Gaillardia

Oklahoma Native Plant Society

The purpose of the Oklahoma Native Plant Society is to encourage the study, protection, propagation, appreciation and use of Oklahoma's native plants.

Volume 32, Number 3

Fall 2017

INSIDE THIS EDITION

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COPY AND ART DEADLINE FOR NEXT ISSUE IS November 5th, 2017

"*Young Man*" Enrico Fermi replied when a student asked him the name of a particular particle, "*if I could remember the names of these particles, I would have been a botanist*"

From *A Short History of Nearly Everything
By Bill Bryson

Upcoming Events/Activities

(check the ONPS website for more details)

September 7 –6:30 Central Chapter, Matt Fullerton ODWC OSU/OKC Horticulture Building 400 N Portland

September 11-6:30 NE Chapter Tulsa Garden Center, Carla Groggs, Groggs Green Barn

Fabulous Wildflower Fridays, at 5:30 the third Friday of each month at Panera Bread at 7110 S 101 E Ave. (new location, see NE Chapter Report)

September 15 &16 Annual meeting in Stillwater

October 5 - 6:30 Central Chapter, Ray Moranz Xerces Society, Native Plants for Monarchs and Pollinators OSU/ OKC

Flora committee members working on Flora of Oklahoma Keys

WELCOME TO THESE NEW MEMBERS

Shalini Chitturi	Norman
Chance Deaton	El Reno
Carol Elam	Bartlesville
Sharon Freeman	Tulsa
David Kerrigan	Edmond
Shea & Savine McCurdy	Noble
Riley Mulinex	Norman
Ed & Laura Skoch	Tulsa
Liam Whiteman	OKC
Paul Thompson	Edmond

Our sympathies to the family of Shirley Lusk who passed away on April 29th. Shirley was a founding member of the Northeast Chapter of ONPS and a devoted advocate of our native flora.

ATTENTION ALL PHOTOGRAPHERS

Your nature sightings are needed.

The ONPS Photo Contest is changing for 2017. The Special subject is "Host Plants". These are plants which are hosts to butterflies, bees, flies, birds, mammals, etc., whether it be as a food source, or housing or any other use nature has developed.

The entry deadline is December 1, 2017. This gives you lots of time to capture any host plant in any season in any use. Other changes include no entry fees, and winners will only be acknowledged for their excellence and appreciated for sharing their experience. Winners will be announced at the Indoor Outing in February 2018.

Watch our website and Facebook page for more details about entering.

Road Trip?

One of our members is planning an ONPS trip to the incredible Lady Bird Johnson Wildflower Center for the fall of 2018. The trip would be made via Amtrak and also include an optional visit to the Selah Bamberger Preserve. If you are interested in learning more email nancysbirds10@gmail.com

President's Paragraph

Joe Roberts

One of my favorite lines is from a book called Last Child in the Woods, in which a naturalist asks "How are you going to get them to care about California Condors, when they don't even know what a *wren* is?" It's all about identification. Know what you are looking at, and the foundation for understanding it has been laid. ID-ing plants is sometimes hard, but always incredibly rewarding. A walk in the woods or along a meadow becomes a reunion of old friends, with some new acquaintances in there that you just can't recall their names. We hope you enjoy this issue on identification, and that it can help you make some new friends.

Have you registered? The ONPS Annual Meeting is Sept 16th in Stillwater. Please register early so we can plan accordingly. We have a great speaker in Heather Holm, and you won't want to miss it. Please bring a friend! It will be an event of interest to everybody.

From the Editor

Most of us, when starting out trying to identify the names of plants will gravitate to field guides with beautiful color pictures and there is certainly nothing wrong in doing so. I have stacks of well-worn field guides. As Joe Roberts once said, "the one who dies with the most field guides wins."

But, there is so much to be said for those guides with botanical drawings. I once went to an OSU presentation given by botanical artist Bellamy Parks Jansen and finally began to understand not only the beauty, but the scientific value of these illustrations. The following paragraph was written (to us!) by **Dr. Ron Tyrl** and explains why we should add these to our collections of resource material.

