



Mississippi Native Plants and Environmental Education



Newsletter of The Mississippi Native Plant Society and the Mississippi Environmental Education Alliance

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For beauty, give me trees with the fur on ~ Henry David Thoreau

Spring 2011

The **Mississippi Native Plant Society**, promotes the preservation of native plants and their habitats through conservation, education, and utilization.

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Introducing Youth to Native Plants, by John Guyton, Ed. D.

In his letter in the last issue President Mac Alford challenged those with knowledge of native plants to find a teacher and introduce their students to native plants. To support your efforts we will begin regularly publishing ideas for how you may introduce various native plants. And, those of you who know some interesting ways to introduce youth to native plants, send me your ideas and I will add them! I have included a couple below and thanks to Matthew and Mac for their contributions! MNPS and MEEA members keep these ideas coming!!!!

Club Moss (*Lycopodium*). Clubmoss is a creeping plant that is easy to maintain in a terrarium. The best way to collect it is to measure the size of the jar you will be using for a terrarium and digging up a clump, with its companion plants and carefully placing in the terrarium. *Lycopodium* spores, or powder, is available from science supply houses and makes a spectacular demonstration (explosion) when blown into a candle flame with a syringe. With this introduction, your student will be ready to learn about this plant and they will be particularly interested in spore production and collection.

Joe-Pye Weed (*Eupatorium*) is an amazing herb, wildflower and butterfly plant. Jo-Pye will grow until the first frost, so it is useful in school gardens. Tiger swallowtails, fritillaries, pearl crescents, monarchs, and skippers love this plant. When you show up at a school, take a few of last year's stalks and show the children how it can be used as a straw, or seed shooter! Native Americans and naturalists have used these stems to drink water from streams.

Dogwood (*Cornus florida*). How Dogwood got its name. Years ago during the American Industrial Revolution, many of the gears, cogs, and assorted small parts of machinery were collectively called "dogs." These dogs needed to be made from strong, hard wood, that did not easily crack or splinter. Dogwood wood was perfect for this use. When timber buyers came to the Southern Appalachian region they asked residents where they could buy the best wood for "dogs." Local folks had been using Dogwood for mauls, mallets, gluts, spuds, and shuttles for years so they knew just what to show and sell to the timber buyers. From then on the tree was known as Dogwood. – Matthew Miller, Director of Living River Environmental Center

Sourwood (*Oxydendrum arboreum*). Sour name, sweet treat, tough wood. Sourwood is a very common tree in the Southern Appalachians. It grows equally well in the "bottoms," on dry ridges, south and north slopes. "You can't find or buy a straight Sourwood." It's very sun loving and very phototropic and will bend and twist every which-o-way trying to get to sunlight. That was a great characteristic coupled with its hard wood for the early settlers. Back in the days when roads of any kind were pretty rare, folks used big sleds rather than wheeled wagons. When you built a sled you looked for a Sourwood tree of the right size and with the right bend to make your sled runners. You didn't have to take the time to build a curved sled runner from a straight piece of wood. Of course everyone knows that bees make THE BEST honey from Sourwood flowers. Sourwoods also make great ornamental trees in home landscaping because of their interesting shape and brilliant crimson autumn foliage. – Matt Miller

Violet woodsorrel (*Oxalis violacea*) – Woodsorrels are interesting woodland plants. Although we have both native and introduced species, my favorite is the native violet woodsorrel, mainly because it has leaves that are usually purple underneath. I enjoy breaking the leaves into their heart-shaped segments and gluing them to paper. Although it's too late for Valentine's Day now, they are great for birthday cards or nice additions to homemade stationery. Many violets (*Viola* spp.) also have heart-shaped leaves and can be used in a similar way. – Dr. Mac Alford

MNP & EE Calendar, Field Trips, Native Plant Sales, et cetera

Native Plants for Sale at Any Time! Native plants are available throughout the year from Strawberry Plains Audubon Center's Nursery by appointment. Please contact Kristin Lamberson at 662-252-1155 for more information. Bring a wagon.

For additional opportunities monitor: EEinMississippi, <http://bigcypressoutdoorclub.wikispaces.com>, www.clintonnaturecenter.org, <http://www.crosbyarboretum.msstate.edu/>

Field Trip on Roosevelt State Park Trails

On March 19th, Heather Sullivan will lead a field trip on the Roosevelt State Park nature trails. Heather is a Botanist and Curator of the Herbarium at the Mississippi Museum of Natural Science in Jackson. Heather is a popular field trip leader. We are fortunate that she found time in her busy schedule to lead this trip.

