

PETAL PUSHER

November-December 2019 Newsletter of the Missouri Native Plant Society Volume 34 No.6

“... to promote the enjoyment, preservation, conservation, restoration, and study of the flora native to Missouri.”

In this issue

Class Field trips!	1
From the editor.....	3
Defending Reality: Why Natural Science is Vital ..	4
Chapter Events.....	6
2019 Winter Board Meeting	8
Donate to MONPS When You Shop!.....	9
Chapter Updates.....	9
Seeking Officer nomination for the MONPS Board!! ..	11
MONPS is Now Taking Applications for the 2020 Stan Hudson Research Grant	12
Casey’s Persimmon Cookies	13
2019 Missouri Botanical Symposium	14
Join Us! Become a New Member or Renew	15

Class Field trips!

By Michelle Bowe, with contributions from her Bio 339 (Identification of Woody Plants) class at Missouri State University.

“Field trips are important just the same as how you learn a language better when you go to that country. Whenever we go out on field trips and walk around viewing the different species of plants, we are able to get a live look at distinguishing features, characteristics and growth behavior that we wouldn’t get to see in a classroom...” –M. Toledo

I think I became a biologist because I was allowed to run around outside as a child, discovering plants and animals and fungi, mostly on my own, but sometimes with my brother or my best friend. I became a botanist, specifically, in part, because I found a hornwort. And because my high school teacher showed us some club moss and had us do a leaf collection. Let me explain.

Starting when I was about 10 years old, my best friend and I would take walks mostly behind her neighborhood where there was a small forest, a creek, and cow pastures with ponds. Most of the time, we looked for salamanders, arrowheads, frogs, and snakes, but we also picked up plant bits, feathers, fungi, and rocks. I remember being intrigued by liverworts and algae growing on the banks of the



Susan Anderson and Angel Smith (Missouri State University) on a field trip to Busiek State Forest in September 2019. Photo by Michelle Bowe

creek, and picking up and identifying sycamore fruit for the first time. I also remember that some of the patches of “liverworts” were darker than others.

As a senior high school student, we took several field trips to natural areas, and we did a leaf collection (which I still have!). I remember learning with wonder about the mysterious evergreen club moss and how the spores were used in Native American ceremonies because they could catch on fire somewhat explosively.

When I went to college, I knew I was good with biology, but I thought the only good thing you could really do with a biology degree was to go to medical school and become a doctor. That all changed for several reasons, but especially because I took botany. I learned about hornworts and how they differed from liverworts. And then, I went back to that creek and recognized that the darker green “liverworts” were actually hornworts: what a thrilling discovery! I would later collect both species and use them in my dissertation project.

Sure, many discoveries are made in the lab, but those are generally from highly controlled experiments. Field trips involve an added element of surprise, of newness, of awareness, and even uncertainty. And it turns out that these surprises, experiences, and immersions on field trips enhance learning in many different ways. In fact, at Missouri State, field trips are considered to be “high impact educational experiences”. Here are some reasons, in the students’ own words:

“...I tend to retain information learned on field trips better than information learned in the classroom. I believe this is because I connect the information with different locations allowing me to recall it easier.” –C. Armer

On “...field trips you can learn by interacting with things. In that sense it makes a better learning environment for them.” –C. Blanch

“Our field trip experiences also help create memories to recall the information we have learned...”—N. Haynes

“field trips are beneficial whenever they can apply to a class in that they utilize each learning method: visual, auditory, and kinesthetic. In this way, field trips not only allow students to experience topics more deeply, but they also enhance the students’ ability to retain the information.” –K. Sparks

“Even if we could drag an entire tree in here [the lab], we still wouldn’t get to see the habitat and its interactions with the ecosystem.” –B. Widmar

“...it helps to see the tree in person to more fully understand what the scientific name is referring to.”—J. Dyer

Field trips also allow for bonding experiences—both among students and between instructors and students. Most bonding is a good kind, but there can also be “traumatic bonding.” A light example from one of my field trips [okay, okay, several of my field trips], is when the van got stuck in the mud. No, I’m not sure how many times this has happened, but in each case, the students worked together to get the van unstuck. They bonded over getting muddy, my getting us stuck, and having worked together to solve a problem. They won’t forget that field trip! Here are some other thoughts on the human connections that field trips provide:

“Usually it is easier to ask questions when on a field trip...” –J. Pope

Field trips “help the students get to know their teachers/instructors and help the teachers get to know their



Missouri State University Plant Taxonomy students observing walking fern at Busiek State Forest in Spring 2019

students.” –T. Jones

It is nice to have “...more one on one time to help understand species identification.” –K. Schultz

Optional field trips “enhance the learning experience as...learning is easier when you are there because you want to be there and not because you have to... [and] the words “field trip” usually evoke nostalgia because everybody remembers how great field trips were as a kid.”