"If a photograph (aka picture) is worth a thousand words, a botanical illustration is worth even more. It is a complete, detailed, accurate reflection of nature. Unlike a photo, a line drawing can show simultaneously all features of a plant typically needed for identification—underground parts, all stages of flowering and fruiting; floral features, fruits seeds, venation, pubescence, surface features, and even intraspecific variation in the shape of leaves and floral organs. Identifying closely related species often requires examination of inconspicuous characters not easily photographed, but easily seen in a line drawing. In addition, some plant species, because of their size or complex morphology, are likewise not readily photographed. A botanical illustration is indeed a reflection of nature!"

Botanist's Corner
Thomas Elpel

Classification Schemes

If you had a few hundred thousand files to organize in a filing cabinet, how would you do it? How would you organize all the information so that you, or anyone else on the planet, could quickly and efficiently find any one file out of the whole bunch? And what if you had a file in hand, but didn't know what it was called or where it fit into the filing system? How would you ever figure it out? In botany, the process can be surprisingly easy, because plants are grouped according to patterns of similarity. Learn the patterns, and you can start with an unknown specimen and track it down through the filing system to learn its identity.

At its most basic level, plant patterns are often quite simple. Suppose you had two different species of wild rose. They clearly look like different plants, and yet, both plants look like roses, so you call one the prickly rose (*Rosa acicularis*) and the other the climbing rose (*R. setigera*). Binomial nomenclature is fairly instinctive in this regard.

Grouping closely related species together into genera like this is the first step in building a filing system. But, let's say you ripped every living plant from the earth and sorted them all into piles by genera. That would still leave thousands of separate piles, with no clear means to organize them. So the next step is to compare genera and lump similar genera together into bigger piles, which we call the **family**. Family patterns are not nearly as close as the patterns within any one genus, but still similar enough that one can learn to recognize many such patterns at a glance.

If a family is especially large, or its members sufficiently distinct from one another, then there may be subgroupings within a family, called the **subfamily** and **tribe**. For example, pears belong to the Apple tribe of the Almond subfamily within the Rose family. This indicates that pears are more closely related to apples and loquats than to raspberries, which are of the Rose subfamily of the Rose family. By grouping plants according to family patterns, we reduce the total number of piles to a few hundred, which is far better than thousands, but still too many piles to make an efficient filing system.

A higher level of classification, above the species, genus and family, is the **order.** For the purposes of field identification, orders are sufficiently different from one another that there are few useful patterns to work with. But that doesn't stop botanists from trying to classify them. For example, based on careful scrutiny, the Saxifrage, Gooseberry, Hydrangea, Pea, and many other families were previously classified as part of the Rose order. However, genetic analysis refuted those associations and instead revealed that the Rose order should include families such as the Hemp, Oleaster, Mulberry, Buckthorn, Elm, and Stinging Nettle—none of which share any obvious resemblance with the Rose family.

Above the level of order, there are (or were) additional levels of classification, some with useful characteristics for identification, and some without. Imagine the entire plant kingdom as a filing cabinet in which botanists identified distinct divisions, classes, subclasses, orders, families, subfamilies, tribes, genera, and species, as outlined here, along with each appropriate suffix:

Division (*-phyta*)
Class (*-eae, opsida*)
Subclass (*-ae*)
Order (*-ales*)
Family (*-aceae*)
Subfamily (*-oideae*)
Tribe (*-eae*)
Genus
Species

Many different classification schemes have been proposed, adopted, utilized, and ultimately rejected as more accurate information becomes available. The latest effort (and hopefully the last) is based on genetic research coordinated by a worldwide team of taxonomists known as the Angiosperm Phylogeny Group (APG). Taxonomists sequence a small part of the genome from a species and map out how closely it is related to other species, producing detailed branching *phylogenetic* trees, as shown above for families of the Rose order. The APG approach is theoretically more accurate, because taxonomists are compiling objective data about genetic relationships, rather than just looking at each species and guessing its relationship to other species.

The APG system recognizes orders, families, subfamilies, and so forth, but doesn't (yet) categorize anything above orders, except as *monophyletic* groups known as *clades*. Monophyletic translates to "one branch," meaning that any group of organisms should include only the genetic descendants (all of them) going back to a particular ancestor.

For example, Genghis Khan fathered several hundred, if not thousands of children, and his sons were also prolific, leading to an estimated 16 million descendants today, nearly 800 years later. Selecting Khan as an arbitrary branching point, a monophyletic group or clade would include all of his descendants.