The park is dominated by loblolly pine forests with a mix of hardwoods (sourwood, black gum, black cherry, hickory and oaks). Some ephemeral wildflowers such as Jack-in-the-pulpit, trilliums, spring cress, butterweed may be in bloom. There will also be poison sumac, which many people may never have encountered before. It is likely that native azaleas may also be blooming also.

To get to Roosevelt State Park – take exit 77 for MS-13N off I-20/59. Turn right onto MS-13N. Drive about ½ mile and turn left at Park Road. We will meet at the park entrance at 9:00 a.m.

Call Gail Barton at 601-483-3588 to sign up or ask questions about the trip. You may also email Gail at lgbarton@gmail.com.

Greetings from Mac Alford, MNPS President

There's no boring time for a native plant enthusiast. Although our winter this year has been full of cold and dreary weather, it certainly did not stop me from going through my wish-list and selecting plants to put in the soil before the spring flush. A yard or a garden with leafless trees stimulates my imagination: What family or group of plants are we missing? What would fill in this hole well? What kind of color would complement these buckeyes or wild azaleas? Do I need a good thick evergreen here to block the cold northern wind?! I must also admit that I have thought about the practical financial consequences, as well: If we sell this house in 10 years, what could I plant that would give me license to say that this place is a botanical paradise?

Winter and early spring are also times to notice the plants that often escape our attention because they are obscured by the green of spring and summer. Mistletoe (*Phoradendron leucarpum*) in the canopy is a great example and offers an interesting data collection opportunity for students. Have them identify all the trees in which they see mistletoe. They'll be delighted when they begin to recognize the same three or four species again and again. Early spring is time for jewels on the ground, too, and when I write "on the ground," I mean that you really have to get down on your hands and knees. Two of my favorites are adderstongue fern (*Ophioglossum crotalophoroides* and related species) and the famous "petite plant" (*Lepuropetalon spathulatum*), supposedly the tiniest terrestrial flowering plant. Both are relatively common in places like cemeteries, especially in the southern part of the state, but I've been surprised to find them in semi-bare spots in my own lawn. If you think that bluets (*Houstonia pusilla* [blue] and *H. micrantha* [white]) are small, try looking for these species!

Some people get the idea that most plants are "dead" in the winter. On the contrary! Take a look at any paw-paw (*Asimina triloba*), wild azalea (*Rhododendron* spp.), or cherry laurel (*Prunus caroliniana*), and you will see the buds expanding and changing colors, in eager expectation for the warmth and sun of spring. Plus, there are all of the forgotten baby plants floating around, waiting for *their* chance. For those of you with trampolines, you've got a built-in seed sampler. It amazes me how many pine seeds, yellow poplar fruits, crepe myrtle seeds, clematis fruits, and various bird dispersed seeds (via poop) end up on the trampoline in the winter. Hmmm, that's another cool idea for student data collection

From MEEA President, Laura Cook Beiser

An Envirothon Partnership Award was presented to The Mississippi Environmental Education Alliance at the annual Mississippi Association of Conservation Districts meeting in January, 2011. The new partnership to strengthen training for Envirothon participants formed with the Mississippi Environmental Education Alliance (MEEA) when the 2010 MEEA Conference featured "Estuaries, where the land meets the sea" which is the Envirothon 2011 special topic. Forty teachers and informal educators attended. Trainers for the Envirothon teams are being sought statewide to prepare for the May Envirothon competition for High School students. Please contact Mr. John DeFazio at email: john.defazio@ms.usda.gov if you are interested in training students in your area of the state.

Green Infrastructure and retrofitting of communities is abuzz all over Mississippi with green infrastructure training sessions

Laura Beiser Accepts Envirothon Partnership Award for MEEA

Laura Beiser, president of the Mississippi Environmental Education Alliance (MEEA) receives the Envirothon Partnership Award for MEEA from Sam Newsom, President of Mississippi Association of Conservation Districts (MACD).

Laura Beiser of MDEQ and current president of MEEA presented the idea to the MEEA board and with the efforts of a resourceful and energetic conference planning committee (Jennifer Buchanan, Terri Jacobson, Angel Ronke, and Susan Shedd) the dream became a reality when 40 teachers and environmental educators were trained on “Estuaries” at the Mississippi National Estuarine Research Reserve (NERR) Center in Moss Point in November, 2010. Envirothon teacher sponsors received scholarships to assist them with room and board and were able to take power point presentations, photos, and knowledge of Estuaries back to their 5-member Envirothon teams to get them ready for the State competition in May 2011.