Field trips can also help direct students toward particular careers or future education. As with any experience, this can be either positive or negative. If you end up disliking particular experiences, you may stay away from that career path. Or it may elucidate your interests. Some examples from my own experiences: as an undergraduate, I did some field research involving oak ecology. In the experiments, we manipulated the environment and then took photosynthetic measurements. While I did enjoy the field aspect, I realized that ecology was not my main interest. On the other hand, I went on a class Plant Taxonomy field trip and was ill with strep-throat the entire time (I didn't completely realize how sick I was until I returned), but enjoyed the trip despite feeling awful the whole time.

Here is what a few of my students had to say along these lines:

Field trips “may help someone figure out that they're a good/bad fit for field biology” –A. Smith

“...ecology field trips to the stream... [have me] thinking about working in the water doing research for my career.” –A. Jenkins

In addition, class field trips can help students ...learn how to “behave in the field.”—S. Anderson. I laughed when I read this comment, but seriously, on class field trips, students can learn what clothing and gear works or doesn't, how to interact with others that you are “stuck with” for the day (for example, making sure to keep good hygiene), and really important things like making sure you have enough water, being on time, and staying with the group (ahem).

And then, there is the simple enjoyment of it all—as the MONPS mission statement indicates—and as stated by another student regarding field trips: “they are usually just fun.”—A. Lugwig



MONPS fall field trip to the bootheel. Photo by Michelle Bowe.

From the editor

This issue focuses on the importance of field biology. Ironically, it may be our shortest issue this year. That's because we are all about field trips, so their importance almost goes without saying! Missouri State's Wildlife Biology faculty routinely take students on field trips--so much so that we compete for van and weekend availability. A good problem to have!

In this issue, I write about how field trips affected me and continue to influence students, and Justin Thomas waxes philosophical about what it means to be a naturalist.

Scattered throughout are photos from various field trips. I mostly included "people pictures" because while nature can and will stand on its own, one of the most valuable aspects of field biology is the relationships formed among people.

Speaking of people: we need your ideas for Petal Pusher themes for next year! Please send ideas to Dana Thomas or me before the December Board meeting!

Thank you, Erin Skornia and our proofreading team; Malissa Briggler (who put together the Chapter Reports and Events), Dana Thomas, and other board members. Thank you authors, chapter representatives, and other contributors. Thank you all for your dedication, collaboration and support!

-Michelle Bowe

Defending Reality: Why Natural Science is Vital

by Justin Thomas

From standing in a fully blooming prairie, awe-struck by the complexity of life swarming around you, to sitting in an office writing programs that analyze DNA sequences, there are many different ways that one can experience nature. Nature itself is a vast continuum ranging from the expansive and expanding universe to the inwardly tunneling universe of the atomically small. In the 18th and 19th centuries, it was often considered synonymous with reality and existence. The natural scientists of the Age of Enlightenment (1715-1789) and the Age of Reason (1800-1840) had embarked on journeys to understand the physical world (nature) and the laws that governed it. Many of them made discoveries that forever changed our perceptions. Charles Darwin was a naturalist. He observed, studied, and considered the realm of the real, the natural, in all its complexity, in order to better understand and appreciate how and why things exist. We don't think of naturalists in this way anymore.

Today a naturalist is someone that leads you on a hike explaining or identifying the nature that you have merely come to visit, as though nature and reality were museum pieces to be seen on reprieve from the hustle and bustle of the human world in which you actually live. A naturalist has become a tour guide to something we perceive as separate from us and, sadly, something from which most people want to remain separate. The ancient profession of naturalist has been dismembered and fragmented into variously sharply delineated scientific topics. If you want to study nature, in the narrow sense, today you have to choose a topic. If you wish to study what used to be considered nature in the broad sense – the reality of existence – you are shunted into philosophy rather than science, where you can explore the universe of ideas that old, mostly white, men have had over the past 3000 years or so, divorced from the actual phenomena of the natural world. Somewhere in this exchanged concept of natural science, the average educated person's concept of both nature and reality has become crippling myopic and misinformed. The perspective of nature has become reductionist, separatist, and abstract. In short, by divorcing ourselves from nature, we have divorced ourselves

from reality. The instability of this paradox builds daily.

