 7:30 p.m., at Powder Valley Conservation Nature Center, 11715 Cragwold Drive, Kirkwood (off Geyer between Watson and Big Bend, just north of the bridge over I-44).

Tasty pawpaw elicits fond memories

By Retha Meier
St. Louis Chapter

When I was a small child, my family gathered pawpaw fruit in the fall. The small, slender trees grew close together near a creek. I remember that the clustered fruits were soft and sweet and had a lot of brown seeds. Of course we sang the "picken' up pawpaws, puttin' 'em in your pocket" song.

The name "pawpaw" is thought to be derived from the word "papaya", even though the two plants are not related. The fruit is also called poor man's banana, prairie banana, Indiana (Hoosier) banana, West Virginia banana, Kentucky banana, Michigan banana and Ozark banana. Yes, the fruit resembles a banana, somewhat.

The genus *Asimina* belongs to the tropical family Annonaceae. *Asimina* is the only genus of this family that lives in a temperate climate. Tropical fruit produced by members of this family include sugar apple (*Annona squamosa* L.), custard apple (*Annona reticulata* L.), and soursop (*Annona muricata* L.). Annonaceae has 14 species (three species of *Annona*, two species of *Deeringothamnus* and nine species of *Asimina*) that are native to the United States. The *Annonas* and members of the genus *Deeringothamnus* are native to Florida. Seven of the nine species of *Asimina* grow in Florida and southern Alabama and Georgia. *Asimina parviflora* (Michx.) Dunal can be found growing throughout the Southeastern United States. *Asimina triloba* (L.) Dunal has a distribution range over the Eastern United States and even into southern Canada.

Asimina triloba is a Missouri native. These are the plants that produced the delicious fruit that I consumed as a young herbivore. Foxes, squirrels, raccoons, and opossums are also known to eat the fruit. Larvae of the Zebra Swallowtail butterfly feeds exclusively on young pawpaw foliage. Deer and rabbits avoid consuming leaves and twigs. A chemical compound with active pesticidal and neoplastic properties has been isolated from certain parts of the *A. triloba* plants. In the past, Native Americans dried and pulverized pawpaw seeds. The resulting powder was used to control head lice.

Interest in cultivating *Asimina triloba* for commercial fruit production exists. Its long



Photo by Brian Chadwick

MONPS members hiking the La Barque Creek Conservation Area found some ripe pawpaws for a late afternoon snack.

Places to find pawpaws

■ The Weldon Spring Conservation Area in St. Charles County has many pawpaw groves but most require some off-trail exploration through the woods, reports Mark Grueber of the Missouri Department of Conservation.

■ In southeast Missouri around the Cape Girardeau County area, lots of pawpaw can be found at Apple Creek Conservation Area, General Watkins Conservation Area, Cape Girardeau Nature Center Campus, Trail of Tears State Park and Big Oak State Park, according to MDC's Rocky Hayes. The Cape Girardeau Nature Center Campus has an extensive trail with pawpaw along it. Big Oak State Park also has a board walk trail with lots of pawpaw.

■ The Anderson Conservation Area along

the Mississippi River has lots of pawpaws along an access road that borders the railroad tracks which borders the Mississippi River, says Kristen Goodrich, MDC resource forester in Hannibal. This area is off of Highway 79 in Ralls and Pike counties and is open to foot travel only.

■ There is a nice patch of pawpaw in Columbia at the Missouri Department of Conservation's Central Regional Office, 1907 Hillcrest Drive, reports MDC urban forester Ann Koenig. The office sits on Water's and Moss Wildlife Area and consists of 100 acres of old field and Grindstone Creek riparian area. This area is open to the public. There is a nice pawpaw patch at the bottom of the hill running along the Grindstone Creek bottomland fields.

taproot, however, makes it difficult to transplant. Chip budding is the most common method of vegetative propagation. Seeds can also be used to grow more

pawpaw trees.

The fruit has not caught on as a com-

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mon fruit in the supermarkets primarily because it does not ship or store well. A solution to this problem has been to pulp the fruit and freeze the pulp. The pulp is used in dessert recipes, such as pawpaw chiffon pie.

Historically, pawpaws were first documented in 1541 during the DeSoto expedition. At this time, Native Americans were cultivating this plant east of the Mississippi River. Pawpaws were eaten during the Lewis and Clark expedition. A favorite dessert of George Washington was chilled pawpaw fruit. Thomas Jefferson even planted pawpaw trees at Monticello.

