The Plant Press

Staying Current with the North Chapter of the Indiana Native Plant and Wildflower Society

Indiana Native Plant & Wildflower Society

November, 2013

Dandelions: If You Can't Beat 'Em…Eat 'Em!!

Submitted by Tim Cordell the naturalist at Potato Creek State Park in North Liberty IN. TCordell@dnr.IN.gov

http://www.uky.edu/Ag/Kntur/weed%20id/Dandelion.htm

Few other, if any plants, have fallen so far out of favor as the dandelion. The Latin name for the plant, Taraxacum offinale, loosely translates to "official remedy for disorders." This gives a hint to the value placed on it in days gone by. The dandelion has been used to treat fever, insomnia, gallstones, liver ailments, hypochondria, and many other complaints. It has been cultivated as a crop and held a prize-winning residence in many a marketplace. For most Americans today, the dandelion is a hated weed that leads them to spend millions of dollars each year on weed killers and special tools to rid their lawns of the yellow polka-dot effect.

Everyone knows what a dandelion is, but few take the time to get to know much about the plant. It is a perennial plant with a rosette, or cluster of leaves attached to the top of the root. The leaves are oblong and irregularly toothed. The appearance of the leaves was thought to resemble lions' teeth in France, leading to the name "Dent de Lion." This gradually changed as it passed through the years and languages to the name we know it by today.

The root of the plant is a taproot which can grow to depths of ten inches. This explains why they frequently break when one tries to pull them up by hand. The root left behind in such an attempt, will send up a new rosette of leaves and flowers. The flowers are found in a head on top of a hollow stalk. The head is composed of dozens of individual flowers that most people describe as petals. The flowers have five petals that are fused together and form a tube at the base. This tube can be filled over halfway with nectar, making the dandelion an attractive plant to honeybees and some ninety-two other nectar-eating insects. After the flowers are gone, the seeds form into the familiar puffball. There have been many old wives' tales associated with the blowing of dandelion seeds. One of these is that the number of times you have to blow to disperse all the seeds, will be the hour of the day. Another states that after blowing three times on the dandelion seed-head—the number of seeds left behind will equal the number of children you'll have. In addition to being the source for several myths, the seed-heads being blown by the wind is a major reason for the difficulty of preventing dandelions from growing in your yard. Even if you have gotten rid of all the plants in your yard, seeds can blow in from a distant plant and establish new plants in your yard quite easily. A growing number of people are joining in the back-to-nature movement by eating wild edibles. The dandelion is probably the best plant to start with since it is easily recognizable and quite abundant. The leaves are rich in iron, potassium, calcium, and vitamins A & C. The leaves are useful as a salad or cooked green. To cook as greens, young leaves should be collected before the buds appear, and plunged into rapidly boiling water. Bring the water back to boiling then discard that water, and boil again in fresh water repeating these steps until the leaves are tender.

http://www.biology-resources.com/drawing-plant-flower-08-dandelion.html

The roots can be dried and used to make a coffee-like beverage. Roast the roots slowly in an open oven until they snap when broken and are brown throughout. Then grind the roots and use about one teaspoon for every cup … … of water when brewing the coffee-like beverage. The roots can be gathered for coffee-

Continues on next page

In this issue:

substitute year-round. Dandelion flower-heads can be prepared in several delicious ways. One is as a fritter, dipping the flowers into a batter and then frying in hot oil.

Another use is to make a wine.

For a jelly that tastes like honey, gather one quart of blossoms and boil them in one quart water for three minutes. Next strain out three cups of fluid and discard the flowers. Return the liquid to the stove and add two tablespoons of lemon juice and one package of pectin. When this boils, add four and one half cups of sugar and boil hard for three minutes. Skim and pour into jars.


http://wildfoodsandmedicines.com/dandelion/

If you're one who just can't get enough dandelion greens during their long growing season, you can force them during the winter months. After the first hard freeze of winter, dig some roots and put them in a box in your basement and barely cover them with soil. Keep the box dark and well watered and you will be rewarded with yellow leaves for salads and greens throughout the winter. The yellow color is a natural process from growing in such a dark environment, but a delicious reminder that life persists.
There are enough recipes using dandelions to fill an entire cookbook since all parts of the plant are edible. When trying wild food stuffs for the first time, you should sample a small portion and see if you have any allergic reactions, before enjoying the rest of your fixin's.

