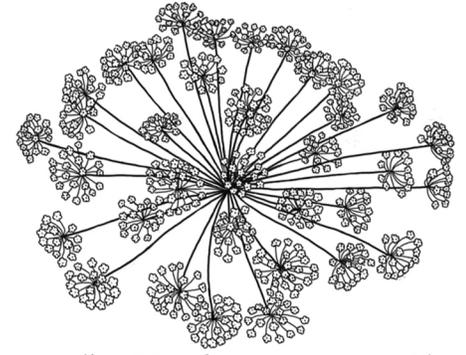


Globally:
434 genera / 3780 species
Chicago Region:
30 genera / 41 species
(15 non-native)

Apiaceae

Parsley Family (formerly Umbelliferae)

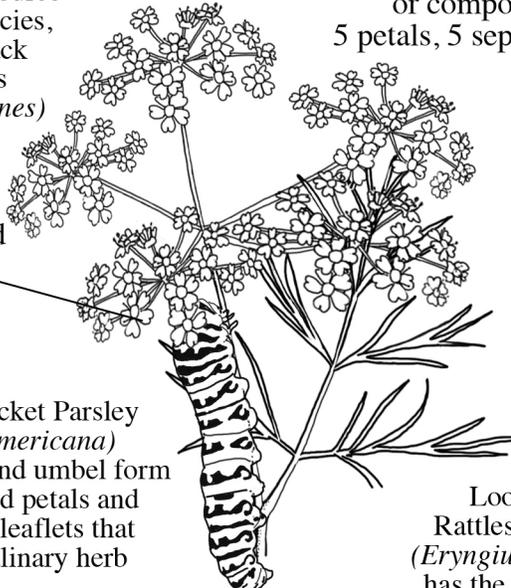
Alternate leaves, usually compound or dissected; hollow, furrowed stems; aromatic, sometimes with irritating oils; small flowers in either single or compound umbels; 5 petals, 5 sepals and 5 stamens



Greater Angelica (*Angelica atropurpurea*) has smooth purplish stems, finely-toothed leaves, globular umbels, and is found in moist sites. Can you tell that this is a compound umbel - an umbel made up of many separate umbels?

Important food source for butterfly species, especially Black Swallowtails (*Papilio polyxenes*)

Leaves usually highly dissected and pinnately compound



Wild Dill or Thicket Parsley (*Perideridia americana*)
Notice the compound umbel form with heart-shaped petals and finely dissected leaflets that resemble the culinary herb

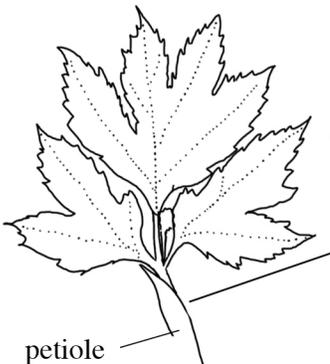


Look closely!
Rattlesnake Master (*Eryngium yuccifolium*) has the umbel habit of this family but has silver-green, sawtooth-edged straplike leaves, not compound ones like the others



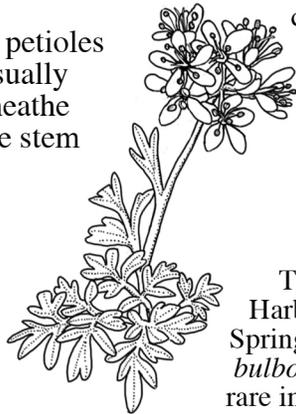
Yellow Pimpernel (*Taenidia integerrima*) is easily confused with Golden Alexanders - note the smooth-edged leaflets!