Understory trees

Pawpaw trees in Missouri are about 6 meters tall. These plants typically grow in a dense patch and could very well be a single-clone patch. They grow as understory trees. The large, smooth leaves are ovate, measuring approximately 24 centimeters in length and 12 centimeters across.

Flowers appear in the spring and have six petals arranged in two whorls. Velvety-appearing flowers measure 5 centimeters across and are purple, brown, or maroon in color. Flower fragrance is reported to resemble rotting meat. What could possibly pollinate these flowers? Carrion flies and beetles! Rotting meat is often placed near the trees by growers at bloom time to increase the number of blowflies and hence the possibility of pollination.

Poor pollination has been reported as being a concern. Pawpaw flowers are perfect, implying that both male and female reproductive parts are found within the same flower. The female stigma matures first and is not receptive when the pollen is released from the anther. This mechanism prevents self-pollination. Pawpaw flowers are believed to be self-incompatible.

For fruit production, the stigma must be cross pollinated. Home gardeners often prefer to hand pollinate, using a small brush to transfer pollen between two different flowers of unrelated trees. Research results from a study done in the 1980s indicate that 17% of hand-pollinated flowers set fruit while only 0.41% of flowers produced fruit on plants that were naturally pollinated. It is obvious that more research needs to be done by pollination biologists to understand the reproductive mechanisms of this species.

A fascination blooms with native orchids

By Chuck Robinson
Petal Pusher editor

Those of us who have been introduced face to petaled face with western prairie fringed orchid, like many of the hikers on the MONPS field trip in June to the prairies of the northwest corner of the state, come away a bit smitten.

The western prairie fringed orchid occurs in moist tallgrass prairies. I plan to go back to Little Tarkio Prairie Conservation Area near Mound City, Mo., next June to show some friends this beauty.

I also am intrigued by the relationship of orchid and mycorrhizal fungi. Carl Slaughter, in an article published in the Arkansas Native Plant Society Claytonia from spring 2006, noted how orchids have tiny seeds that have no endosperm, the layer of cells in a seed coat that feed the germinating embryo. He asks how orchid seeds can do without this food source. His answer is the relationship between the orchid plant and the fungus.

"(The mycorrhizae) 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 that the seed uses for growth and germination," Slaughter wrote.

In the 1995 book "Terrestrial Orchids: From Seed to Mycotrophic Plant," author Hanne N. Rasmussen refers to the seeds being infected with the fungi.

Slaughter suggested that the mycorrhizal relationship sustains the seeds of ladies tresses (*Spiranthes*) that spend years in the ground before sprouting.

Missouri has 36 species of native orchids in 17 genera, says Edgar Denison's "Missouri Wildflowers."

I have so much to learn.

Among them, of course is the western prairie fringed orchid, *Platanthera praeclara*. They are erect plants growing 2½ feet tall. The lower petal, which can be more than an inch long, is a fringed lip and has three lobes. The plant has 10-inch long strap-like

leaves that taper to a point.

Doug Ladd, in the 1995 Falcon Guides book "Tallgrass Prairie Wildflowers," notes the eastern prairie fringed orchid is closely related. Besides some internal details of the flower structure, the western species has larger flowers. He said these orchids once were widespread but have become endangered because of lost prairie ecosystems.

A slightly less showy but similar Missouri orchid is the ragged fringed orchid, *Platanthera lacera*. It has green flowers, and Ladd in the guide says its abundance varies greatly from year to year. It grows slightly shorter than the western fringed prairie orchid. The lowest leaves can be 6 inches long but upper leaves are smaller. The lower petal is similar in form to *P. praeclara* but smaller.

The orange fringed orchid is found in wet acid sand flats and bogs, according to the "Tallgrass Prairie Wildflowers." A couple of feet tall, with leaves similar to the ragged fringed orchid. Each flower is amber-colored. The fringed lower lip is more spade-shaped instead of the three lobes of its cousins above.

Another orchid, Missouri's ladies tresses, *Spiranthes cernua*, is common in the state, abundant south of the Missouri River and scattered north of it. We look for its 18-inch tall stalks of white flowers in August through November. "Missouri Wildflowers" says it can be found in dry acidic glades and upland prairies as well as wet meadows. Its flowers have a pointed lip and are arranged in a spiral up the stalk. The basal leaves disappear before the flowers appear.