http://www.bakersandlarners.co.uk/cotswold-dandelion-coffee-200g-p1d3832.html


http://markbittman.com/dandelion-greens-with-double-garlic/

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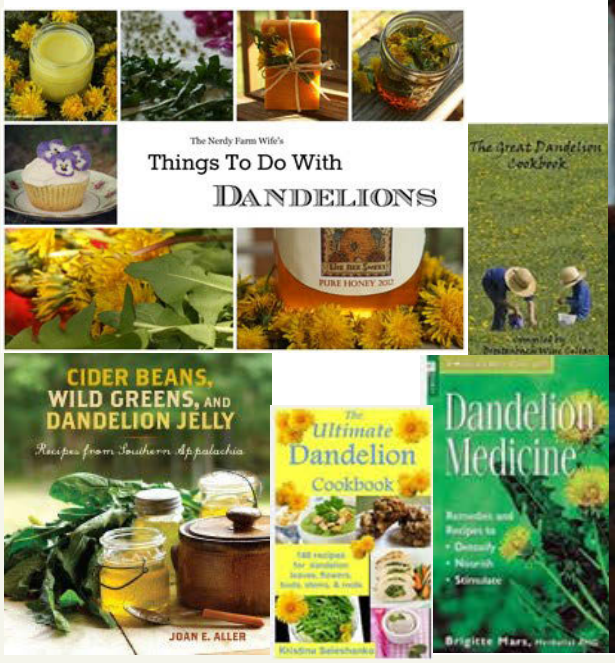


http://wanderingbookartists.blogspot.com/2012_10_01_archive.html

Milkweed Bowstring

Submitted by the Editor, written by John Bybee jbybee@scciowa.edu http://www.youtube.com/user/2wingsonly/videos

"Chasing a ring requires an eye.

Building arrows, understanding why.

But only complete with a string

That brings it into the Ten Ring" – Bybee


Image 1


Image 2

I make Osage bows from trees on my land, and I wanted my bow to have a bowstring built from organic (or natural?) materials located on or near my home here in Southeast Iowa.

My early attempts were huge failures due to haste and low quality fibers. I learned that building a complex corded milkweed bowstring requires a lot of attention to detail. The following is a description of my process, which is a combination of ideas from many sources and lessons-learned along the way. There are many techniques for making a bowstring, some more complicated than others. My technique for making a bowstring is very primitive yet time consuming and complex in the method of assembling fibers. In theory, the complexity of the design creates a stronger/lighter product by increasing the surface area and decreasing the material needed to create it.

Before we begin, we need an understanding of how I use the following terms to describe the assemblage of fibers and related techniques.

Terms:

Simple Plies-Fibers as described in the first article are twisted into a 1/32" string (not a cord).

Cords- An assemblage of simple plies rotating in the opposite direction of its constituent plies.

Complex cord- An assemblage of both cords and plies

Reverse wrap- A technique used to create cords or complex cords that are constructed of simple plies or plies made up of two or more cords

Serving- a protective thread that is wrapped around a bowstring

Scutching- hitting fiber bundles to break the woody part of the plant so that it falls away

When I first read how to make a bowstring, I was lost in the description and terms. I am going to try to simplify this into a couple of basic steps that I used in making my bowstring. The bowstring that I made is not a replica of any particular aboriginal group but rather a combination of primitive ideas much like you see in common bow building. There are many ways to assemble a bowstring, and I am going to break it down into three steps.

Step 1. Fiber processing and cord production - will create the 672 inches of cordage that I will use to construct my bowstring.
Step 2. Loop and Assemblage- will cover measurements, weights, loop construction, and the building of the body of the string.
Step 3. Serving- will cover the where, how, and why.

Step 1.

When I began making my own bowstrings, I started by using flax. When I tried to apply those methods to milkweed fibers, it became apparent that my process didn't work. I used a common method for processing fibers from flax that began with retting the fibers and scutching the flax to remove the woody stem. In this process, a bundle of fibers is gathered, and water is introduced during thread/ply production to facilitate fiber adhesion. This type of flax processing separates fiber extraction from ply production and becomes two separate operations.

I have combined these two systems/operations with milkweed because fibers harvested during late summer have a sticky surface that facilitates adhesion during thread/ply production. If these fibers are left to dry, it becomes more difficult to process them into thread/ply and then into cordage. I begin by removing fibers and producing a 1/32" ply as outlined in the first article. Then I reverse wrap these two plies, and continue feeding in plies as I process them from the stalk until I have 672 inches of cordage (see images 3 and 4).

Step 2.

