



Mississippi Native Plants

Newsletter of The Mississippi Native Plant Society

Volume 35 No. 1

People protect what they love ~ Jacques Yves Cousteau

Winter 2018

The **MNPS** is a non-profit organization established in 1980 to promote the preservation of native plants and their habitats through conservation, education, and utilization.

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Contents:

Editor's note
President's Message
Rings True by Mathew Thorn
Eating Nature, Naturally...
Could Invasive Plants Impact Native Insect Populations?
New Carnivorous Plant Exhibit at the MSU Ext. Arthropod Zoo
Bug & Plant Campers Populate Field

Editor's Lament

What Can I Say

I dropped the newsletter, and I am sorry. Once I missed a few deadlines the pain disappeared. Articles had quit coming in. Enough with explanations, I'm back; let's get busy...

Early one recent morning I received an email from Matthew Thorn, one of our Bug and Plant Campers, who had finished a Masters in Forest Entomology. I am very proud of Matthew. We share a love of wood and woodworking. I thoroughly enjoyed those evenings when he worked in my shop and one of my lathes lives on in his capable hands. Peggy enjoyed teaching him to build porch swings.

Matthew took a graduate course in wood identification; he was already a master at tree ID. His email this morning contained an article on identifying lumber, from the cut end.

I had asked Matthew to write this article for the readers of this newsletter and hoped it would reignite my passion for editing the MNPS newsletter. And, I think it has. I hope you enjoy Matthew's incredible article as much as I do.

Getting Back on Course by John Guyton

MNPS needs a revival. As we begin the process of jumpstarting MNPS we need some volunteers. **We need writers for feature articles, columns and field trip reports.** Please set aside some time to write some articles and send them to me. If you would like to write a reappearing column I would be delighted! If you would like to edit this newsletter I would certainly contribute a column for each issue. **And, we need to hear from you.** What would you like for MNPS to do? Your thoughts on what you would like to see in the newsletter would help. Got an idea for a field trip or a project we should undertake? Louisiana has an active native plant society and some of our members have dual membership. Should we consider a joint meeting? Please let Dr. Hill, or me know what you think.

MNPS Conference May 19-20, 2018 Starkville & Mississippi State

The Conference will be on MSU's campus. Please propose presentations, workshops or field trips you would like to lead or participate in. Our intention is to produce another newsletter, with the conference agenda, as soon as we hear from you and the conference is planned. We are thinking about starting mid-morning Saturday through Sunday afternoon.

For overnight you may want to consider Plymouth Bluff Environmental Center on west side of Columbus that currently has cottages available and 4 miles of trails, some surfaced with asphalt or crushed limestone. Cottages are \$65 per night. This is 20 miles from campus where we will be meeting. Plymouth Bluff Phone: 662-241-6214.

Presentations will be scheduled for Saturday morning with field trips in afternoon and possible a dinner meeting and presentation. Sunday morning, a short meeting followed by a field trip. Field trips may include the Osborn Black Prairie, the Old Cove in Webster County, Plymouth Bluff Trails, Noxubee Refuge, or other. Send presentation proposals or suggestions and field trip suggestions to JoVonn Hill (Jgh4@msstate.edu) and/or John Guyton (j.guyton@msstate.edu).

Greetings Fellow MNPS Members! by Dr. JoVonn Hill

As a native Mississippian, I am immensely honored and excited to begin my term as President of the Mississippi Native Plant Society. Growing up, the woods of Lauderdale County were my playground, and as an adult the natural communities of Mississippi, and indeed much of the South, have become my workplace. I am an entomologist by training, but I have also been a part of teams that have studied the flora of Lauderdale County, and Black Belt Prairies in the state. I also rear native prairie plants from locally collected seeds for Black Belt Prairie restoration projects, and am Chair of the oversight committee for the William L. Giles Bur Oak Preserve on the campus of Mississippi State University.

As incoming President, my primary goal is to increase awareness and appreciation of our native plant communities. I would also like to strengthen our Society's involvement with scientists, businesses and land management agencies throughout the State. Myself, and the rest of the administrative team are currently planning the Society's annual meeting for this spring. Please, feel free to contact me with your ideas, comments, and suggestions for things you would like to see our society doing at the upcoming meeting. See 2018 Conference Planning Notes on the last page and help us plan!