We don't celebrate the modern equivalent of antique naturalists in modern society. In fact, the concept is considered quaint, folksy, heirloom, and relict. It is considered cute. A holistic approach to actual reality and the very structural fibers of existence certainly has no place in the serious matters addressed by real scientists today. Real scientists give us useful things like biocides and economically duplicitous biofuels. Real scientists labor over more efficient ways of wringing every last molecule of fossil fuels from the earth and how to document the impending climate crisis. It is no accident that the holistic approach of a naturalist is avoided wholesale, for fear of exposing too much irony. Or is it just blatant hypocrisy? Either way, most modern people prefer to ignore the things that are killing them, and poisoning the future, rather than contend with the inconvenience of correcting the growing contradictions. Blaming a politician appears to be a preferred deferment in lieu.

To be sure, we all continue to benefit from the advancements of science. I'd certainly choose a modern doctor over any that practiced before the advent of anesthesia and antibiotics, let alone the concept of sterilizing one's instruments. But, by and large, science funding, especially the so called academia of our so called public institutions, continues to produce erudite conceptualizations of theoretical obscurities and pro-industry fodder. Where is the revolutionary thought? Where is the wisdom and inspiration? What are we really paying for? Though we may have better lives, are we better people? Wouldn't better people insist on better lives?

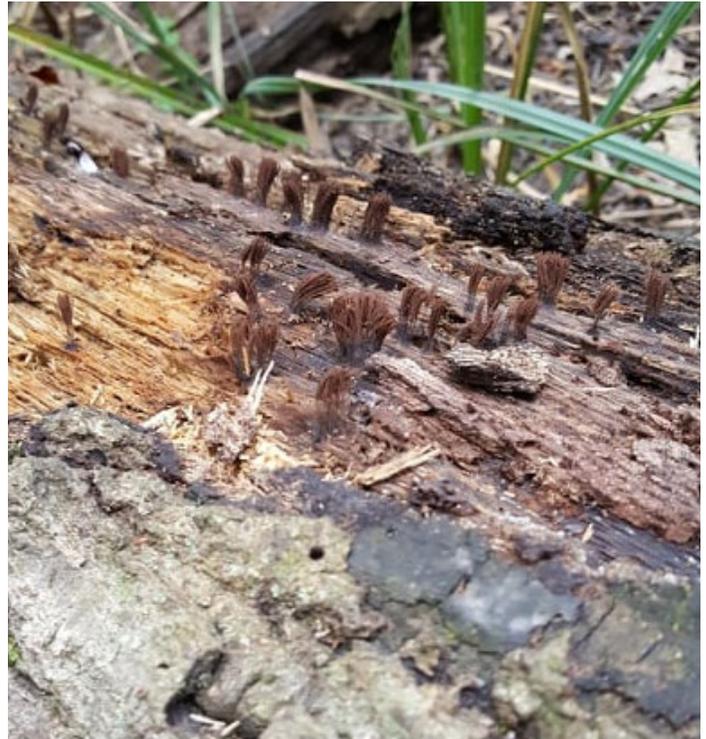
Most naturalists had specialties. Charles Darwin wrote a taxonomic treatment of the world's barnacles that



Meg Engelhardt (left) and Justin Thomas (right) at the MONPS spring field trip. Photo by Dana Thomas.

is still relevant today. He also collected insects and plants. He studied and wrote about so many facets of nature, that his combined knowledge manifest within him a friction of controversy that could only be resolved by a theory of natural selection. That's a naturalist! Carl Linnaeus traveled extensively to collect plants and animals and studied the cultures of reindeer herders. He wrote a book about plant reproduction. Discouraged by a lack of a predictable classification system for plants, he invented one. Based on morphological similarities, it was soon expanded to cover all life on the planet providing a framework for seeing evolutionary relationships fifty years before Darwin was even born. It is the basis of our modern classification system more than 250 years later. That is a naturalist! The ability to harness the plurality of nature in one's mind from direct experience is at the heart of Darwin's and Linnaeus' ability and the soul of their contributions. For an exciting example, give Constantine Rafinesque a google. Dismissed for nearly 200 years, we are only now beginning to see what he saw.