I needed to determine two key factors before building my bowstring. First, I tested the break weight of the cord four

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separate times during Step 1. My cord broke at a weight of 20-22 pounds. I placed them in a group of three and they broke it at 64-66 lbs. Second, I needed to build a bowstring for a 46 lbs bow that is about 62 inches long. This bow now has a modern Dacron b50 bowstring that is 57 inches long. Now with figures for the break weight and length, we can make some basic calculations. A bowstring needs to be four times the weight of the bow to function safely. My 46 lbs bow needs a bowstring of 184 pounds. The cord I have is only 22 pounds at best, so a 9 cord bowstring would be required. This calculation will work, but the bowstring can still be built lighter because the reverse wrapped cord will become stronger with each reverse wrap sequence. Each cord will need to be 23 pounds to function safely. The additional 8 lbs is only asking for a 4% increase as the bowstring is constructed, which is not an unreasonable figure considering it could be as high as 10%.


Image 3

My numbers are as follows:

My method is the following: 1 reverse wrapped bowstring for a 46 pound bow made of 2 plies containing 4 cords in each, for a total of 8. Each cord, tested and broken at 22 pounds was made from 2 plies that were 1/32 of an inch thick.

Or, I could have worked with the 9 cords in the following configuration: 1 reverse wrapped bowstring made of 3 plies containing 3 cords in each cord, tested and broken at ~22 lbs, was made from 2 plies that were 1/32 of an inch thick.


Image 4

In either way, you will need to adjust your string to fit the needs of your bow.

Now that you have determined the number of cords needed, a simple rule of eight should work for determining the overall length of each cord. Starting with 57 inches, add an additional 8 inches for the loop at the top and 8 inches for the knot at the bottom. Next calculate an additional 8% for shrinkages that will occur as you complete your bowstring. My figures are as follows: 57+8+8=73. 73 x.08 or 8%= 10.9 inches 73 + 11= 84 inches for each cord. 84 inches x 8 individual cords equals 672 inches of cord needed for making a 62- inch nock to nock long-bow bowstring. These calculations may change for other bow styles (see image 6). I have chosen a Flemish style bowstring but will leave out the additional reinforcement plies in the loop. Later toward the end, I will add serving to reduce chafing. My final string will have two plies. Each will contain 4 cords that will be reverse twisted into the final cord. (see image 7)

I begin by setting up the loop end 8 inches from the top and start reverse wrapping the 2 plies (that contain 4 cords in each) toward what will be the knot end. You need to reverse wrap about 4 inches for the loop length. Seen below is the completed loop and the loop in construction of separate bowstrings.


Image 5

Now take the unwrapped end and feather the eight cords so that the plies taper to the top end. Now you are ready to make a loop. Reverse wrap the top 8 inches into the body of the string as you work your way toward the knot end. I enlisted help from the "village" to make the job easier (see image 8).

My helpers spun the plies one direction while I went the other. It is important to make sure that you are not wrapping one string in a serving type of manner. Keeping the twist equal is the key. Temporarily tie a knot in the end of your new bow string when you finish.

Step 3.

The final step in completing your bowstring will be serving the loop, knot, and nock area. At this point, you are a professional thread maker, and those skills will be put to the test as you make the final yards of serving. Take the time to make the highest quality thread for the serving, it will be the first line of defense against chafing. I use the longest threads from the milkweed, discarding the

Continues on next page


Image 6

short ones. Before serving wax the thread using beeswax. I start my serving by laying thread down the bowstring and wrapping over the line toward the end that is lying on the string. (see image 9)

At the end of the serving, I take a separate piece of thread and fold it in half to make a loop. I place the loop ¾ of an inch past the serving and continue serving the thread over the loop. After 4 to 6 times around the end, it is fed through the loop, and the loop is pulled back through the serving (see image 10). There are better ways to tie the end of a serving, but I use this method because it is an easier method for me. I have dressed up the end of my string with a feather.

Additional design work can be accomplished by dyeing your thread as seen in the image above (see image 10).

My dye was made from the berries of staghorn sumac, blackberries, and wild black cherry. The juices from these berries were placed in and jar, and yeast was added and allowed to ferment for four weeks. Each day the jar was opened to release pressure. After four weeks, the wine was placed in a pan, and a ½ teaspoon of salt was added. The mixture was heated on low heat. Then the fibers were added and cooked for 15 minutes. The fibers were placed in the sun and allowed to dry for one hour. After an hour, I twisted the fibers again to ensure a tight, quality thread. The threads were bundled and hung to air-dry.