Editor's Note

I watched and listened to Matthew tutoring another Bug and Plant Camper in chemistry on molarity. Having taught a college chemistry course, many years ago, I enjoyed his instruction. It was impeccable and I admired his skill! I wished my teachers had been so eloquent in their teaching... Matthew conducted a research project, as an undergraduate, involving fruit flies (*Drosophila*) and did a poster presentation at the Entomological Society of America (ESA) conference in Portland, Oregon. Later during the awards presentation I received a powerful confirmation of his research skills, the announcement that he was receiving the ESA President's Outstanding, Undergraduate Student Research Poster Award! Matthew also received the ESA Plant Insect Section's Outstanding Undergraduate Student Award.

Matthew showed me how to use the endgrain to identify wood and I told him I wanted to share that knowledge with the members of the Mississippi Native Plant Society. I hoped it would reignite my passion and get our newsletter going again. I think it has, Thank you Matthew!

If the images are not clear check the issue on the website - it is in color. mississippinativeplantsociety.org

Rings True by Mathew Thorn

Observing and noting the leaf shape, bark, and buds of the trees around me has become second nature to me as I sojourn through the varied forests in the Southeastern U.S. From the longleaf pine savannahs of the coast to the hilly deciduous forests of the Appalachians, trees surround us with their stunning diversity and intricate features and are intrinsic to almost all habitats found around us. Many, if not most, people with an interest in native plants have learned to identify some trees. Oaks, pines, and maples present characteristic leaves and bark that are an easy place to start for the beginner. How many of us could identify these same trees if we are stripped of these features and presented with only a block of wood? When removed from its natural surroundings and processed into lumber, we are deprived of the means by which we are accustomed to recognizing trees. Identifying trees from lumber, however, is not a hopeless task, as wood presents us with just as many, if not more features by which to discern its identity.

Only a few tools are needed to begin making forays into becoming familiar with the anatomical features of wood. A 10X magnifier, a razor blade, and some spit are all that is required for identifying most commercially important lumber producing species in the U.S. to genus, if not species. I qualified the previous sentence with "commercially important lumber producing species" as these are the trees one is most likely to encounter as wood and the area where the most wood anatomy texts have been focused.

As we approach a sample of wood to identify, the endgrain is the surface that yields the most features for identification. To begin we use the razor blade to cut across the endgrain, exposing a fresh crisp surface to examine with the hand lens. Endgrain is what would commonly be referred to as the end of a board or it is what we would see if we cut down a tree and looked directly down onto the stump. While in most

woodworking effort is expended in order to hide endgrain from view, it has a beauty in its own right and presents a fascinating array of details.

Looking at the endgrain of the southern red oak piece shown in Figure 1 we can see the rows of large early wood pores (larger dark circles) fading off into the smaller late wood pores (distinctly smaller whitish and dark circles) surrounded by parenchyma (whitish storage tissue visible against the tan background). Early wood refers to the wood produced by trees during the rapid growth of the spring and early summer months, while latewood is the wood that is laid down more slowly during the harsher summer and fall months. The pores and parenchyma are punctuated by the wide rays (vertical streaks of lighter tissue dividing the endgrain into vertical sections) and upon closer inspection, the narrow rays (much thinner vertical streaks). The fact that this sample has rays of two widely different widths combined with its ring porous nature is a good indication that it is an oak.

What is meant by ring porous, however? The porosity of a wood indicates the arrangement of its pores in relation to the annual growth rings. Oaks, and other ring porous woods, have much larger early wood pores that abruptly decrease in size in the latewood. Other wood like maples (Figure 2) have almost no difference in pore size between early and late wood; woods like this are referred to as diffuse porous. There are also woods in the middle, such as black walnut (Figure 3), that has some distinction in size between early and late wood pores, but the transition is gradual and not nearly as marked as in ring porous woods. These are commonly called semi-diffuse porous woods.

In addition to the porosity of the sample, the arrangement and size of the pores and parenchyma provide clues as to the identity of the wood. Maple with its small rays that are roughly equal in width to the largest pores in addition to its diffuse porous nature are distinctive features. Few North American woods are semi-diffuse porous providing us a head start in identifying woods such as black walnut. Black walnut also presents us with features that do not require the hand lens, namely its distinctive color and acrid odor. We now have become acquainted with the basics of identifying a hardwood, but how do we know if our sample is a hardwood? A quick look at a sample of a soft wood such as southern yellow pine (a species group containing 12 species of hard pines in the southern U.S. including slash, loblolly, and longleaf pines) (Figure 4) reveals that softwood anatomy is quite Spartan compared to that of hardwoods. Gone are pores and large, clearly visible rays as well as most of the features used in identifying hardwoods. Resin canals (large holes), tracheid texture (the overall size of the background cells) and the transition from the early to late wood compromise the majority of the features left to us.