If any of Khan's brothers' descendants were accidentally included, it would be considered a *polyphyletic* group. On the other hand, if any of Khan's descendants were accidentally classified as descendants of either of his brothers, it would be considered a *paraphyletic* group. But don't panic. These terms are not used elsewhere in this book (Botany in a Day). Only *phylogenetic tree* and *clade* are used in the text.

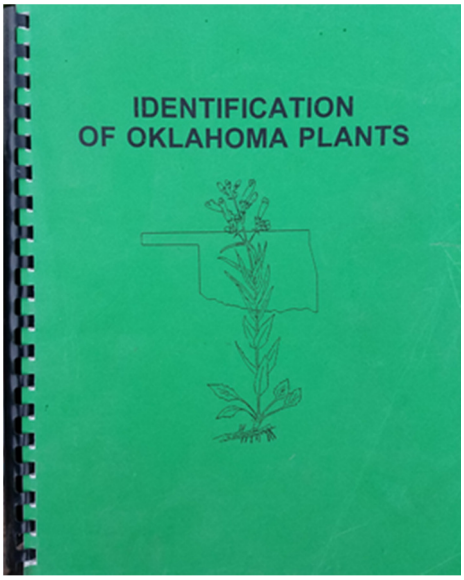
Used by permission Thomas Elpel

Oklahoma Flora Committee

The Flora of Oklahoma Project was established for the purpose of providing a comprehensive resource for the identification of over 2,500 species native to Oklahoma; one of the most ecologically diverse areas in North America.
For the last 30 years the Flora of Oklahoma Editorial Committee, a group of professional botanists from around the state, have spent one Saturday a month working on taxonomic treatments of the vascular plant flora of our state. The editorial committee began an effort to write and publish a modern floristic treatment for Oklahoma's vascular plants. Initial steps included the establishment of an editorial board, formation of a non-profit corporation, development of an editorial format, production of a computerized database for families, solicitation of contributors, and commencement of research and writing. The result of the committee's hard work is a series of publications that has contributed to the evolution of the Flora of Oklahoma.
A complete set of keys to species, family descriptions, illustrations of morphological characters, a glossary and an index are available currently for the flora as a spiral bound volume titled Flora of Oklahoma Keys and Descriptions. When completed, the Flora of Oklahoma will include full descriptions and illustrations for each species of vascular plants in the state of Oklahoma. Flora of Oklahoma Keys and Description, is available for $30 plus $5.00 shipping and handling on the order page.

The new edition of the Flora will be published in January.

Pat Folley, a long time contributor to the Flora Oklahoma Committee and a founding member of ONPS is pictured signing a copy of her book, Wildflowers of Oklahoma .



Color Oklahoma
Pearl Garrison

Christmas and Color Oklahoma? They go together when you start wondering what to give as Christmas presents. Who wouldn't want one of the beautiful vehicle tags? As a bonus, every tag you purchase from the state generates $20 for the purchase of native wildflower seeds to be planted along state highways. Details are at www.ok.gov/tax. Follow the trail to specialty license plate forms. Each costs $38. Learn more about Color Oklahoma at coloroklahoma.org.

Annual Meeting
Silent Auction 2017

At our June Board Meeting we decided to have a Silent Auction at the Annual Meeting. (You may remember the Silent Auction the Friends of the OU Biological Station had several years ago at our joint meeting.) So please clean out your closets and find some treasures that you no longer want and no one in your family wants, or a service you would be willing to provide. (I've seen hooked rugs, old quilts, crystal, a loaf of homemade bread each month for a year, knitted sweaters, crocheted afghans, you name it, offered at Silent Auctions.) So get your creative juices flowing. Please send a notice of your Auction Item and its estimated worth to Constance Murray, murrayconstance4882@gmail.com She will assemble Bidding Sheets. Then bring or send your item to the Annual Meeting. Winners will be announced at the conclusion of the dinner Saturday night. (Remember too that donations are tax deductible, as are purchases above the estimated value!)