Black Swallowtail caterpillar



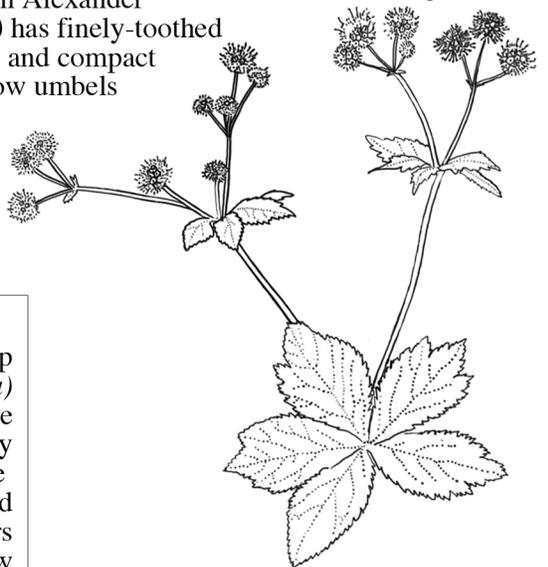
petiole
Cow Parsnip (*Heracleum maximum*) has maple-like leaves, huge petioles sheathing the stem, giant white umbels

The petioles usually sheathe the stem



The tiny Harbinger of Spring (*Erigenia bulbosa*) is very rare in our region

Moisture-loving Golden Alexander (*Zizia aurea*) has finely-toothed leaflets and compact yellow umbels



Clustered Black Snakeroot (*Sanicula gregaria*) is a common native woodland species

Invasive Alert!

Use caution when handling during restoration activities; gloves and long sleeves are essential! Some genera are very poisonous: **Conium, Cicuta**. Some have irritating oils that will cause painful skin rashes: **Heracleum, Pastinaca, Angelica**



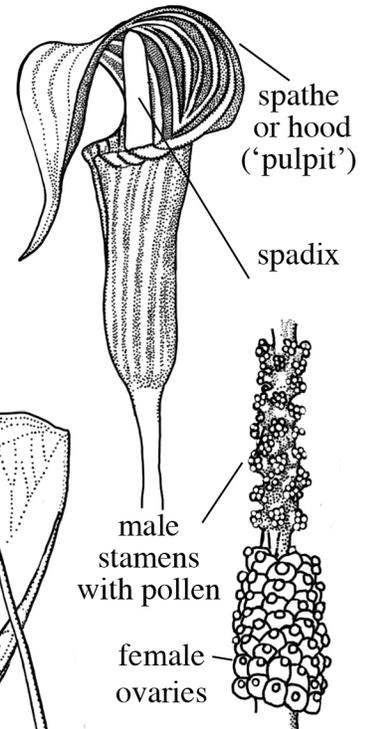
Wild Parsnip (*Pastinaca sativa*) is a non-native species that may cause a severe rash if touched (Notice: extra pairs of leaflets, yellow umbels and lobed and toothed leaves)

Globally:
117 genera / 4095 species
Chicago Region:
5 genera / 6 species

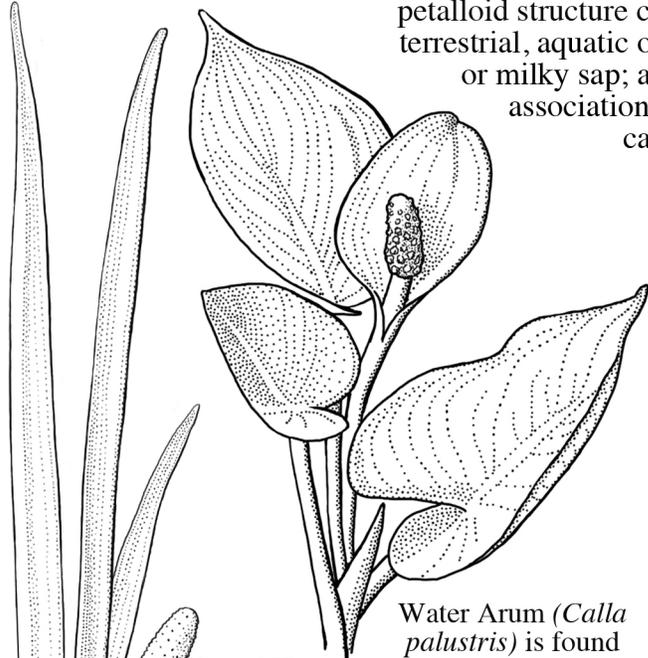
Araceae

Arum Family

Monocots with columnar inflorescences called a spadix, often surrounded by a leafy or petaloid structure called a spathe; perennial herbs or vines; terrestrial, aquatic or epiphytic (in the tropics), with watery or milky sap; adventitious roots with mycorrhizal associations; no root hairs; tissues contain calcium oxalate crystals