Words of Caution:


Image 7

Never, ever, twist a milkweed bowstring to shorten the length!!! You should always shorten it at the bowyers knot: http://www.youtube.com/watch?v=6HdMsP9OZ40 The twisting of the string will cut fibers in the cord and create runs and will eventually lead to the failure of your bowstring. Never allow anyone to bend the string around this/her hand to test the strength of the bowstring because it will put undue stress on one side of the string. When storing my bowstring, I hang it on a peg and allow it to relax in a natural state.


Image 8

I used about 70 milkweed plants to produce my bowstring. This may seem like a lot, but only the quality fibers were used, and the lower quality fibers were used to make additional items. These items contain about the same amount of yardage as the bowstring. My string was a labor of love and represents about 40 hours of spinning to produce the highest quality product that my hands can make. I have made bowstrings from deer hide with only a couple hours of labor and they weigh about the same amount, which is 290 grains. The bowstring I made from flax was about 150 grains and was very strong but also very time consuming.

(**Modern testing** In a modern test, a direct hit from a steel bodkin point penetrated Damascus mail armour. However, even heavy-draw longbows have trouble penetrating well-made

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Image 9


Image 10


Image 11

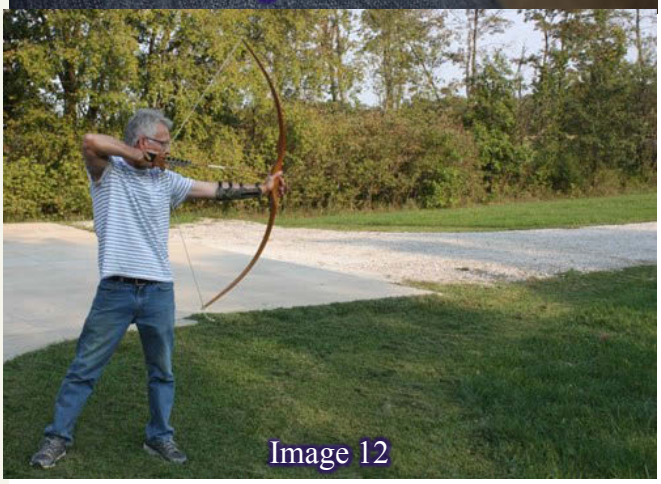


Image 12

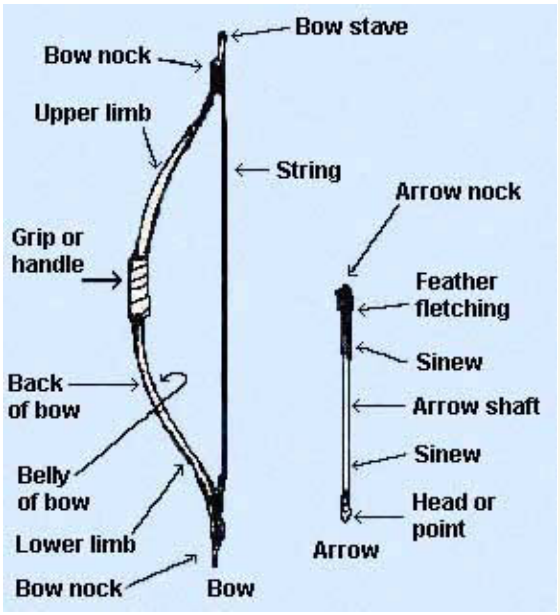
steel plate armour, which was used increasingly after 1350. A 2006 test was made by Matheus Bane using a 75 lbf (330 N) draw (at 28") bow, shooting at 10 yards; according to Bane's calculations, this would be approximately equivalent to a 110 lbf (490 N) bow at 250 yards.[28] Measured against a replica of the thinnest contemporary "Jack coat" armour, a 905 grain needle bodkin and a 935 grain curved broadhead penetrated over 3.5 inches (89 mm). ("Jack coat" armour could be up to twice as thick as the coat tested; in Bane's opinion such a thick coat would have stopped bodkin arrows but not the cutting force of broadhead arrows.) Against "high quality riveted maille", the needle bodkin and curved broadhead penetrated 2.8". Against a coat of plates, the needle bodkin achieved 0.3" penetration. The curved broadhead did not penetrate but caused 0.3" of deformation of the metal. Results against plate armour of "minimum thickness" (1.2mm) were similar to the coat of plates, in that the needle bodkin penetrated to a shallow depth, the other arrows not at all. In Bane's view, the plate armour would have kept out all the arrows if thicker or worn with more padding. Other modern tests described by Bane include those by Williams (which concluded that longbows could *not* penetrate maille, but in Bane's view did not use a realistic arrow tip), Robert Hardy's tests (which achieved broadly similar results to Bane), and a *Primitive Archer* test which demonstrated that a longbow **could** penetrate a plate armour breastplate. However, the *Primitive Archer* test used a 160 lbf (710 N) longbow at very short range. Note point blank range isn't the same thing (see footnote at end of this section*) appropriate, generating 160 joules (vs. 73 for Bane and 80 for Williams), so probably not representative of battles of the time. Other research has also concluded that later medieval armour, such as that of the Italian city state mercenary companies, was effective at stopping contemporary arrows.)
http://en.wikipedia.org/wiki/English_longbow