Asteraceae – Sunflower Family

Connie Murray

When you think of flowers in the Asteraceae or Composit Family, think of dandelions, or daisies or chrysanthemums. The family gets its name from 'aster' which means star in Latin. Actually what most people call the flower is actually an inflorescence, a head or cluster, of tiny flowers called florets – hence the Composit Family. The florets are organized onto a platform called a receptacle, which you may have seen if you have ever blown the 'seeds' from a dandelion – what remains is the receptacle. The florets have highly reduced flower parts, tiny and sometimes strangely shaped. They come in 3 types: ray florets, which people often call 'petals' of a daisy; disk florets which are tiny tubes, as in the thistles; and ligules or straps as in dandelions. Each floret has the following parts: sepals, which have been reduced to a collection of tiny hairs or bristles or a ridge or may be missing altogether; petals, which have been fused into a corolla that is a ray, ligule or tube as listed above; within the corolla are the stamens which are usually fused and make the pollen; and beneath all of this is one tiny ovary, usually oval, which will produce one fruit called an achene or cypsela and will contain one seed when mature. (What you feed the birds and call sunflower seeds are actually fruits, each with one seed inside.)

This organization and much distinctive terminology (most of which I have omitted) make these plants difficult to identify to specific type or species. But it is possible! The Asteraceae is further divided into Tribes depending upon which kinds of florets are in the inflorescences, and which florets are fertile and which are sterile. It is a large family with 125 genera and 370 species in Oklahoma.

Brassicaceae — Mustard Family

Adam Sarmiento

We have over 30 species of Brassicaceae family plants documented to have been found here in Oklahoma. The majority of these are native to the state but some introduced members of the family are common. Many Brassicacea are said to be edible to varying degrees and the family contains some well-known food crops like radishes, cabbage, kale, broccoli, etc. Most in the family are short lived annuals, that grow, flower and produce seed rapidly. This allows them to successfully grow and be spread around the world. It also means finding them in flower can sometimes be tricky because the period can pass quickly. Because of their quick life cycle and adaptability, they are often pioneer plants found in recently disturbed soil. The flowers of most of the species are the easiest method of identification and are distinguished by having 4 sepals on the outside, 4 petals, and 6 stamens (4 tall and 2 short). The seedpods (silicle) are also a good way to identify the family. Their characteristic racemes with pods can usually be spotted from a distance, and although the seedpods can be different sizes and shapes they are most commonly a long thin form, much like a papery green bean. Some species have pods where the outer walls fall away leaving the translucent interior partition intact known as silique. Many Brassicaceae are quite beautiful like *Streptanthus hyacinthoides* (smooth jewelflower), *Erysimum aperum* (western wallflower), and the rare and imperiled *Physaria angustifolia* (threadleaf bladderpod).

Oklahoma Invasive Plants
Is This Plant Invasive?

Chadwick Cox

Is that plant in my yard an invasive? Well if that plant has been around in Oklahoma for some time, then you can key it out. That will tell you if it is native or not. Not all nonnatives are invasive.

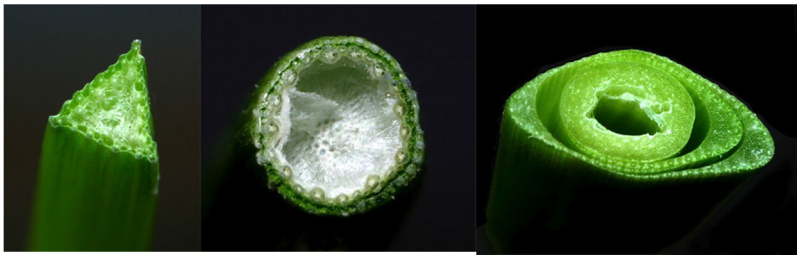
To settle whether you plant is invasive, check it out at invasiveplantatlas.org/. There you will find whether it is invasive but a lot more. Pictured will be leaves, fruits, diagnostic properties and the plant in a setting. The plant will be described and discussed as to history and invasiveness. Further, references to how to eliminate the plant according to a proving method are listed.

If your plant is not listed there, try texasinvasives.org/plant_database/. Some invasive plants that are not found east of the Mississippi River might not be listed at invasiveplantatlas.org/. Likewise, some invasive plants that are found only in west coast areas might not be listed in the Texas list but will probably not be your plant.

You will no doubt notice some confusion between what is listed as invasive. That is because there is a difference between what is legislatively defined as invasive and what common sense says what is invasive. The above lists will give you the common sense version but also may indicate if it is backed by law.

The USDA National Plant Database is much improved now and will get better. The distribution of plants is substantively more inclusive of all data. If your invasive plant is not mapped there for your area, you could report that to the County Extension Service. The standardized common name of each plant is there, though it might shock you to see what it is. This does make this list less useful since you need to know what that standardized name is to search the list by common name. Ohio spiderwort is not recognized but bluejacket is if you are searching for *Trandescantia ohioensis*.