The winning Mississippi Envirothon team will attend the International Competition in New Brunswick, Canada in July 2011. Environmental topics covered at the Envirothon Competition each year include Aquatics, Soil, Forestry, Wildlife and a special topic which is different each year. Mississippi Department of Environmental Quality (MDEQ) and the Mississippi Soil and Water Conservation Commission jointly sponsor and coordinate the Mississippi Envirothon High School Competition each year.

Follow-Up on the Call to Action by Dr. Alford

I had intended to prepare an essay on “Plants and Religion” for the February issue and then an article on “Plants and Sex” for the May issue to complement my taboo “Plants and Politics” in the previous issue, but I had such strong response to the first contribution that I must postpone my initial plans.

First, I was surprised at the level of interest in the article where I challenged our membership to get involved with local education. The response was overwhelmingly positive. Many of you wrote to tell about your own explorations in local forests or prairies. Others of you wrote to tell how you didn’t notice anything special about the plants around your homeplace as a child, only to return later and see the fascinating biodiversity that had been mysteriously invisible. Pat Drackett even shared some letters sent by visiting students to the Crosby Arboretum that told of how amazing it was to get outside and see what “wetlands” and “water tupelos” are. So, as you can imagine, I was happy to strike a chord with many of you.

Making a connection with a child is such a wonderful feeling. I’m an academic and have been taught not to write in such emotional language, but that’s the way it is. Like Pat, I once received a letter from a middle school student who participated in a little demonstration I gave on composting. She wrote something simple but profound: “I was always told to throw my banana peel in the garbage. I’m happy it can be put in a compost pile and be used by other animals.” The “other animals” part may not be so precise, but she got the picture, and I bet that she told her parents.

Since I issued the call to action, I should give some examples and provide a little leadership. Here goes. Here are two simple actions that I have done this year and can be mimicked elsewhere. One, the director of the preschool at the University of Southern Mississippi (Center for Child Development) wants to improve the playgrounds for the children and sought our input. Naturally, I gave mine(!) and even suggested a few books that she might read, including *Last Child in the Woods*, a book many of you have undoubtedly read. So, with her good ideas and the ideas of parents and people like me, they are planning to create more natural playscapes, complete with tiny hills and clumps of native shrubs. There’s probably not a county in this state without a daycare or preschool that could use a “naturalization” of its playground. Offer ideas ... and maybe even a Saturday of shoveling or planting. Plus, you’ll probably get this newsletter in perfect time to get some native shrubs in the ground. Second, one of our sons was telling me about a tour he took in

The Song of a Southern Pine Savanna Explorer

Author, Laura Cook Beiser, 2010

I walked all through a Pine Savanna,
In southern Mississippi,
And saw long-leaf scattered pines,
With a meadow underneath;
With some trees that were tall and straight,
And young ones, small, but tall,
Boughs safe to keep from fires that will boil
Around their hungry feet in starving fields of soil.

A group of educators were we,
Who made a path through the meadow there,
In search of living things to see,
And lessons we could share.
To learn of earth’s strangest plants and shrubs
Who wait and lurk amongst the trees
Tiny sundews, and butterworts in the bog
With palmettos and hat pin plants waving in the breeze

I got down on the ground,
Where groundwater lurked just beneath,
And peered at pitcher plants galore, we found,
Of yellow, white, and purple heath;
Who fooled us with their dignity and grace,
Where within their trumpet tall
We found bugs and worms and ants who face
A decomposing death in hairy prison walls.

school. The kids loved it. So, naturally, I asked his teacher if she'd like for me to lead the students on a nature walk sometime in the spring. Can you guess the answer?! If you have come up with interesting ways to get involved, send me a note. Even better, send some photos. I'll be glad to share your story (or at least the idea, if you don't like the publicity!) with the group. Enjoy the spring!

Attention MNPS Members

MNPS Members, Do we have your most recent email address? If not, and if you would like to receive occasional email reminders about field trips and other MNPS events, please notify Debora Mann at mann1@millsaps.edu. The newsletter is also available by email as a pdf file. If you are currently receiving the newsletter by mail and would prefer the email version, just let us know. Otherwise, we will continue to mail your newsletter. Thanks for supporting MNPS with your membership!