The upside to my milkweed bowstring is that it can handle changes in humidity and is resistant to rot. I also wanted to make my bowstring from available materials that were native to southeast Iowa. After this article is published you can view a video of this process and the firing of the bow by visiting the PA Community forum website and following the thread titled “Milkweed Article”.

I have read many articles from various websites on milkweed and the traditional Bowyers Bible on string. I highly recommend that you read the section in the TBB on making bowstrings. I also would recommend reading Swamp Monkey’s and “Stringman’s” informative post on Primitive Archer’s Community Web Site. Time to Shoot!

“Human spiders spin and spin

Backward down their threads so thin…”- Longfellow



http://www.uiowa.edu/~osa/learn/ancient/archery.htm

Finding Adam and Eve Submitted by John J. Smith

johnjaysmith39@gmail.com


Photo by Smith Noble County

Yes, Adam and Eve reside in northern Indiana. I have found this relatively rare plant in only four of the many woods I frequent in northern Indiana. Also known as Puttyroot, Aplectrum hyemale is not a showy orchid; it is much easier to find in leaf than in flower.

Autumn and winter are the easiest times to find Adam and Eve, because it's vegetative life cycle is opposite that of most plants. The single leaf per plant emerges in early September and thrives until it dies back in late May. The dark green leaf is approximately 4-6 inches long and 2-3 inches wide, with many thin, white, parallel veins. The purple-tinted undersurface of the leaf is most visible as the leaf emerges, before it unrolls and flattens. The striped leaf contrasts starkly with colorful carpets of fallen leaves in autumn and with snow in winter.

I have found Aplectrum hyemale in colonies ranging from two to over 130 plants. Plants that I often find in proximity to A. hyemale include beech Fagus grandifolia, sugar maple Acer saccharum, pawpaw Asimina triloba, bristly gooseberry Ribes cynosbati, appendaged waterleaf Hydrophyllum appendiculatum, large-flowered trillium grandiflorum, large-flowered bellwort Uvularia grandiflora, Dutchman's breeches Dicentra cucullaria, wild blue phlox Phlox divaricata, wild leek Allium tricoccum, wild geranium maculatum, hepatica Anemone acutiloba and A. americana, Canada violet Viola canadensis, sweet cicely Osmorhiza, harbinger-of-spring Erigenia bulbosa and bluestem goldenrod Solidago caesia.


Photo by Smith LaGrange County

Few Puttyroot orchids bloom in any given year. Those that do bloom shoot up a stalk of up to 15 small flowers in late May or early June, around the same time that the leaves shrivel and die back. The flowers are usually white, with a purple tinge that is accentuated at the tips. Each flower is barely one-half inch long, but if you look closely, you will be impressed with the same beautifully characteristic lip, column, petals and sepals of some of the more showy orchids.

As the flowers mature, each one develops a green seed capsule. The flower stalks and seed capsules turn brown by the end of summer when the new leaves emerge; the capsules and stalks often persist throughout the winter.

Each spring in late May and early June I visit woods where I know A. aplectrum grows to see if any flower spikes have emerged. Spring of 2013 was the first year that I couldn't find flowers in any of the colonies. Why? It was an unusually wet and cool spring, but I don't know if that affected flowering. At any rate, because the plant also reproduces by the corms dividing (thus the common name Adam and Eve), the colonies will likely continue to grow again in 2014.


Aplectrum hyemale flowers in late May, with Trillium grandiflo-rum flowers past their prime; Photo by Smith LaGrange County

In Orchids of Indiana, by Michael Homoya, describes and illustrates Aplectrum hyemale in detail, along with forty-two other native orchids. Homoya reported A. hyemale in only four of the counties that make up our North Chapter of INPAWS, namely LaGrange, La Porte, Noble, and Saint Joseph Counties. It grows in most counties in southern Indiana.