Determining if the transition from the lighter, more coarsely textured early wood of softwoods to the darker, more finely textured late wood is a skill that requires some practice. The very abrupt early to latewood transition combined with a coarse tracheid texture, and presence of numerous, large resin canals are characteristic of Southern Yellow Pine. Other softwoods such as spruce (Figure 5) have few small resin canals and some rings lack them entirely. This in addition to spruce's finer tracheid texture, more gradual early to late wood transition, and lack of strong odor can be used to identify it with reasonable certainty.

Many softwoods lack resin canals entirely, an example of which is Eastern Red Cedar (Figure 6). In woods with so few features to observe, we must use all our senses in order to ascertain their identities. Odor, color, hardness, density, and the ease and smoothness with which the razor blade cuts the wood are all important in identifying some softwoods and all require practice to master. Eastern Red Cedar cuts smoothly, with no chattering from the blade in the transition from the early to late wood. The color and odor of the wood are both very distinctive as well. A thumbnail easily leaves a deep impression and the wood feels moderately light in the hand.

Identifying woods becomes an intimate sensory experience with practice, and each sample brings its own idiosyncrasies. Just as no two trees are the same, no two pieces of wood, even from trees of the same species are identical. Each tree varies in the exact size of its pores or resin canals, the spacing of its rays, and its amount of parenchyma. The life history of individual trees also induces differences in the wood they produce. Trees grown in harsh conditions will produce little wood in a given year resulting in annual rings that

are tightly packed, squeezing all the anatomical with them. New growth trees can be very different from their old growth counterparts in many ways as well. Identifying wood can seem daunting at first, but upon further exploration the differences between woods becomes more readily apparent. With experience, identifying wood becomes just as easy as recognizing trees by their leaves and bark and just as enjoyable as well. It pushes one's respect for the diversity of trees past their external features and results in a more profound understanding of and respect for our planet's largest inhabitants.



Figure 1: Southern Red Oak Endgrain (10X)



Figure 2: Sugar Maple Endgrain (10X)



Figure 3: Black Walnut Endgrain (10X)



Figure 4: Longleaf Pine Endgrain (10X)



Figure 5: Black Spruce Endgrain (10X)



Figure 6: Eastern Red Cedar Endgrain (10X)

All images courtesy of Eric Meier, www.wooddatabase.com

References

- Hoadley, R. B. (1990). *Identifying wood: accurate results with simple tools*. Taunton Press.
- Panshin, A. J., & De Zeeuw, C. (1980). *Textbook of Wood Technology: Structure, Identification, Properties, and Uses of the Commercial Woods of the United States and* McGraw-Hill.

Eating Nature, Naturally... Sassafras & Redbay by Dr. John Guyton Some years ago I wrote an article titled, I think, *Eat a Tree*. I used this at a few workshops including a Project Learning Tree workshop or two where the snacks were all tree related. In trying to get my attitude adjusted and back into producing this newsletter I picked up an old favorite, a Field Guide to North American Edible Wild Plants and I also ran across a booklet titled *Minimalist Camp Cooking* that I had written at the request of a friend in the US Wildlife and Fisheries Service. She knew stories about the camping trips I led for my students while at Murray State University in Kentucky during which I would cook all of my meals without conventional utensils and often using something from the woods (slab of wood, sticks, large rocks, leaves, mud, etc). Peg and I are the Entomophagists in my entomology department, so a bug recipe or two may crawl into this column. Peg and I also use a couple of plants medicinally and have never found a substitute for one in pharmacies, and older past readers will remember these. And that planted the seed of an “eating nature naturally” column out of which I might get a few articles. Let’s start with a familiar plant or two **while there is still time!**

Sassafras (*Sassafras albidum*)

An inhabitant of bottomlands and open woodlands with moist soil, sassafras is a friend of native tea aficionados. One of my Bug & Plant campers turned staff has stepped up to the stove and is assisting in introducing campers to edible native plants. And, he can spot a sassafras at 40 mph on a gravel road with a van full of bug campers! Brady Dunaway will pull over, jump out of the van, harvest some roots and grab a few leaves for those of us who just cannot wait and we are back on the road! We will have tea this evening!