The Call of Spring, a Welcomed Crepuscular/Nocturnal Cacophony by John Guyton, Ed. D.

You know summer has arrived when you hear the mating calls of nature. The late afternoon insect chorus is a welcomed sound and the trio is composed of lonely male locusts or grasshoppers, cicadas and crickets or katydids. The locust are on first followed by the cicadas during the late afternoon with the crickets and katydids finishing up during the evening.

You have likely heard locusts make a clicking or rattling sound, known as crepitation, by popping their wings taut as they fly in fields or along dusty roads on sunny afternoons. The cicada may have the loudest song in the insect class, exceeding 100 decibels! The male contracts its tymbal muscles buckling two ribbed membranes, called tymbals, on each side of its first abdominal segment producing loud clicks. These vibrations are amplified by air sacks in the cicada's hollow abdominal cavity before traveling through its body to its tympanal organ, that resembles a drum's membrane, for further amplification of its buzzing song. The mechanics of a cicadas' clicking produces a surprising sensation when you pick one up! The cricket's song is a series of chirps, and the katydid seems to be calling "katy-did." They are fiddlers, and their stridulations, or sounds, are made by scraping a hard sharp ridge on one wing against a file like series of tiny pegs on other. Their wing membranes vibrate, magnifying the sound. Their tympanums, or ears, are located on their tibia just below their "knees" and, just as we use directional microphones, the female positions her tibia to zero-in on the location of a potential mate. There are many internet sites where you can listen to or download insect songs to share with your children. You can save these ahead of time by right clicking on the icon while listening to a song and selecting "save target as" before designate the drive where you want to save the audio file.

Now, let's have a little entomological fun. If you have a female cricket in the room (look for long ovipositor or small tube extending from the abdomen) while you are playing the recording of a male of its species chirping you will get to watch her head for your computer. When you turn the sound off she is lost and does not seem to know where he went.

Knowing that the higher the temperature the faster a cricket chirps enables you to use them as field thermometers. The snowy tree cricket is regarded as the most accurate thermometer because its chirps are very distinct and their rate correlates well with the temperature. Count the chirps in 13 seconds and add 40 for the temperature in degrees Fahrenheit. This is regionally variable so you may need to calibrate your calculations since you cannot calibrate crickets! When you have a cricket inside you can conduct a climate controlled experiment! Check your thermostat and see how accurate they are. Then increase or decrease the temperature and wait for the temperature to stabilize and the cricket to begin chirping and test it again.

Academic Bug, Plant, Wildlife, Fisheries and Aquaculture Camps by John Guyton, Ed. D.

The Noxubee National Wildlife Refuge, Mississippi Department of Environmental Quality, the Mississippi Department of Wildlife Fisheries and Parks and the MSU Extension Service are partners in these camps. Camps are intergenerational and designed for children over 10 years old, families and teachers. Pictures and registration information is available at http://www.cfr.msstate.edu/wildlife/conservation_camp/index.asp. For other information contact John Guyton at 662-325-3482. We can offer teachers close to 5 CEUs because we start early and don't make it back to the dorms before 11:00PM.

Bug and Plant Camp will carry you deeper into entomology than you can imagine. You will go from novice to proficient in 5 days and you will never look at insects the same again. We have had parents that accompanies their children to their first camps who have continued to camp with us even after their children left for college!

We have special permission to collect on the Noxubee Refuge - and collecting on the refuge is great. The Mississippi State Department of Health and the Mississippi Department of Wildlife Fisheries and Parks cooperate in setting up and running a wildlife CSI activity. Sessions and activities include: mosquito monitoring, medical entomology, forest entomology, insect photography, a tour of a bee hive and honey tasting, insect rearing, insect plant interactions (hike), GPS, entomological or nature art, forensic entomology, insectivorous plants, aquatic insects and MDEQ sponsored water quality, etc.

Wildlife, Fisheries and Aquaculture Camp is a popular family vacation where parents enjoy learning with their children. Wildlife briefings on topics including turkey hunting and ecology and skulls antlers and horns are interspersed with outdoor sports including archery and bow fishing, tomahawk throwing, skeet shooting, seining, shock boat demonstration, a deer necropsy, fly fishing and fly tying, cat fishing, tanning, night sounds, macro invertebrate sampling and water quality, Enviroscapes, Private Eye, Nature Poetry, GPS, Nature Art, birding, astronomy, weather forecasting, trapping and SCUBA diving. Hunter Ed and Boater Safety is included.