Today, people that view nature from a holistic stance, with reason, intention, experience, and aspiration in the forefront of their minds – you know, the truly talented – are functionally non-existent. It isn't that they aren't around, or that they aren't trying to communicate their observations, but that they are not given a voice. Mediocrity, consumerism, and status quo rule the day. In a world where authoritarianism reigns supreme and is heavily aided by the ease of information manipulation and dissemination, they don't stand a chance. This is especially true when the answers aren't simple. I know several people that can identify and explain the ecology of every plant in their respective regions. These people can step into any landscape and, by judging the composition and condition of the flora, tell you what happened in the past, what is currently happening, and what is likely to happen in the future. The prognosis isn't good, even in our protected natural areas. These people spend every free moment studying, experiencing, learning, editing, testing, applying, and revising concepts of nature and reality. They are seers. They find the function behind the beauty. They are naturalists. They have amazing discoveries and stupefying epiphanies to share, but no one with whom to share them. Though there are jobs to be had, they are never hired or the jobs they get are neutered reflections of what their jobs should be to fully encompass their talent. Talented people with fresh ideas are consistently



Not plant, nor animal, nor even fungus, plasmodial slime molds have stymied natural scientists for years. Found near Mingo on the Fall 2019 MONPS field trip. Photo by Michelle Bowe

passed over for the boringly safe and inertly inept concepts that continue to stymie actual progress in the fields of botany, taxonomy, ecology, conservation, and natural community management. Darwin and Linnaeus are spinning in their graves.

In 1860, famed naturalist Thomas “Darwin’s Bulldog” Huxley wrote in defense of science, “Sit down before fact as a little child, be prepared to give up every preconceived notion, follow humbly wherever and to whatever abysses nature leads, or you shall learn nothing.” The scientists of that era were not looking for their next publication. They were not trying to impress their boss or get a better paying job. They didn't stop learning after school was out or idly accept the concepts they'd been fed. These naturalists had a burning desire to understand what actual reality was by studying the physical universe around them; by observing and testing reality and our place within it. In the process they showed us the truth, the beauty, the wonder, and the complexity of existence! With our modern tools, shouldn't we be discovering even more fascinating elements of reality, rather than using science as a wedge between what we want to be real and what actually is?

From the contrasts between our past potential and our current state, it is apparent that the destination science set out for is very far from where we are

today. We need to ask ourselves the degree to which we are using our knowledge of the physical world to take advantage of it, and whether we should rather be using it to find a more sustainable, moral, and real existence within it. Natural scientists understand the difference. They understand that our better future is not merely linked to a better concept of nature, but that they are the same thing. The map to a better reality is still there. But a map is useless to anyone too proud, too afraid, or too ill-informed to see it. If the map is truly lost, ask the naturalists if they've seen it around. I suspect they know right where it is.



Brighton Thomas and Julian Edmond: the parents of these two young naturalists met just before they were born. They have been attending MONPS field trips their entire lives. Get them started early—our future depends on it! Photo by Dana Thomas.

Chapter Events

Hawthorn

11-14, 12-19, 1-16: Chapter Lunches at 11:30 a.m.

Chapter lunches are held on the third Thursday of each month. (November will be the second Thursday due to Thanksgiving.) We meet just south of Broadway Street in downtown Columbia at Uprise Bakery inside the lobby of the RagTag Theatre, 10 Hitt St, Columbia Missouri.

11-11, 2-10: Chapter Meetings at 6:30 p.m.

There will be no December or January meetings. Meetings are held at the Unitarian Church, 2615 Shepard Boulevard, Columbia, Missouri. Newcomers

and friends are welcome to attend.

11-10 Native wreath making at Hillcreek Fiber Studio at 2 p.m.

12-7 Holiday Party at 11a.m.

See www.columbianativeplants.org for an updated posting of newsletters and activity details.

Kansas City

11-05: At 7:00 p.m., MDC Discovery Center: Chapter Meeting –Speakers Linda Hezel and Molly Gosnell, "Development of a Carbon Farming Plan through Assessment of Tree/Shrub Agroforestry Data for Increased Production, Resource Valuation, Carbon Sequestration and Related Ecosystem Benefits". Presentation abstract is as follows:

This presentation will share findings of a Sustainable Agriculture Research and Education (SARE) program study conducted on Prairie Birthday Farm LLC to "Assess Tree/Shrub Agroforestry Data for Increased Production, Resource Valuation, Carbon Sequestration and Related Ecosystem Benefits". According to recent climate reports, the Midwest faces more weather extremes (heat, drought, torrential rains, humidity) with more crop diseases and pests coupled with the ongoing extinction of species. Kansas City ranks 5th of cities to be most impacted by climate change. Native trees are integral to mitigation of climate change impacts and food security. Ecologically sound land stewardship is best accomplished by understanding and acting upon the complex and interdependent value of ecosystem benefits of intentional land management. Ecosystem services are necessary for survival and support essential life resources (clean air, water, soil). Our continued existence relies on the preservation and regeneration of healthy biological and ecological systems. These results will serve to inform the necessary and urgent use of native trees and shrubs in landscapes large and small.