In late October of 2009, my wife Joann and I were extremely surprised and delighted to run across a small colony of A. hyemale plants when we walked the trail of a newly opened Elkhart County Parks property. Since then I have monitored that colony of seven to eight plants every spring and autumn. Late May of 2011 was the only time I found a plant of that little colony in flower. And I cheer each autumn when these unusual plants sprout new leaves!

In Search of Adam and Eve's Meaning and Utility Submitted by the editor

"The common name of Puttyroot is due to the mucilaginous substrate found in its corms, which was historically used to mend crockery. Each individual A. hyemale has two corms attached by a small rhizome, which contributed to its other common name of Adam and Eve. These corms were worn as amulets in the southern United States and, when dropped in water, were used to tell fortunes…The generic name, Aplectrum, is derived from the Greek term meaning "spurless," distinguishing it from orchids with spurred flowers such as Tipularia. The specific, hyemale, is the Latin for "winter" in reference to the overwintering habit of its single leaf. (Richburg 2003) http://www.newfs.org/docs/pdf/aplectrumhyemale.pdf "Cleaved" together like Adam and Eve, "…is a reference to the growth habit of the bulbs as the leaf and flower arise from the current seasons growth (Eve) while last year's bulb (Adam), from which forth sprang Eve, is still present. One way of propagating the plant is to cut Adam away from Eve with a sharp knife and replant him. *A. hyemale* usually sets copious amounts of dust-like seeds in attractive looking, pendulous pods. This is one of the easier orchids to grow from seed. Pour boiling water over a pot of soil to sterilize it, let cool and sprinkle the seeds over the soil, cover with a dusting of fine Granite Grit to discourage the growth of lichens, mosses and algae and to prevent slugs from eating your seedlings, and set it outside and let nature take its course. The seeds will usually germinate the following spring and in a few years you will have flowering size plants. (Glick 1995) http://www.gardenweb.com/cyberplt/plants/aplectrum.html Submitted by the editor