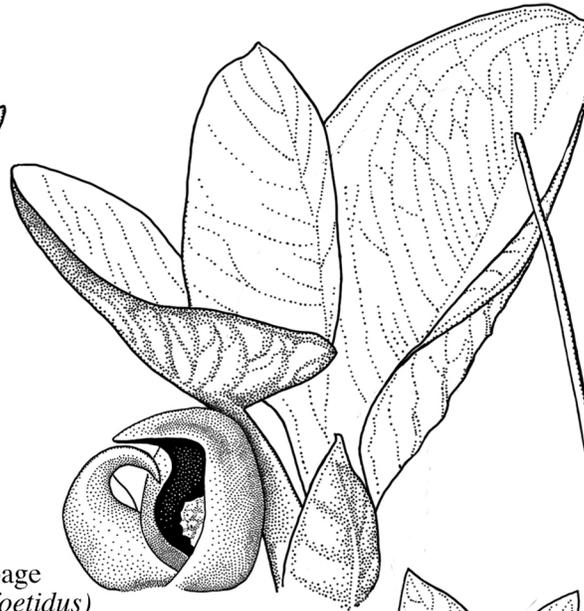


Many arums have 'imperfect' flowers with the male and female parts growing on different parts of the plant, or ripening at different times to prevent self-pollination

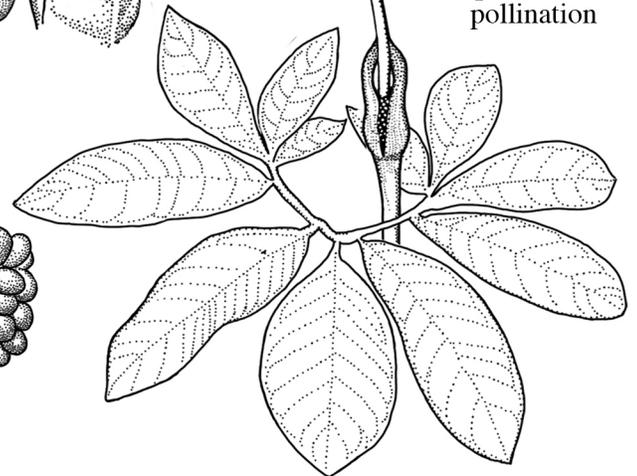


Sweet Flag (*Acorus americanus*)
Look carefully among the cattails for this fragrant-leaved beauty

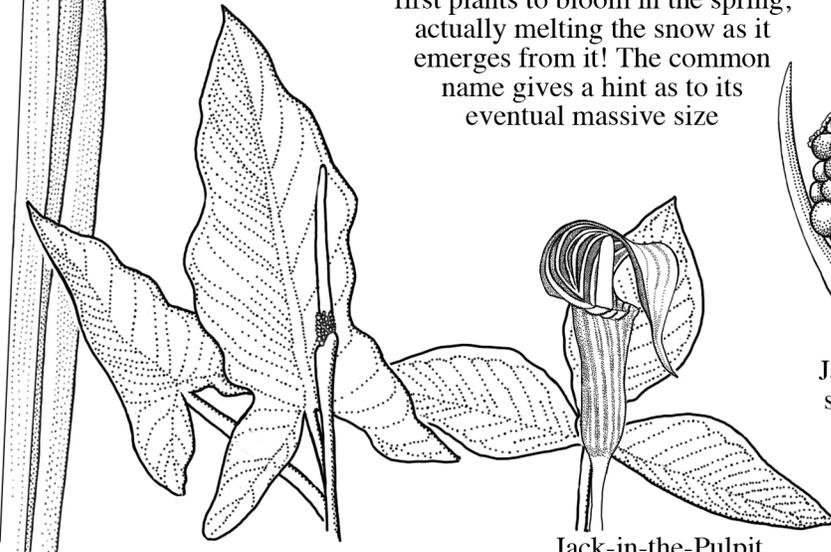
Water Arum (*Calla palustris*) is found in bogs in our area