01-01 (2020) Chapter meeting at 7:00 p.m. where activities for the new year will be decided. at the Discovery Center, 4750 Troost Ave., Kansas City, Missouri

Call John Richter 816-519-8201 or email richterjc@bv.com, President of Kansas City Chapter of Missouri Native Plant Society for more information.

Osage Plains

Our chapter meeting location is at the Clinton Library “Friends Room”. Regularly scheduled meetings begin at 6:00 pm on the 4th Mondays of the month. No meetings are held during December, January or August. Programs are open to the public and our purpose is to enjoy learning about and sharing information about native plants. Please contact President Janetta Smith jans@iland.net or Chapter Representative Casey Burks mobugwoman@gmail.com for the latest information on meetings and field trips. Sometimes change happens. Bernie Henehan berniehenehan@yahoo.com and Dan Henehan henehandan0@gmail.com are our trip coordinators.

11-28: Last O.P. chapter meeting of 2019. Bring pictures to share and plants to ID

Ozarks

11-19: Denise Vaughn will tell us about shortleaf pine restoration efforts on the Mark Twain National Forest and a new self-guided auto tour to showcase them.

Chapter meetings are held on the third Tuesday of the month except for December and January. Meetings begin at 6:30 p.m. at the MDC Regional office at 551 Joe Jones Blvd, West Plains. For more information, contact Susan Farrington at 314-402-3345.

Dues are Due

By Ann Earley, Membership Chair

Membership renewals for the July 2019-June 2020 year are due. If you receive your newsletter by postal service delivery, please check the top line of your mailing label. If it shows the date 20190630, your dues are now payable. When renewing, please remember to include your contact information including email address, and your society and chapter dues preferences. Membership renewal online is also available via our website at www.monativeplants.org which offers the option of online payment via PayPal.

For those members receiving their newsletter by email without a mailing label, or for others with

questions about their membership status, please contact me or your chapter representative (see back page for contact details) for information about your membership expiration date. We value our members and urge you to renew today!