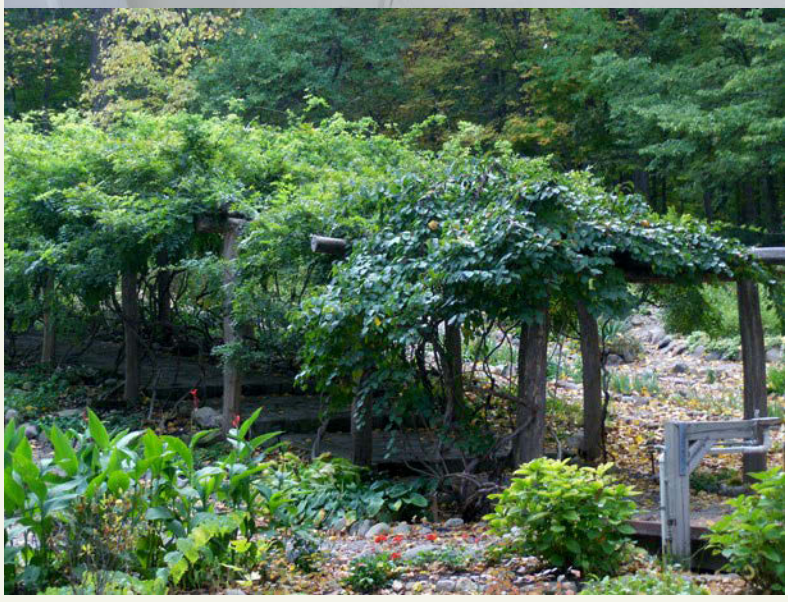

http://virginiawildflowers.wordpress.com/2012/05/08/putty-root-orchid/

The Uplifting Influence Of A Garden by

Gene Stratton-Porter Submitted By Dave Fox

DFox@indianamuseum.org

Everyone agrees that a frame is essential to a picture. In the same degree, a garden is one of the component parts, one of the chief essentials, the frame enhancing the beauty of a real home. It is very lovely if this frame can comprise a lawn having trees, flowering shrubs, vines, and bushes, with a combination flower and vegetable garden at the back. Of course, there is no limit to the amount of pains and expense that may be used in the making of a garden. Those who can afford it seem to derive great joy from calling in landscape gardeners and nurserymen, and surrounding their homes with a small park...It is not necessary to expend large sums of money on a garden. It seems to me that anyone who loves flowers and wishes to have them may make a beginning in a modest way, and, by offering of what he has in excess, he may awaken a spirit of like generosity in his neighbours, so that he soon accumulates as large a collection as is desirable. I think it is deplorable that many people in the country feel that they cannot have an attractive dooryard and flowers in the garden because they cannot afford nursery specimens. Personally, I do not react to the great, overgrown, gorgeous nursery productions as I do to the delicately leaved and daintily flowered wildlings, lifting up their heads beside the road, through the woods, and around the swamp. During the last eight years I have set, by actual count, very close to fifteen thousand trees, shrubs, vines, bushes, and flowers in the grounds immediately surrounding Limberlost Cabin...I have knelt personally to tuck in practically every one of them...The alders are a mist of lace, and those having the red berries are especially beautiful from a decorative standpoint. The northern holly is a flaming wonder in the fall. Along any wayside one may collect, as I have collected by the thousand, many different varieties of goldenrod, asters of purple, rose colour, white, and exquisite blue. Blue sailors are rampant down the road, and they are lovely. If one has a wet spot in which to transplant them, one may find around the swamps Joe Pye weed, milkweeds, sunflowers, bottle gentian – a world of growth from which to select. There is no vine of cultivation lovelier than the ground nut of the wild bittersweet, Dioscorea villosa, Menispermum Canadensis (I don not know the common names of these). There are dozens of dainty, delicate vines having beautiful leaves and appealing flower and fruit clusters. When it comes to the flowers and ferns of deep wood that may be utilized in a cool and shaded location, the list is long and surpassingly lovely. And there is the joy of planning work so that time may be had to take a lunch and spend a day lifting and bringing in specimens. There is the absorbingly interesting task of finding for each its happiest location, of exercising one's skill in transferring it to a new environment and making it rejoice to grow there...I cannot visualize any kind of building, no matter how stately or how humble, as a real home unless the father and mother and the least chick of the children are all interested in making things grow and bloom and vine around it. If you want propagated shrubs beside your door, and nursery roses, all very well; but the secret I would tell you is that you can find quite as much joy – and infinitely greater beauty – in dogwood and witchhazel and cornel and sweetbriar, in senna (a mist of lace-leaved gold and black), blue bell flower, foxfire, orchids, starry campion, and violets. It is difficult to set down in print an exact summary of what the growing of a garden does to anyone –the lessons it teaches in care, in patience, in persistence; and there are no words in which to express adequately the spiritual purging and refining, the mental and moral uplift, that results from just loving beautiful things into living for and with you.



Stratton-Porter, Gene. Let Us Highly Resolve,. Garden City, NY: Doubleday, Page &, 1927. Print. Doubleday, Page &, 1927. Print.

A Geologic Perspective of Northwest Indiana

Gibson Woods Sunday, November 10 1 p.m. Free Adult Program
Registration is required by November 5: 219-844-3188
The landscape of Northwest Indiana is a laboratory for understanding glaciers, lake evolution, and geologic time. Dr. Erin Argyilan, a professor of geology at Northwest Indiana University, will discuss the evolution of the Great Lakes and explore the glacial history of the Great Lakes and the creation of local landforms. The lecture is based on her doctorate work. The landscape of NW Indiana is very subtle. We pass by land formations that are thousands of years old without knowing or appreciating what they are. The naturalists that regularly gather at Gibson Woods asked her to talk about these unique land features. In addition we will examine how changing lake levels created the area we know as northwest Indiana and the unique landscape of the Indiana dunes. We will examine the mechanics of the modern shoreline to gain a better understanding of the impacts of human activity. Gibson Woods is part of Lake County Parks and offers educational programs to the public.. It is informal and those who attend are welcome to venture out into Gibson Woods to view Tolleston ridges. The phone number 219-844-3188 is a direct line to Gibson Woods.
Any one of the staff should be able to answer general questions and register guests. If not, a message is left for Joan Fasanella to return.