What if you have tried to key out your plant but not found it? Take the problem to the County Extension Service. There is likely a possibility that your plant could be an ornamental or hybrid and not be in your plant key. Of course you could have done this without doing any of the above but then you would not have learned what you will by having done the work above.



Sedges have edges, Rushes are round, Grasses are hollow right down to the ground

Phot:o Hiltonpond

Both of these are members of the Sumac Family. By using a key, the plant on the left can be identified as Poison Ivy by the terminal stalked leaflet. The plant on the right is Fragrant Sumac.

Members of the Mustard Family have four petals, four sepals and six stamens.

Photo: SW Colorado Wildflowers

Sepals of Downey Sunflower and Liatris.

Members of the Malvaceae (Mallow) Family have 5 distinct petals and alternate such as this *Hibiscus laevis.*

Photo: Carol Lambert

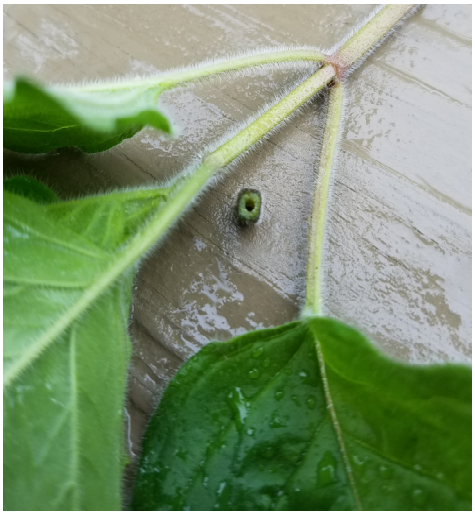
Members of the Asteraceae (Sunflower/Aster) family have flowers in heads surrounded by bracts. Also note the achene fruits.

Swedish born Carl Linnaeus, 1707-1778, is known as the father of modern taxonomy. During the 1700's there was a enormous interest (and fortunes to be made) in all things botanical; explorers and botanists combed the world for new plants and animals. One moss hunter in Britain collected so many mosses it is thought he probably contributed to the extinction of several species. The volume of plants arriving in Europe from the new world was staggering and yet there was no organized system of classification. Enter Carl Linnaeus who created the Linnaean system which classifies all living organisms. The philosopher Jean-Jacques Rousseau sent a message "I know no greater man on earth."

He did not suffer from a lack of self-esteem and suggested his gravestone should read *Princeps Botanicorum,* "Prince of Botanists."

Kings **P**lay **C**hess, **O**nly **F**ools **G**o **S**ailing

Kingdom, **P**hylum, **C**lass, **O**rder, **F**amily, **G**enus, **S**pecies



A square stem, opposite irregular leaves and strong fragrance indicates a plant is in the Mint Family

Annual Meeting

September 15 and 16th, Stillwater

Flyers for this event have been mailed to ONPS members. You may register by mail or online at oknativeplants.org

Our Keynote speaker will be Heather Holm, award-winning author of Pollinators of Native Plants and Bees: An Identification and Native Plant Forage Guide

Anacardiaceae – Sumac Family

Jacob Dyer

The Sumac family (AKA Cashew Family) is a primarily tropical to subtropical group of woody plants with 83 genera and over 800 species worldwide. In Oklahoma, we have eight or nine species (depending on treatment of subspecies) in three genera. Prominent are the Rhus, or classic sumacs, then Toxicodendron, poison ivies, and lastly Cotinus, smoketree. The genus Rhus has 4-5 species: aromatica (aromatic sumac), copallinum (winged sumac), glabra (smooth sumac), lanceolata (also categorized as copallinum var. lanceolata; prairie sumac), and microphylla (littleleaf sumac). The genus Toxicodendron has 3 species: pubescens (Eastern poison oak), radicans (Eastern poison ivy), and rydbergii (Western poison ivy). The genus Cotinus has one species, obovatus (American smoketree). For ease of separation, we will use leaf traits to distinguish species. The only simple leaf Anacard in Oklahoma is smoketree. Leaves of three – with middle leaf-stalk extended it is Toxicodendron, with middle leaf-stalk sessile (no apparent stalk), it is aromatic sumac. The pinnately compound sumacs (all Rhus) can be differentiated based on leaves having wings or not (copallinum), if no wings leaves being smooth and large (smooth sumac), or leaves miniature (microphylla). Prairie sumac is distinguished by range occurring in southcentral counties on limestone outcrops.