New Members

Southwest

Stuart Goldman, Bentonville, AR

Hawthorn

Tiffany Carey, Columbia
Katherine Wynne, Columbia

Paradoxa

James & Leah Allen, Rolla
Dalia Varanka, Rolla

State Level Membership

R. Anderson, Willow Springs



Bob Siemer and Ann Earley on the summer 2019 MONPS trip.
Photo by Dana Thomas

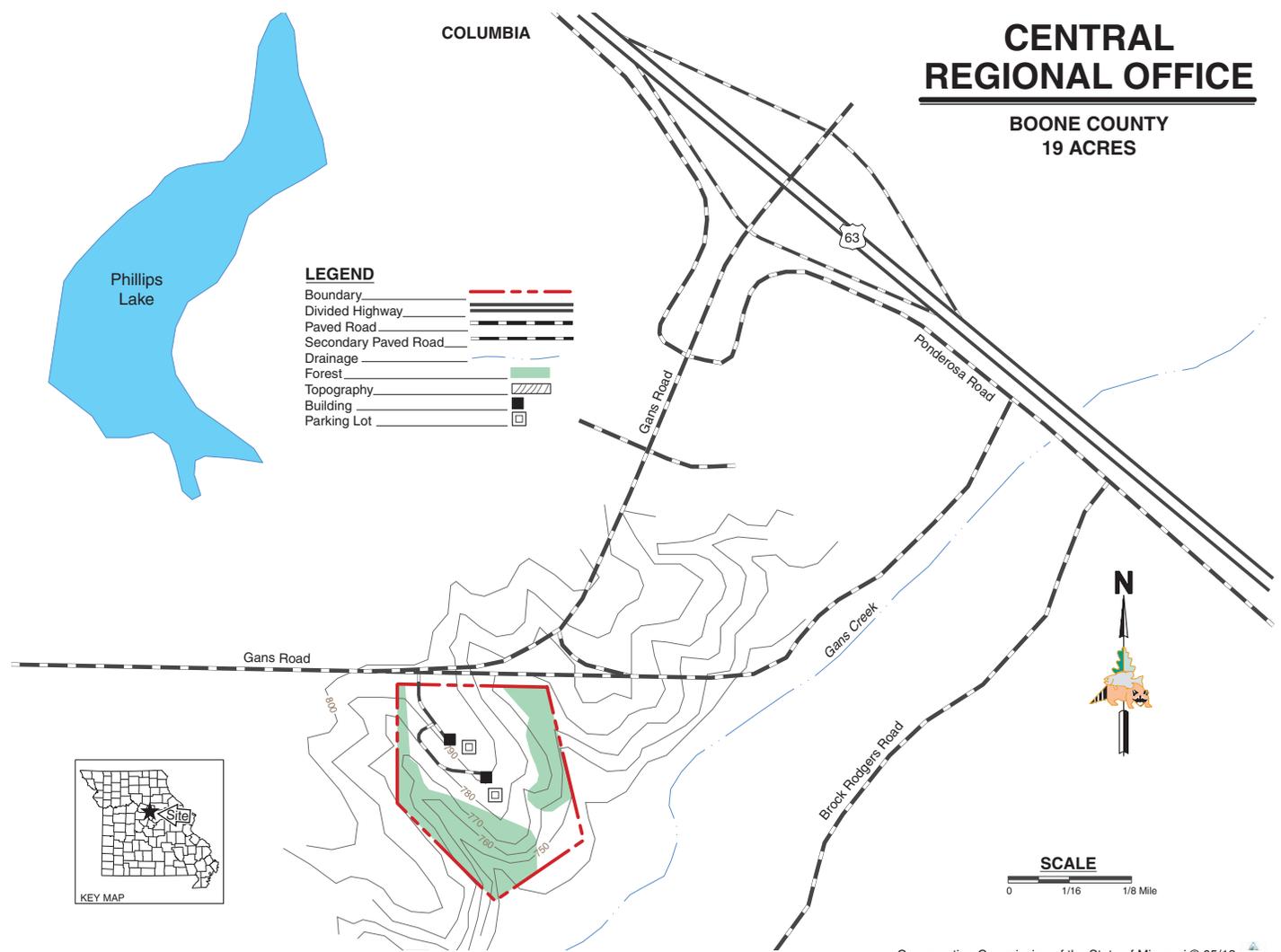
2019 Winter Board Meeting

The winter board meeting will be held on December 7, 2019 at the MDC Regional Office at 3500 E Gans Rd, Columbia, MO 65201. The meeting will begin at 10:00 a.m. There are no field trips associated with this meeting. All members are welcome and anyone attending the meeting can suggest a 2019 field trip location, themes for newsletter issues, or any other suggestions pertaining to MONPS business.

Directions: From Columbia, take Highway 63 south to Discovery Parkway exit and take East Gans Road west about 0.25 mile.

Interactive Google Map: <http://bit.ly/ColumbiaMDC>

Download MDC Map: <https://bit.ly/2BZ5dTr>



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Chapter Updates

Hawthorn

By Cindy Squire, Chapter President

The September meeting was held at the AL Gustin Golf Course in the middle of Columbia. Jack H. Harris nominated and presented our chapter Blazing Star award to Isaac Breuer and the AL Gustin Golf Course. This golf course incorporates native plantings in the rough areas to save water and money and to filter run-off. Isaac Breuer (the golf course Superintendent) promotes and educates other golf course managers about native plantings. There are blue bird houses where 3000 babies have been fledged, so far. Monarchs and native insects flit about while the golfers enjoy a sense of privacy created by the native plantings. The University of Missouri's AL Gustin Golf Course is a true oasis in the center of Columbia. We toured the plantings in golf carts (really fun!!) and were amazed by the native plantings in all stages of maturity. Where can you see multiple native plantings ranging from 1 year to 19 years within a small area? This is truly an educational treasure!

Fall is in the air and we participated in the Chestnut Festival in the town of New Franklin. Our native plants got some new homes and many native



MONPS members at Graham Cave. Photo taken by Dana Thomas during the summer MONPS field trip.

Chapter Reports, cont.

plant books were purchased. The weather smiled on us this year and the experience of this educational festival on a Missouri historic site was lovely. We are looking forward to our wreath making with native plant materials on November 10th at 2pm. Our Holiday party will be December 7th at 11am, see newsletter for details.