Grass pink orchid, *Calopogon tuberosus*, is a delicate, singled-stemmed plant growing less than 2 feet tall, according to "Tallgrass Prairie Wildflowers." The flowers are white to pink to vivid pink. There are three petals and three sepals that look like petals. Two of the petals are narrower and a little shorter than the sepals. We should look for it in fens, moist sand prairies and upland prairies that are moist in the spring. It can be found in a few eastern Ozark counties, according to www.MissouriPlants.com.

Another species with bright pink flowers, Oklahoma grasspink (*C. oklahomensis*) is found in mesic prairie habitats in a few western counties in Missouri.

Late Summer Blooms for Native Shade Gardens

By Cindy Gilberg

Many gardeners lament that there is a midsummer lull in the shade garden. Although there are numerous plants with attractive foliage, it's the flowers and their companion pollinators that are the attraction we are usually after.

The glorious spring and early summer blooms are just a memory — what now?

Turning to native plants will provide a strong, reliable palette of plants for the garden that are well-adapted to our Midwest climate. The ideal shade garden (hopefully, this is your garden!) has light shade that is the result of widely spaced trees with a high canopy. This is the kind of light that allows a wide assortment of plants to work with.

Determine first what the soil type is — is it dry or wet? Rocky or rich in organic matter? The plants discussed here grow best in dry to average soil with an average level of humus. Adding a one- to two-inch layer of leaf compost once a year will help maintain an adequate level of organic matter.

Nothing is quite as dramatic as the tall, light to dark cobalt blue spires of *Delphinium exaltatum* (tall larkspur). Most populations are found in average to rocky woodlands in Missouri near the Jack's Fork and Current River in Shannon Co. although populations can be found in other states, such as Pennsylvania and Ohio, as well. It blooms at a height of 3-5 feet depending on the soil (more organic, more height) in July and August. So many Midwest gardeners think that delphiniums are just for dreams, but no! This native larkspur is quite hardy and happily grows in light shade and average soils.

Another wonderful woodland species from the Ozarks, also found in average to rocky sites, is *Cimicifuga racemosa* (black cohosh). Its 5-foot white spires stand tall, resembling exclamation points above the surrounding foliage in the shade. *Cimicifuga* has been renamed *Actaea*, though for the moment it is listed under either or both names.

These two, larkspur and cohosh, punctuate the shade garden in a way that no other shade perennial does.

A great companion planting for these flo-

ral spikes is *Phlox paniculata*. Its flowers are structurally different, having full round heads with blooms of soft pink. In late July through August the flowers sway in the breeze, adding a gentle fragrance that is always welcome. Hummingbirds and butterflies alike come to forage for nectar in the tubular flowers of phlox.

On a recent walk through the open woodlands at Shaw Nature Reserve (Gray Summit, Mo.) I came across a large population of skullcap (*Scutellaria incana*) in bloom with purple coneflowers. The soft, light sky blue flowers of the skullcap combined well with the large pink flowers of the coneflower. Both bloom at a height of 3 feet or so and grow in similar woodland settings — light shade, open woodlands and an average soil.

A little further down the path was some early blooming goldenrod (*Solidago ulmifolia*). The golden yellow flowers of the elm leaf goldenrod are arranged on long arching wands that offer a striking complement to the blue skullcap.

Complete the native shade garden with mass plantings of plants that function as ground covers. Try the 1- to 2-foot tall sedges such as palm sedge (*Carex muskingumensis*), blue sedge (*Carex glaucoidea*) or the white tinged sedge (*Carex albicans*). Sedges offer a fine, grass-like texture and when planted en masse will tie the garden together visually.

Another group of plants that are useful this way are the native ferns such as the *Dryopteris* (wood fern) or *Polystichum acrostichoides* (Christmas fern). Christmas fern is the better choice if your soil is drier and rockier and the other species do best in average soils. Both of these woodland natives offer a pleasant contrast in foliage to the mid to late summer bloomers.

Fall is a perfect time to seek out and plant some of these woodland natives. Note where in your garden there are gaps and look into some of the plants mentioned above. Ask at local independent garden centers — the more gardeners request certain plants, the more likely the garden center will begin to carry some of these natives for the garden. The GrowNative site (www.grownative.org) has a listing of nurseries, including mail order



Tall larkspur (*Delphinium exaltatum*) has blue flowers in July and August. It grows 3 to 5 feet tall.



Photos from MissouriPlants.com
Phlox paniculata can be found in Missouri woods blooming July-October, especially in the southern part of the state. It has pink flowers, and there are many cultivated varieties.

sources, from which gardeners can buy nursery-propagated plants or seeds.