Skunk Cabbage (*Symplocarpus foetidus*) means 'connected fruits' and 'rotten smell'. It is one of the first plants to bloom in the spring, actually melting the snow as it emerges from it! The common name gives a hint as to its eventual massive size



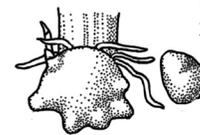
Green Dragon (*Arisaema dracontium*) is an uncommon cousin of Jack-in-the-Pulpit



Arrow Arum (*Peltandra virginica*) is found in bogs, ponds and marshes in shaded, shallow waters

Jack-in-the-Pulpit (*Arisaema triphyllum*) is typical of floodplain woodlands

Jack-in-the-Pulpit's shiny red fruits are similar to those of Green Dragon; look for them in late summer or early autumn!



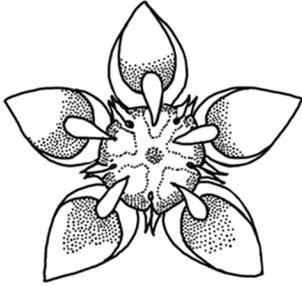
Fleshy corms store starches and sugars for the next growing season

Globally:
415 genera /
4555 species
Chicago Region:
3 genera
(2 non-native)/
17 species
(3 non-native)

Asclepiadaceae

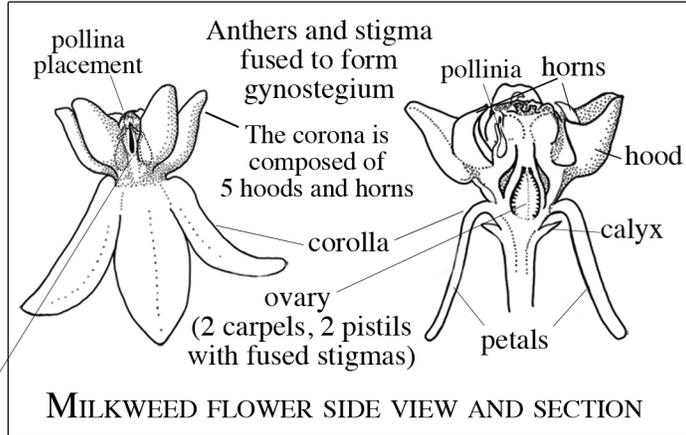
Milkweed Family (often considered part of Apocynaceae)

Most have milky sap that contains toxic cardiac glycosides; many are food or nectar sources for many species of helpful insects

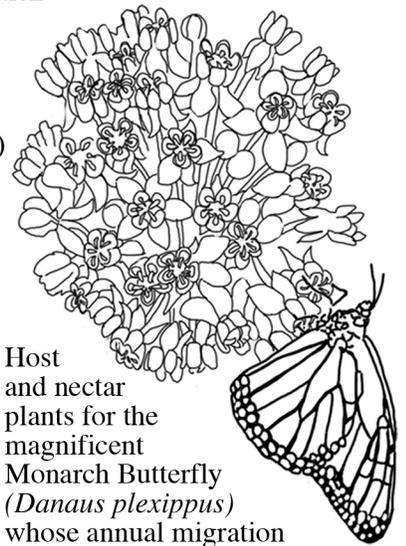


Flowers may be pink, purple, white, green, bright orange or yellow; umbels erect or drooping

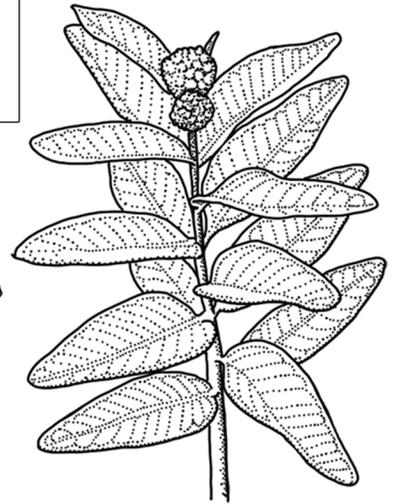
Five sets of pollinia in the gynostegium, hiding inside V-shaped slits on the side. Bugs looking for nectar can get legs trapped in the slits!