Malvaceae — Mallow Family

Fran Stallings

The Mallow family includes exotic tropicals such as cacao and durian. Oklahoma farmers raise its crop species: cotton, okra. Gardeners love its old-fashioned favorites hollyhock, hibiscus, rose of sharon. These non-native garden plants and some imported weed species like velvet leaf sometimes escape among our true native mallows such as wine cup *Callirhoe involucrata* and scarlet globemallow *Sphaeralcea coccinea.*

The flowers and seeds of most mallows have unusual characteristics that help to identify the family. In the radially symetrical 5-parted flowers, the very numerous stamens often form a tube around the elongated style (see photo page 6, Hibiscus). The seeds of some species form a ring like a sliced bundt cake (see photo 2, Callirhoe) or wheel of cheese -- in fact *Malva neglecta* is called "cheeseweed." Others such as our native hibiscus, rose mallow *Hibiscus moscheutos,* put their seeds in a dry capsule that splits open.

The leaves are alternate and have palmate veins, whether their profile is simple or lobed. A unique feature in many species is the "stellate" (starburst-shaped) hairs on the underside, so pretty that they make it worth carrying a botanist's monoccular.

Lamiaceae —Mint Family

Lynn Michael

The mint family has some delightfully fragrant species in our fair state. It also has some decidedly elegant and attractive flowers. So how does one know if the plant you have found is in the mint family? There are some very distinctive tells. The first, and most obvious is the square stem. The leaves are simple, opposite leaves and the flowers are irregular in shape. Usually the five petals are united and tubular, with the top of the corolla containing two segments or lips, and the bottom containing three tips. The sepals are also fused, forming a five-pointed calyx which also may be 2-lipped. Further identifications may include the four stamens, and a superior ovary with two united carpels which produce four nutlets.

Many members of the mint family have edible or medicinal properties. In fact, many herbs used in the kitchen are members of the Lamiaceae family, better known as the Mint Family. The most well-known of these native species is Monarda, also known as Wild Bergamot, and Beebalm. It's leaves and flowers are often used in teas. It is considered a calming tea, but also has antiseptic compounds which make it a good mouthwash and a treatment for mouth and throats infections. The whole plants of Lamium species, such as Henbit and Dead Nettle are edible.

Mints contain menthol which is a volatile oil used for penetrating vapors. Some may remember Vicks Vaporub, but before that was just Metholatum, which we smeared all over anyone with a cold or chest congestion. Other members of this family can break a sweat, stimulate digestion, or regulate menstrual cycles.

So, to recap, plants with square stems and opposite leaves that are frequently aromatic are very often in the mint family. Exceptions are loosestrife, verbena and stinging nettle family plants.

Resources for Plant Identification

A Botanist's Vocabulary: 1300 Terms Explained and Illustrated by Susan Pell

A Field Guide to Oklahoma Plants by Tryl, Bidwell and Masters

Botany Coloring Book by Paul Young and Jacqueline Giuffre

Botany in a Day by Thomas Elpel

Flora of Oklahoma Keys and Descriptions

Illustrated Flora of North Central Texas by George Diggs and Barney Lipscomb

Plant Identification Terminology: An Illustrated Glossary by James G. Harris

Central Chapter News

Patrick Bell

The Central Chapter May get-together was the (now) annual picnic at the Prairie Wind Nursery, south of Norman. The potluck event was well attended and well fed by many members and guests of the Central Chapter. After a summer break, we resumed the monthly meetings in August. The speaker was Abby Moore, curator of the Bebb Herbarium at OU. She spoke on how to identify 8 common Oklahoma plant families, using leaves, sepals/calyx, petals/corollas, stamens, pistils/carpels, stipules and other plant parts. She also spoke of their habitats, genera, and species.