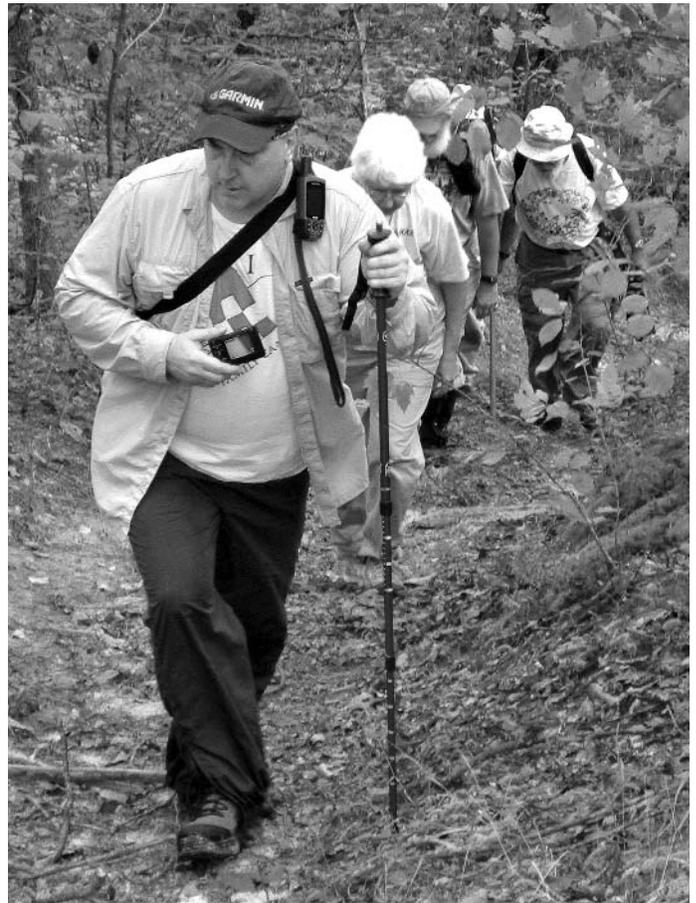
Cindy Gilberg formerly owned with her husband Gilberg Perennials in the St. Louis area. She works at Shaw Nature Reserve on the outskirts of St. Louis.



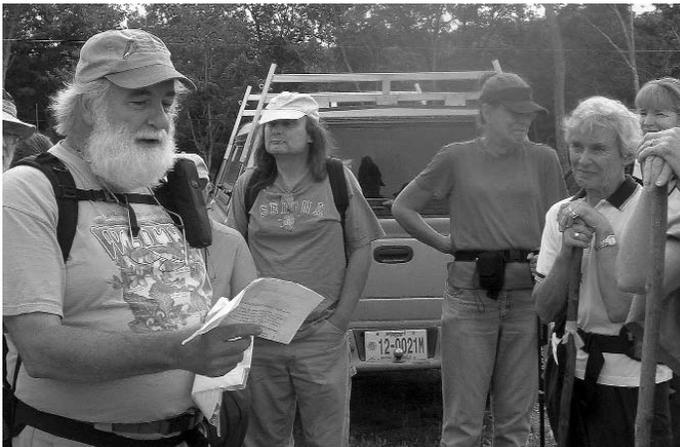
Ann Wakeman, Jack Harris and Nels Holmberg confer before hikers set out on one of four trails at the property of Don Robinson. Robinson has pledged his 849 acres in the LaBarque Creek watershed to the Missouri State Park system.

Lingering at LaBarque

These photos were taken Saturday, Sept. 13, on the MONPS field trip to the LaBarque watershed area near St. Louis. Rain doused Sunday plans and sent everyone home early, but Saturday held plenty of botanical treasures for hikers to find.



Paul Konopacki leads part of the group on a trail at the LaBarque Creek Conservation Area Saturday afternoon.



Fearless leader Rex Hill lays out the options for hikers.

When a tree has been wounded, disease and decay may infect the damaged area. To protect itself against the spread of decay to healthy tissue, trees can seal off or compartmentalize the wounded area like this.



*Stinkhorns, like these fungi in the *Mutinus* genus, are pinkish to orangish spikes rising from whitish "eggs" in the ground. At first, until insects attack, they are covered with brown or olive brown slime*



*Coral fungus (*Clavariaceae*) appear in wooded areas, growing on the ground or on decaying logs in the summer and fall.*

*Photos by
Brian Chadwick*

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