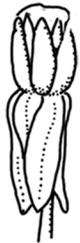
MILKWEED FLOWER SIDE VIEW AND SECTION



Host and nectar plants for the magnificent Monarch Butterfly (*Danaus plexippus*) whose annual migration spans over 2500 miles!



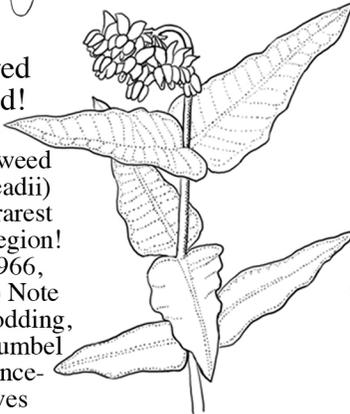
Leaves wide or narrow, wavy-margined or smooth, often but not always opposite; stiff or thin-textured, leaf bases claspings, petiolate or sessile



Note apressed corolla and no horns on flowers of Green Milkweed (*A. viridiflora*)

Endangered milkweed!

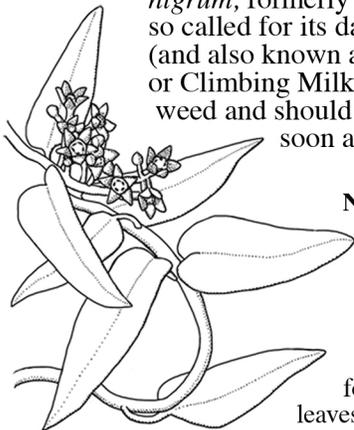
Mead's Milkweed (*Asclepias meadii*) is one of the rarest plants in our region! (Last seen: 1966, Cook County) Note the terminal, nodding, few-flowered umbel and wavy, lance-shaped leaves



Our beautiful Poke Milkweed (*Asclepias exaltata*) with wide-spaced, delicate, drooping umbels is our only woodland milkweed; one of the earliest to bloom

Invasives alert!

Black Swallow-Wort (*Vincetoxicum nigrum*, formerly *Cynanchum nigrum*) so called for its dark-colored flowers (and also known as Dog-strangling Vine or Climbing Milkweed) is a noxious weed and should be removed as soon as it is discovered!



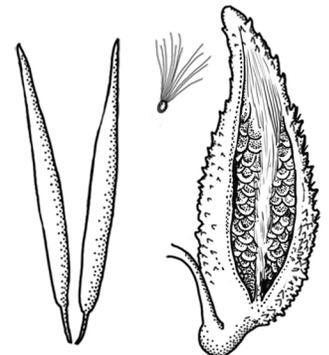
Vincetoxicum nigrum

Non-invasive Lookalike:

Blue Sand Vine (*Ampelamus albidus*) native farther south in the state, may be mistaken for Black Swallow-Wort: look for opposite, heart-shaped leaves, white or cream flowers



Whorled Milkweed (*Asclepias verticillata*) may be seen in sandy, dry or dolomitic prairies. Its delicate white flowers are some of the smallest of the family in our area