Mud Soup, Incidental and Intentional Geophagy by Dr. John Guyton, Education Chair

During a discussion of the productivity of estuaries at the most recent MEEA conference my mind wandered to an article I had read describing *mud soup*. I was describing the microorganisms in the mud as where most of the diversity exists. In their "Professional Guide Manual," George L. Herter and Jacques P. Herter described the food value of mud...

"The silt or mud on the bottom of lakes, ponds, and sloughs that have or have had some vegetation in them has a high food value for humans. Such silt or mud contains the accumulated organic food riches of thousands of years both from plants, insects, and in some cases from such things as clams, fish, and crayfish. The best way to eat such silt or mud is to make a soup. It tastes surprisingly good. Laurel leaves, wild grape leaves, juniper berries, wild leeks, or dandelion will add to it's flavor. If lost in the wilderness, mud soup alone will bring you through in fine shape.

This is a proven scientific fact, not my personal opinion. The world famous scientist Robert Beauchamp, director of the East African Fisheries Research Organization, made a great many scientific tests on the food value of mud and silt from the bottoms of lakes. He found, for example, that the mud from the bottom of famous Lake Victoria in Africa was especially rich in food for humans. He proved the point by feeding himself and his family on the mud and in all cases the individuals gained weight."

When you think about it, we are mostly a bag of water with a little dirt thrown in. Carefully washing our hands and food almost seems hypocritical when you consider this practice exists only at the top of our food chain, with the possible exception of raccoons! When a fish eats a worm it inadvertently eats between 20% and 30% dirt that is within and adhering to the worm's body, and then we eat the fish. And, that is not to mention many humans eat with dirty hands, inhale dirt, drink minerals in water and eat food borne dirt! The EPA estimates children in the US consume between 200 and 800mg of dirt per day. Eating dirt is common in children up to two years of age - probably indicating a mineral deficiency and it might also help populate intestinal flora. From my youth, I remember people eating chalk from the outcroppings as an antacid, and it works - yes, I have. Those mud pies you fed your little brother... ..that was really okay, just don't do it again.

Geophagy (eating dirt) has always been common, and considered normal in the animal kingdom, and we are no exception. Parrots and other birds, mice, deer, buffalo, cattle and primates engage in geophagy with apparent benefits and no ill effects. In the Shiva like dance of plants needing animal transportation for their seeds and animals needing nutrition each has developed strategies and countermeasures to meet their specific needs. Plants developed tasty fruit designed to appeal to animals and protective seed coats that enable them to pass unharmed through animals' digestive systems; then they developed a poisonous pulp to discourage seed consumption before their development was complete. Animals' countermeasures include finding and eating mineral soils that bind to the plant toxins. Maypop (*Passiflora incarnata*) fruit is tart early in the season to discourage us from eating them until their seed are fully developed and the pulp sweet.

Place names that incorporate "lick," such as Salt Lick, Kentucky, are so named because animals frequent them to eat the soil. Deer seek magnesium- and calcium-rich licks to support antler growth; many animals seek sodium, but bentonite clays may be most popular and are often sought out for detoxifying plants. Licks are common world-wide.

As early as the second century Galen, a Greek philosopher and physician, became the first to record the use of clay by sick animals. The practice is common among herbivores but is seen in birds, insects, reptiles and mammals including humans. The prehistoric remains of a *Homo habilis*, a *Homo sapiens* ancestor, was found adjacent to a white clay calcium lick at Kalambo Falls in Zambia suggesting our early use of licks. Indigenous populations on all continents have included dirt in their diet. The Inca in South America were able to domesticate wild potatoes, that caused vomiting and stomach cramps by dipping them into an aqueous suspension of clay that binds the alkaloids before they ate them. Indigenous North Americans mixed tannin rich acorn flour with clay to reduce the tannic acid content. Indigenous peoples have routinely used silica, aluminum and magnesium clays and salts in food preparation as condiments, spices and even foods during famines. "Mud cookies" were common fare of poor Haitians until recent times. Possibly the best known mineral consumed today is kaolin clay, until recently used in Kaopectate.