Tea is simply an infusion in water; heat helps. Carefully pull or snip some suckers from near the base of a sassafras tree or pull up a small sapling and harvest the roots. Be mindful, the flavor is in the root bark. You can harvest the root bark when it is available. Wash roots and snip into sections. Boil in water until you have a red liquid. Sweeten with honey and drink hot or cold! The roots can be reused a time or two. Now, that reminds me a colleague has promised me some saplings for my yard...

On the Gulf Coast, where we lived in Biloxi and later Ocean Springs, a bag of dried and powdered sassafras leaves was a gift for new neighbors who enjoyed cooking. We would leave one unground dried leaf in the back so they could later find their own.

Redbay (*Persea borbonia*)

The redbay on our Gulf Coast is related to the bay laurel (*Laurus nobilis*) normally bought in grocery stores. And there are others. My favorite is the California Bay Laurel and I will write about my experiences with it in a later column. We use the dried leaves of our native red bay in spaghetti and other dishes, and I have even pulled samples out of my workshop box for culinary purposes.

“While there is still time” alludes to a fungal infection carried by the Asian Redbay Ambrosia beetles. This ambrosia beetle targets red bay as well as relatives in the laurel family including sassafras. Already over 300 million trees from Mississippi to Florida have been killed.



This photo provided by the Mississippi Entomological Museum is the redbay ambrosia beetle, first found in the U.S. in 2002. Researchers from Mississippi and Florida say one female fungus-farming beetle inadvertently imported to Georgia may have been the source of the disease that has killed some 300 million redbay trees and threatens Florida's avocado groves. (Joe A. MacGown/Mississippi Entomological Museum via AP) The Associated Press

Could Invasive Plants Impact Native Insect Populations?

We are very familiar with the devastating impact of “alien” insects on trees, but the impact on insects and other arthropods from invasive plants is less understood. We are just realizing insect diversity and populations are plummeting. Over 5,000 non-indigenous plants have been intentionally or accidentally introduced to the US and many are well established. Weis and Berenbaum (1989) estimated 37% of animals are insects that eat green plants and these in-turn are eaten by innumerable amphibians, birds, mammals and reptiles. Many imported plants were selected for their unpalatability to insects, and they have naturalized and spread over a large area. Many of these plants are more successful in the US because they have escaped natural predators (insects) in their native range. The plants share a critical evolutionary history with the insects back home.

Weiss, A., and M. R. Berenbaum. 1989. Herbivorous insects and Green Plants. Pages 123-162 in W. G. Abrahamson, editor. Plant-animal interactions.

Source: Tallamy, D. (2004). Do Alien Plants Reduce Insect Biomass, Conservation Biology.

New Carnivorous Plant Exhibit at MSU Extension Arthropod Zoo by J. Guyton & Evan Sallis

The MSU Extension Arthropod Zoo is expanding its exhibit of carnivorous plants. A large, exciting display of carnivorous plants from outside Mississippi will join the current display featuring Mississippi natives.

It is common to see visitors or students in our lobby sitting on benches in front of our arthropod zoo but Evan was different. When I saw him in front of MS Carnivorous Plants Exhibit I had to meet him. It did not take long to realize he had a vast amount of experience with carnivorous plants and soon we were talking about the exhibit.



The Extension Arthropod Zoo and Carnivorous Plants Collection is located in the Clay Lyle Entomology Complex at Mississippi State University.

We had recently received the gift of a large aquarium, and over the Christmas break Peggy and I experimented with ways to sustain a high moisture level. Maintaining close to 90% relative humidity took a little work but it is working perfectly! We tried a water fountain and a room humidifier and the humidifier won hands down! It is plumbed into a manifold that feeds 4 ports across the back top of the aquarium and is controlled by a timer that comes on at set times during the day and night and is sustaining a 90% moisture level. The periodic “clouds” give it an enticing ethereal appearance.