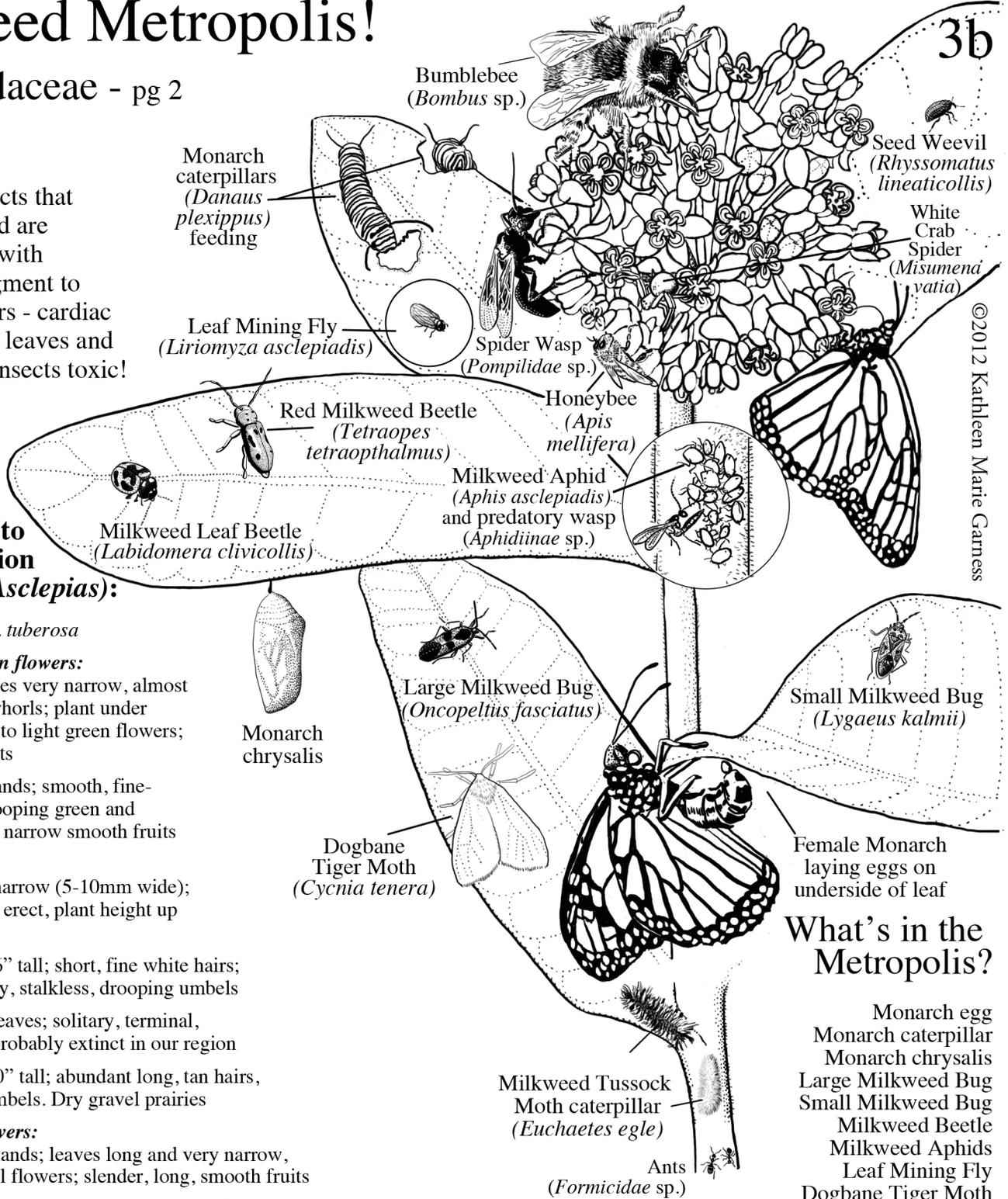


Pods smooth or barbed, thin or fat; seeds all have silky parachutes which help them disperse in the wind

Milkweed Metropolis!

Asclepiadaceae - pg 2

Many of the insects that feed on milkweed are brightly colored with orange or red pigment to warn off predators - cardiac glycosides in the leaves and stems make the insects toxic!