Once a month, we gather at the Uprise Bakery on 10 Hitt Street in Columbia. We can purchase quality soup, salads and sandwiches and seat ourselves at the large table. Seeds are traded and talk centers around natives and the environment.



Jack Harris presents the Blazing Star award to Isaac Breuer and the AL Gustin Golf Course at the September Hawthorn chapter meeting. photo by Cindy Squire

Osage Plains

By Chapter Representative: Casey Burks

September 23rd Osage Plains chapter met at the Clinton Library with a nice turnout of members plus a guest: Pat Licher brought her daughter, Susan. Casey Burks gave the program on oak leaf identification. Examples of *Hypoxylon* canker and oak wilt diseases were presented. She also shared information on oak galls: the larvae developing inside are the food of oak itch mites. Discussion on identification of asters and other plants followed. Made plans to visit Wayne's prairie to see the blue closed bottle gentian plus other prairies near Cole Camp.

Several members are looking forward to going to Snowball Hill on the 19th.



Thistle from Osage Plains meeting. Photo by Casey Burks.

Paradoxa

By Pam Barnabee, Chapter President

On August 24, we traveled to Montauk State Park. Park Naturalist Steve Bost had enlisted our help to find four state-listed species of conservation concern that had previously been documented there. Steve is an amazing guy with a broad range of nature-related knowledges and interests. He's the founder of the Ozark Chinquapin Foundation, a group dedicated to restoring the Ozark chinquapin (*Castanea pumila* var. *ozarkensis*) to the forests and woodlands of the south-central United States by locating and breeding blight-resistant individuals of this relative of the American

chestnut. Steve updated us on the latest DNA research and other developments. We were happy to learn that his work was featured in the June 2019 issue of National Geographic. Steve showed us some of the butternut (*Juglans cinerea*) trees in the park. This species is not yet state-listed but is under threat from a canker disease with no known cure. Sadly, the former state champion butternut tree that was located at Montauk died some while back. We weren't able to locate the four species we came to look for, but learned a lot and had fun identifying all the wildflowers in bloom.

September 7 found us at the annual Fall Native Plant Sale, Birding & Pollinator Festival held at Audubon Trails Nature Center in Rolla, where we led wildflower walks and also had a booth displaying eight invasive species along with native species that are look-alikes and/or good landscaping alternatives. Many visitors stopped by to talk and pick up handouts from MDC and Grow Native!, and a few became new MONPS Paradoxa members.

For our September 18 walkabout, we returned to Audubon Trails to focus on plant families. We went on a scavenger hunt to find species in the Asteraceae, Fabaceae, and Lamiaceae families with specific family traits (e.g., Fabaceae with trifoliate leaf, Fabaceae with pinnately compound leaf, Fabaceae with simple leaf). We looked at other plants and learned their families, too, but Asteraceae flowers and Fabaceae seed pods definitely dominate this time of year!



Paradoxa Chapter educates on identifying invasive plants at the Fall Native Plant Sale, Birding & Pollinator Festival. Photo by Pam Barnabee

Southwest

By Michelle Bowe, Chapter President/Representative

A small, but interested group of MONPS members and Missouri State University students met at the Library Center in Springfield to learn about best practices for pollinators—especially native bees. Jessie and Carl Haworth gave a presentation and showed several bee houses that can be purchased or made. Aldi has one for sale that is very cute, but the tubes are too short. One thing that was especially noted was that bees need a water source in addition to food (often plants with pollen and nectar) and shelter. Shelter can be in the form of leaf litter, old stems, stone and brush piles or bee houses.



Jessie Haworth shows us some prime bee nesting houses in a presentation to the Southwest chapter. Photo by Michelle Bowe

Seeking Officer nomination for the MONPS Board

Secretary: we are now seeking nominations! Please consider this important role!

MONPS is Now Taking Applications for the 2020 Stan Hudson Research Grant

(Deadline for submissions is 15 January 2020)

The Missouri Native Plant Society announces the availability of funding for research projects conducted by college or university students under the supervision of a faculty member. This award honors the late H. Stanton Hudson (1921–2002), a longtime member of the Missouri Native Plant Society whose passion for the flora of Missouri and its conservation inspired his friends and family to create a small grants program in his memory.

To qualify for the Stan Hudson Research Grant, research must involve Missouri native plants in some way, but may have as its primary focus any pertinent subject-area in plant biology, including conservation, ecology, physiology, systematics and evolution, etc. The grant may be used for any non-salary expenses relating to the proposed research, including travel, equipment, and supplies. For 2020, we anticipate awarding two grants in the amount of \$1,000 each. At the conclusion of the project, grant recipients will be expected to prepare research results for publication in a scientific journal, and present their research at the MO Botanical Symposium during the year following the award.