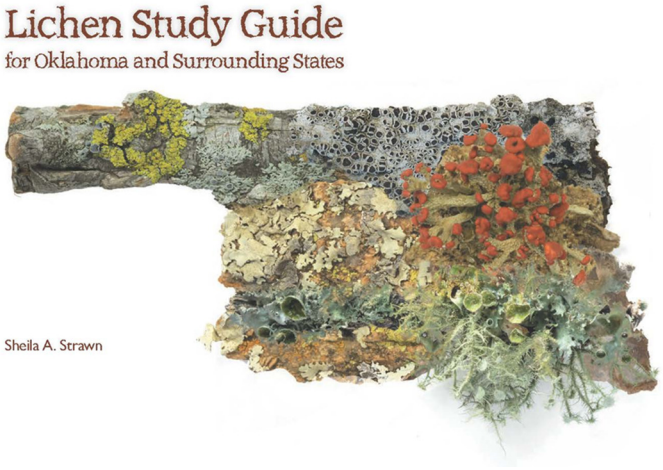
The February, 2016 Indoor Outing with Chip Taylor was a great success, with 270+ people attending the pollinator workshop. A follow-up November 2016 meeting by the key stakeholders in Oklahoma for the monarch butterfly and pollinators was held. From that November meeting, a need for a statewide monarch and pollinator plan was established. Since January 2017, a steering committee of the Oklahoma Monarch and Pollinator Collaborative has been working on the development of the proposed plan.

NE Chapter News

Lynn Michael

The NE Chapter has been busy all summer, just as you all have been, trying to stay cool and keep our plants alive. In the early morning hours of August 6th, a tornado touched down and did considerable damage in the heart of Tulsa. This included destroying the location of our Fabulous Fridays get-togethers that occur every third Friday for the NE Chapter. We have relocated for August 18th to the Panera Bread at 7110 S 101 E Ave. in Tulsa.

The October meet will also be there, but none for September because it is the same weekend as our Annual Meeting. We will decide then if this new location works, or if there may be a better alternative. Our regularly scheduled program is September 11, 2017 in the ballroom of the Tulsa Garden Center. Desserts and snacks will be at 6:30 with our program at 7:00 p.m. Carla Grogg of Grogg's Green Barn will be our presenter. Everyone is welcome. Please bring a dish to share and a friend as well. You may want to add our December 4th meeting day to your calendar too. Don't forget that fall is a great time to plant natives and also to sow wildflower seeds



Lichen Study Guide for Oklahoma and Surrounding States, by Dr. Sheila Strawn, can be ordered through BRIT Press at https://shop.brit.org

The purpose of the guide is to encourage professionals, amateurs, and enthusiasts to include lichens in their personal and professional biodiversity studies. It also makes a great science classroom resource for students. The hope is to promote large scale studies of lichens throughout this region. The guide explains the basic characteristics needed to understand lichen biology and identification and it provides resources for further studies.

Sheila is also trying to organize a group of members and potential members who like to study lichens, fungi, or mosses, with the possibility of reorganizing our Mycology Chapter to incorporate all three groups. Group activities could include creating species lists and field guides and hosting field trips and workshops. If you would like to be a part of this new group, please contact her at the address or phone number below.

If you or your organization would like to host a lichen workshop in the near future she would be happy to lead it. Participants will need to bring their copy of the *Lichen Study Guide* or share with someone who has one. She will provide laboratory materials. Please contact her for more information. Call (405) 733-0864 or email her at sastrawn@hotmail.com.

"

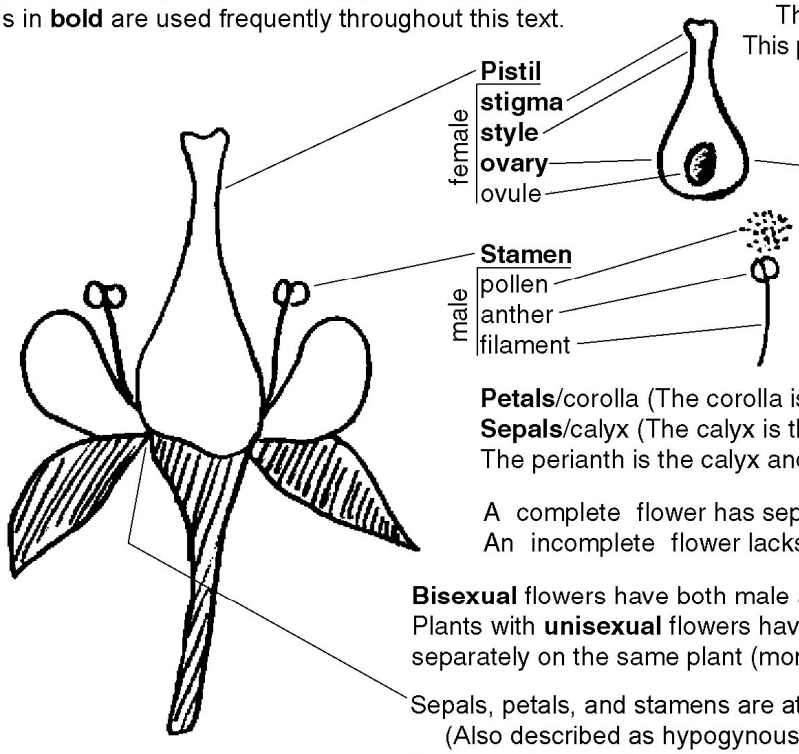
Taxonomy is described sometimes as a science and sometimes as an art, but really it's a battleground. Even today there is more disorder in the system than most people realize...it depends on where you decide to make your divisions—whether you are a 'lumper' or a 'splitter' as they say in the biological world."