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eargyila@iun.edu

Geology Programs
Geology BA

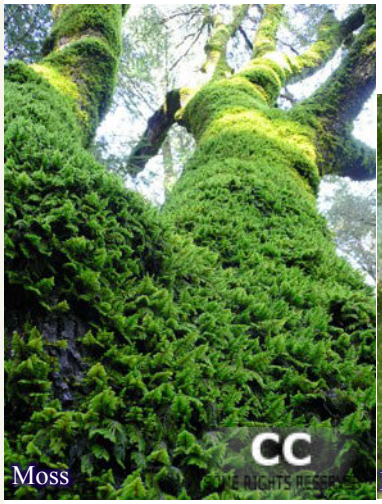
Title: The Importance of Native Plants in Maintaining Trophic Interactions"

Save the date and please distribute: Dr. Doug Tallamy is visiting IU Bloomington Nov 22nd and will present a seminar from 4-5p in Myers Hall 130 as part of the Department of Biology's Evolution, Ecology and Behavior seminar series.
Abstract: Much has been written recently about the inevitability of creating novel ecosystems in today's human dominated landscapes. Several voices claim that novel ecosystems, one comprised of species with no evolutionary history together, can be productive and functional despite their lack of prior interactions. Missing from these arguments, however, are food web analyses comparing the productivity and interaction diversity of food webs based on native plants vs. those generated by unnatural collections of nonnative plants. Tallamy will revisit classic plant /insect interaction theory and discuss several recent experiments from his lab to demonstrate that evolutionarily novel plants are not the ecological A campus map can be found at http://www.iub.edu/~iubmap/bloomington/index.html . There is a "parking" tab in red on the left. The Atwater parking garage on 3rd Street, just south of Myers is the closest garage to Myers in which non-IU folks can park.

Botany 101 Submitted by Kim Moor kckim10@sbcglobal.net

In the coming months, we'll go over the characteristics of the different plant families so that, in time, even the novices among us will have better luck identifying plants. First we need to understand the divisions within the plant kingdom and what distinguishes them from each other. This is kind of a fast-forwarded mini-course in plant evolution that I (Kim Moor Wild Ones) find quite fascinating. We are going to keep things simple and divide this massive kingdom (over 290,000 species) into 4 divisions. We're also not going to get technical quite yet with a bunch of scientific names.

MOSSES / LIVERWORT / HORNWORT - are nonvascular plants that are unable to circulate fluid from their stems and leaves. Instead, they absorb water from the environment around them. They are prevalent on the ground, and are known to grow on rocks and even other plants (now we know why it's so important to get these away from our young greenhouse plants). These plants reproduce by using spores, and never grow flowers. There are about 20,200 species of plants in this group.


Moss


Liverwort


Hornwort

FERNS / HORSETAILS / CLUB MOSS / WISK FERNS - also reproduce from spores instead of seeds. These plants, however have a vascular system, which allows them to transport fluid using the stem and leaves. There are about 12,200 species in this group.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Horsetail


Stiff Clubmoss

CONIFERS / GINKOS / CYCADS - add to the next level of complexity to plant evolution. They are vascular plants that reproduce from seed rather than spores. The seeds in these plants, however, are naked and are not covered by an ovary. Usually, the seed is produced inside a cone-like structure such as a pine cone. Some conifers, such as the Yew and Ginko, produce their seeds inside a berry-like structure.


Prumnopitys ladei - Mt Spurgeon Pine Some rights reserved by Tatters


Ginko


cycads in Japan

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FLOWERING PLANTS - add the final improvement to plant reproduction. They grow their seeds inside an ovary, which is, itself, embedded in a flower. After fertilized, the flower falls away and the ovary swells to become a fruit. There are almost 260,000 species of plants belonging in this division and include all agricultural crops (vegetables, cereal grains, and other grasses), all garden and horticultural plants, all common broad-leaved shrubs and trees, and the majority of weeds. This division is divided into two basic classes and consists of 443 families. We will concentrate on the most diverse of these families in the months to come.

MONOCOTS - start with one seed-leaf, the main veins of their foliage leaves are usually unbranched and nearly parallel to each other. Monocots don't produce a covering on their stem, such as bark, as the plant grows. Their roots also fan out directly from the stem. Around 30,000 plants are classified as monocots including orchids, lilies, irises, and grasses.

DICOTS - start with two seed-leafs, and the leaf veins aren't usually parallel, but instead they fork like a river delta, with many minor veins crossing from one major vein to the next. Dicot stems grow by producing an outer layer, or secondary growth. Their roots arise from a node at the base of the stem, called a radicle. This radicle is often commonly referred to as the crown. Around 200,000 plants are classified in this group of plants.

http://www.ehow.com/list_7517908_divisions-plant-kingdom.html http://en.wikipedia.org/wiki/Plant

Grass sprouting on left (a monocot), showing hypogeal development (the cotyledon remains underground and is not visible). Compare to a dicot (right)