Pregnant and nursing mothers, in Zambia and Zimbabwe, satisfy their need for minerals by eating clay from termite mounds, brought to the surface from deep underground. Researchers have discovered pregnant mothers crave some minerals to sooth upset stomachs associated with morning sickness and later crave calcium while the fetal skeleton is forming, like ice cream, Peggy adds. Clays from termite mounds are rich in calcium. Pregnant women have historically been compelled to sample soils.

The human gut is our largest area of direct contact with our environment, so you would expect it to be the front line of antimicrobial defense. Some gut-introduced antigens, or harmful substances that causes the body to produce antibodies, result in powerful immunization and allow a detrimental tolerance of other microorganisms. Regular consumption of soil is known to boost mothers' immune system, and monkeys that regularly eat dirt have lower parasite loads. Aluminum salts in clays are effective at improving the effectiveness of vaccines and because they are electrically charged they combine with organic molecules, in effect, working like "natural" vaccines. The immune systems of animals raised in sterile environments fail to develop normally and fail to initiate normal immune responses. Children raised in rural areas or on farms have fewer allergies and autoimmune diseases than their city cousins.

My purpose is not to encourage geophagy but to provide a little background on humans' connection with the environment; we remain one with it. **Mother was correct, "don't eat dirt."** Many geologists are discouraging tasting minerals since some contain hazardous elements such as: Antimony, Beryllium, Bismuth, Bromine, Cadmium, Lead, Mercury, Selenium, Thallium and Uranium. Iron pyrite (FeS₂) can release sulfur dioxide (SO₂) that combines with water to produce sulfuric acid. Arsenic was extensively used as a cotton pesticide and it is not easily or quickly leached out of soil. Asbestos fibers are sharp pointed and easily penetrate tissues. Hikers know that no surface water is safe to drink unfiltered because of giardia, a protozoan parasite that is associated with animal and human waste, that can ruin a hike. Soil is a rich biologic sink that include bacteria, parasitic worms, fungi, protozoa, dozens of nematode species, various mites and other microarthropods as well as seeds, roots and algae. Recently 1300 year old lotus seeds were discovered in a wetland and they were viable. Lotus seed are not only edible; they can be popped like popcorn and produce huge lotus seed kernels! Wetland soils often contain an unhealthy load of heavy metals that should not be eaten.

So we are back where we started, estuary mud is rich. If you decide to make a mud soup from a *long protected wetland* and you know its history, remember boiling the soup is critical and be sure to invite me over - I will give it a try!

Green Teacher 2011 Webinar Series

We are very excited to announce the launch of Green Teacher's 2011 Webinar series. We hope you'll join us in one or more of our 30 FREE webinars on various environmental education topics this year. Almost 800 non-formal and formal youth educators filled out our online survey and helped us choose the topics for these webinars. Each session will feature a 20-30 minute presentation, and 30-40 minutes for you to ask a question of our presenter.

The topics and dates for our first four webinars are below. For more details, and information on how to register, please visit <http://greenteacher.com/webinars>. Once again, these webinars are offered free of charge, and we hope you'll take advantage of the opportunity to explore these current popular topics in environmental learning with us.

We'll be announcing more webinars very soon, so check back frequently – OR please visit <http://list.web.net/lists/listinfo/gt-news> and join our listserv to receive email notices of upcoming webinars.

Bringing Winter Buds to the Classroom by Gail Barton

Late winter is a season of buds

All sorts of bud permutations are available for study on the twigs of deciduous trees and shrubs in every garden or patch of woods.

Tulip poplar buds look like a duck's bill. Bigleaf magnolia buds are silver and fuzzy. American beech buds looks like a pencil point or a tiny Groucho Marx cigar. Hickory and buckeye are large and scaly. Black willow produces golden catkins. Red maple buds are red and opposite each other on the twig. Black cherry twigs are shiny with dotted lenticels. Regardless of appearance, all these twigs are primed to erupt into a frothy mass of leaves and/or flowers.

An enterprising teacher with a pair of pruners can harvest an abundance of raw material for use in classroom study.

So what can one do with a bag of sticks? The activities listed below will encourage students to develop observation skills and learn some basic botany.

1. Gather enough twigs for your class from three to four types of trees. Allow each student to select a twig from a large paper bag. Have them compare twig characteristics and determine which twigs came from the same type tree. This activity could be used to divide the students into random groups.
2. Collect a variety of twigs. Identify them (with the help of a forester, arborist or MNPS member) and label as to type with masking tape. Display the twigs in a vase in the classroom and have the students write descriptions of the twig characteristics.
3. Select twigs with large buds toward the end of winter. Dogwood, buckeye and hickory are good subjects. Have the students

dissect the twigs to see what is inside. Study twig and bud characteristics. Peel the bark and identify the cambium. Study a cross section of a cottonwood twig and brainstorm about why it is star shaped.