Bill Byson

Quick Guide to Flower Terms

Words in **bold** are used frequently throughout this text.

Botany in a Day
The Patterns Method of Plant Identification
This page may be photocopied for classroom use.
www.wildflowers-and-weeds.com



After fertilization, the ovule develops into a seed.

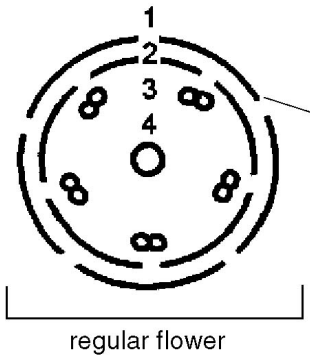
Tip: To remember which is male and which is female, keep in mind that the stamens always "stay men."

Petals/corolla (The corolla is the sum of all petals).
Sepals/calyx (The calyx is the sum of all sepals).
The perianth is the calyx and corolla together.

A complete flower has sepals, petals, stamens and a pistil.
An incomplete flower lacks one or more of the above.

Bisexual flowers have both male and female parts.
Plants with **unisexual** flowers have male and female flowers appearing either separately on the same plant (monoecious) or on separate plants (dioecious).

Sepals, petals, and stamens are attached below a **superior** ovary.
(Also described as hypogynous.)
Sepals, petals, and stamens are attached above an **inferior** ovary.
(Also described as epigynous.)
If the parts are attached in the middle of the ovary, the flower is perigynous.



regular flower

The word **numerous** is often used where there are more than 10 parts in a set, for example, numerous stamens.

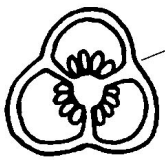
1. sepals/calyx
2. petals/corolla
3. stamens—male
4. pistil(s)—female

In a **regular** flower, the individual parts of a set are all identical in size, shape, and color. For example, the petals are all the same.
In an **irregular** flower, some of the individual parts of a set are different. For example the petals may be different sizes.

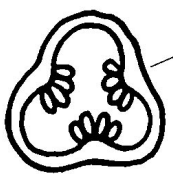
Progressive Fusion of the Pistils

Making sense of carpels, chambers, and partition walls.

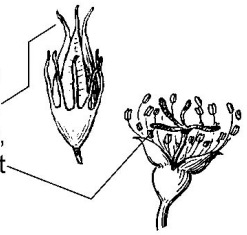
A **simple pistil** has a single-chambered ovary called a **carpel**. Plants with primitive traits, like this larkspur, typically have multiple simple pistils (**apocarpous**), often in a cone-like form. Tip: try associating "carpel" with "carport," like a docking station where the ovules (egg cells) are parked.



Evolution has led to fusion of the parts so that most plants today have one compound pistil consisting of several **united carpels**, also called **syncarpous**. A compound pistil consisting of two carpels is bicarpellate, while a pistil of three carpels is tricarpellate. In this illustration, the partition walls are present, making a three-chambered ovary.



Further fusion of the carpels may eliminate the partition walls, leading to a compound pistil that has only one **chamber** (also known as a locule). In this picture, the ovules are attached in three points, indicating that it is composed of three carpels.



The **styles** and **stigmas** of the pistil reveal hints about the inside of the ovary. As shown here, a pistil with three separate styles indicates that the ovary consists of three united carpels. If the styles are fused together, too, then look at the stigmas. The four-parted stigma shown here suggests that there are four carpels in the ovary. Read more on page 18.

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