Proposals should not exceed 5 single-spaced typed pages and should include:

1. Description of the project
2. How the project relates to native Missouri plants;
3. Estimated completion date;
4. Overall budget for the research;
5. How an award from the Stan Hudson Research Fund would be used;
6. A list of other funding received or applied for toward the project.

Applicants should also include a current curriculum vitae. In addition, two letters of reference must be included, one of these being from the student's faculty advisor. Materials may be submitted by mail (in triplicate) or preferably electronically as e-mail attachments in Microsoft Word or Adobe Acrobat (pdf) format. Letters from the applicant's references may be submitted as e-mail messages. Proposals will be reviewed by the MONPS grants committee. Deadline for submissions is 15 January 2020, and announcement of winners will be made by 1 March 2020, with funds to be awarded by 1 June 2020.

Application materials should be sent to:

Missouri Native Plant Society
Paul McKenzie
2311 Grandview Circle
Columbia, MO 65203
paul_mckenzie@fws.gov

Casey's Persimmon Cookies

by Casey Burks

Bake at 350; 12-18 minutes

Mix together in large bowl:

1 C persimmon pulp

1 C sugar

½ C soft butter

1 egg beaten

1 C raisins

1 C English walnut pieces

½ C shredded coconut

Mix dry ingredients together and add:

2 C flour

1 tsp baking powder

1 tsp baking soda

½ tsp salt

½ tsp cinnamon

½ tsp cloves

½ tsp nutmeg

This is a stiff dough. Cookies can be placed close together on baking sheet since they spread very little. If you want to make them vegan or don't have an egg, just use 1 Tbsp ground flax seed mixed with 3 Tbsp water.



Field sites sometimes include traffic circles! Fulton, summer meeting, 2019. Photo by Dana Thomas



Studying the ferns and bryophytes. Summer meeting, 2019. Photo by Dana Thomas



It is important to be prepared and bring the right tools for field trips! Summer meeting, 2019. Photo by Dana Thomas



2019 Missouri Botanical Symposium

November 8, 2019
Rolla, MO

Date

November 8, 2019

Time

9:00am – 3:30pm
Registration from
8:00-9:00am

Location

Rolla, MO
Missouri University
of Science and
Technology's
Havener Center
Ballroom

Fee

\$50 regular
\$35 student
(lunch included)

Presentations

Indiana's Path to a Terrestrial Plant Rule

Dawn Slack, Director of Stewardship/Invasive Plant Advisory Committee Chair, The Nature Conservancy

Examination of Climate-Driven Shifts in Flowering Time in the Native

Genus *Triodanis* - *Dr. Jennifer Weber, Assistant Professor, Southeast Missouri State University*

Ant-Dispersed Seeds in Missouri: The Extent of an Ant-Plant Mutualism, and the Impact of Fire - *Eva Colberg, PhD candidate, Department of Biology & Harris World Ecology Center, University of Missouri-Saint Louis*

Missouri Ginseng Harvest and Considerations to Revise State Regulations

Malissa Briggler, State Botanist, Missouri Department of Conservation

Prairies in Trouble - The Sumac Epidemic

Justin Thomas, Science Director, NatureCITE

Missouri Botanical Garden Seed Bank: Kyrgyzstan Edition

Meg Engelhardt, Seed Bank Manager, Missouri Botanical Garden

Missouri Ozark Fens: Soils, Geomorphology, Hydrogeologic-Ecological Setting, and Vegetation Communities

- *Scott George, Principal Scientist, Environmental Science Consulting*

OPEN MIC SESSION: The open mic session will take place from 1:30-1:45pm. Bring announcements to share with the botanical community about grants, job opportunities, upcoming botanical events, etc. Table space will also be available for handouts. Email any questions to mobosympo@botanytraining.com.

POSTER SESSION: The morning will begin with a poster session and refreshments from 9:00-9:45am.

Register at: www.missouribotanicalsymposium.org

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You may become a member online at <https://monativeplants.org/membership/>, or you may fill out this form and mail to:

Missouri Native Plant Society
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**“A thing is right when
it tends to preserve
the integrity, stability,
and beauty of the
biotic community.
It is wrong when it
tends otherwise.”**

—Aldo Leopold