4. Choose a tree with striking twig characteristics like an American beech. Toward the end of winter begin placing a new twig in a vase in the classroom each week. Continue until the twigs begin to leaf out. This will help the class to focus in on the bud breaking process.
5. Pick and eat hot pink redbud flowers. They will taste like a raw green bean and are an excellent colorful addition to salads. Return to the redbud tree in 10 days to two weeks and observe the tiny green pea pods that are beginning to form. The tender redbud pods can be cooked like snow peas.
6. Locate red maple twigs in flower. Collect from several trees and determine if the flowers are pistillate (female) or staminate (male).
7. Pick dogwood twigs that are almost ready to burst open. Force them out in a classroom vase. Observe the white bracts and the true flowers clustered inside.
8. Have the class make a small twig collection. Tape the twigs to a page and label with the plant name. Include some broadleaf evergreen species (like southern magnolia) and some narrowleaf evergreen or conifer species (like eastern redcedar).
9. Challenge the students to bring in twigs from their home landscape that are in the process of leafing out. Many of these will be exotic landscape plants and you may not be able to identify them without a landscape professional's help. Still this activity will challenge each student to open his eyes to the drama in his own back yard.
10. Collect twigs from a tree with compound leaves (hickory, pecan, ash or buckeye). These will leaf out about two weeks later than trees with simple leaves. Collect them during that two week window and observe the twigs as they leaf out. Discuss the leaflet arrangement of each. Are they pinnately or palmately compound? Are they opposite or alternate? Make a sketch every other day.
11. Collect twigs from a variety of trees and make a diorama with a twig identification guide.
12. Collect a red oak and white oak twig for each student. Have them dip one end of each twig in soapy water and try to blow through the other end. The red oak has a vascular structure that will allow you to blow bubbles with it.

During 25 years as a Community College teacher, I learned that most of my adult students were unaware and very unobservant about nature. I believe that some of these activities would be appropriate for adults as well as youngsters.

I'll end by recommending a few good resources. *The Tree Identification Book: A New Method for the Practical Identification and Recognition of Trees* by George W. Symonds and Stephen V. Chelminski is a wonderful reference for these activities. The book is over 270 pages and is full of photographs and illustrations. *The Mississippi Trees book or CD* which is available through the Mississippi Forestry Association or the MSU Forestry Department is another excellent resource for tree study. If you are looking for a good online reference, take a look at *The Mississippi Tree Identification Tool* at http://mdg.ext.msstate.edu/Tom_Tree/index.html

The Cajun Prairie: A Natural History By Malcolm F. Vidrine, LSU Eunice.

The Cajun Prairie, a 2.4 million acre wilderness in 1600, was occupied by Native Americans and the typical prairie plants and animals. The tallgrass prairie in September obscured the view across the landscape making it extremely easy to get lost, and by December the mud was so deep that a wagon was quickly buried to the axle, but winter fire brought forth the most luxuriant growth of grasses and wildflowers from early spring to late summer. "The garden of Louisiana" and "the loveliest part of Louisiana" were descriptions of early travelers like C. C. Robin, William Darby and Col. Samuel Lockett. But this prairie is extinguished and listed as critically threatened. Literally less than 100 acres are considered to remain and these are in narrow strips and small pieces dotting the landscape. The natural history of this prairie is described for the first time as a result of the work of a group of devoted prairie biologists and ecologists. This is their story, in part, and the view of the future as restoration ecologists attempt to recreate the Cajun Prairie as a sustainable, alternative landscape, the biodiversity garden.

Plates include a gallery of photos of the last remaining pieces of Cajun Prairie as they appeared in the 1980s and 1990s. These photos of railroad rights-of-way collectively provide an opportunity to construct a series of mental images of the prairie in different locations and in different seasons.

Editors Choice, and Note: I have this book and highly recommend it. Creating prairie demonstration plots are an excellent outdoor classroom projects and they attract pollinators producing a plethora of opportunities for studying the natural world across a wide range of subjects.

If the grass on the other side of the fence appears greener...it must be all the fertilizer they are using. – Kevin Rodowicz