We have just begun populating the main tank with plants Evan rears in a greenhouse on his farm and it is already a show stopper with faculty members wanting one in their offices. The temperature in our building is cold – year-round. I wear a vest and often a light jacket all day during the winter, so we have begun with highland *Nepenthes* that grow at elevations from 3,000 to 10,000 feet above sea level. Evan is the magic behind this exhibit and there are a number of people invested in the exhibit. Drs. J. Goddard supplied the tank, F. Musser is providing greenhouse space for maintaining plants, J. Schneider provided the large heavy duty shelf and J. Dean, dept. head, continues to allow us to grow the bug and plant exhibits in our lobby!



Incidentally our Mississippi *Sarracenia* is currently blooming! There is no charge for touring our zoo and if you let me know you are coming I will guide you.

Bug and Plant Campers Continuing to Populate the Field by John Guyton

There is always something new at Bug & Plant Camp, and the high water line is now a little higher. We have had numerous campers participate in our professional organization, the Entomological Society of America (ESA), over the years but this year was particularly exciting.

Breanna Lyle put Mississippi on ESA's vista with her knowledge of insect trivia, and during our meeting concurrent with the International Congress of Entomology she placed second in the world in the Linnaean Games! We are fortunate to have her at MSU! This past year the ESA president suggested ESA's Education and Outreach Committee (EOC), of which I serve as past chair, needed student representation. Our campers have risen to the occasion! As we watched colleagues nominate their students, none had Breanna's skills or experience, so I threw her hat into the ring for this three year appointment and she easily won. And, of course she was there for most recent Denver Conference.



This year a high school aged camper from Portland, Oregon, Sophia Di Piazza, had notified me she was coming with one of the Bug Chicks (if you don't know the Bug Chicks you are missing a couple of the most exciting entomology teachers in the country!). This was exciting because I had been wanting a Bug Chick on the EOC since most of our membership are university based. And the idea had occurred to me that a precollege committee member might have something to offer the EOC. Sophia would be an excellent even younger member of our committee because she had led a 4-H entomology workshop for 4 surrounding counties and earned the national Emerald Star Award in 4-H! Then the night before Peg and I were headed to Denver I received a very short text message from Stepp Goins, a camper from Atlanta who was also an active entomology workshop leader, that he would see me in Denver, "tomorrow!"

It was fun to meet a Bug Chick, whose teaching antics are legend in entomology, but having two high school aged campers, who lead "Bug" workshops, at ESA was exhilarating! I invited them to join me at the EOC meeting. When they arrived, Dr. Rebecca Baldwin (Univ. of Florida entomologist) and I were sitting together and she asked if they belonged to me. Minutes later she nominated them for membership and I nominated the Bug Chick. There were 4 Bug & Plant Camp staff on the committee and now there are 7.

Now, about "the camp that makes entomologists." Camp is an immersion, academic, intergenerational, camp with 17 hour days! We use a collection of advanced educational techniques that include maintaining instructional momentum, peer tutoring, competition, regular entomological and plant "moments," a bottomless fruit bowl for anytime snacks, insect snacks, 17 hour days, lots of bugs, and an incredible staff that includes campers, etc. Plants figure prominently in the insect – plant interactions hike and Dr. Lelia Kelly's plant component now being run by Brady Dunaway (MNPS member) includes sassafras tea and elderberry fritters! Camp is open to teachers, and they report excitement with learning usefulness techniques for engaging students in science. Camp this summer will be June 10-14 followed the next week by Beekeeping Camp. Both are intergenerational and comprehensive. Teachers and MNPS members are welcome.

Notes to future MNPS Newsletter Editors by the Current Editor

The last edition before this one was Vol 34 #1 Spring 2016. There were no newsletters during 2017. I am resetting the Volume Number to Winter 2018 Vol. 35, No. 1. Unfortunately, in the interim MEEA has become inactive and I have deleted MEEA from the masthead. — John

Mississippi Native Plant Society Membership Application
Renew or Join Today!

Name _____ New ____ Renewing ____

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Individual or Family \$10 Student \$7.50 Sustaining \$15

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Return form to Dr. Debora Mann, 114 Auburn Dr., Clinton, MS 39056-6002

Mississippi Native Plants is the quarterly newsletter of the Mississippi Native Plant Society

The MNPS is dedicated to the study, appreciation and preservation of native wildflowers, grasses, shrubs and trees.



Sweet Betsy (*Trillium cuneatum*)
Artwork by Margaret Gratz

We have begun planning an MNPS Conference for the Starkville, Black Prairie & Mississippi State University Area

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