Color Guide to Chicago Region milkweeds (*Asclepias*):

Orange flowers: *A. tuberosa*

White to light green flowers:

A. verticillata: leaves very narrow, almost grass-like, and in whorls; plant under 18" tall; tiny white to light green flowers; smooth narrow fruits

A. exaltata: woodlands; smooth, fine-textured leaves, drooping green and white umbels; long narrow smooth fruits

Green flowers:

A. hirtella: Leaves narrow (5-10mm wide); umbels stalked and erect, plant height up to 3.2 ft.)

A. viridiflora: 12-36" tall; short, fine white hairs; two or more axillary, stalkless, drooping umbels

A. meadii: sessile leaves; solitary, terminal, drooping umbels; probably extinct in our region

A. lanuginosa: 6-10" tall; abundant long, tan hairs, solitary terminal umbels. Dry gravel prairies

Pink or purple flowers:

A. incarnata: Wetlands; leaves long and very narrow, short petioles, small flowers; slender, long, smooth fruits

A. amplexicaulis: leaves with very wavy margins, clasping stems

A. purpurascens: deep purple, ~36" tall; terminal, often multiple, umbels

A. sullivantii: bright pink midveins; sessile, upright-leaves (no petioles), light pink flowers

A. ovalifolia: very rare; flowers yellow, greenish or purple-tinged; plant pubescent

A. syriaca: common milkweed; pink, cream-colored, or purplish flowers; plants tall, sturdy, coarse

What's in the Metropolis?

- Monarch egg
- Monarch caterpillar
- Monarch chrysalis
- Large Milkweed Bug
- Small Milkweed Bug
- Milkweed Beetle
- Milkweed Aphids
- Leaf Mining Fly
- Dogbane Tiger Moth
- Milkweed Tussock Moth
- Parasitic Wasps
- Seed Weevil
- Ants
- Bees
- Tachnid Fly (parasite on monarch caterpillars, etc)

“All I am saying is that there is also drama in every bush, if you can see it.” - Aldo Leopold

What else can you think of that might live here?

Common Plant Families of the Chicago Region

The Field Museum - Department of Environment, Culture and Conservation

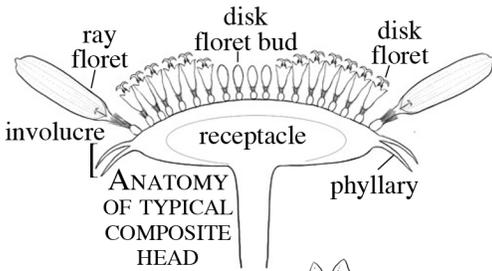
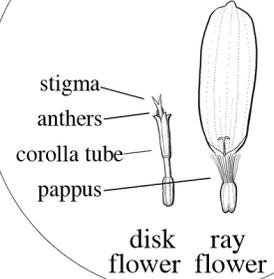
Globally: 1620 genera /
over 23,600 species
Chicago Region:
81 genera (39 non-native)/
277 species (120 non-native)

Asteraceae

Aster/Sunflower Family
(formerly Compositae)

One of the most species-rich flowering plant families in the world. The heads are composed of an abundance of two types of flowers: disk florets, ray florets or a combination of the two. In different species these may be either fertile or sterile

Characterized by two types of flowers on each head:



ANATOMY OF TYPICAL COMPOSITE HEAD

Annual Sunflower (*Helianthus annuus*) Notice its awn-shaped pappus



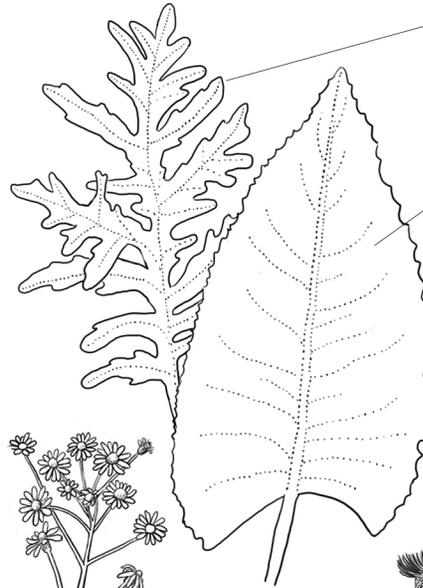
Note the 'bald spot' at the top of the yellow-petaled Grey-headed Coneflower! (*Ratibida pinnata*)



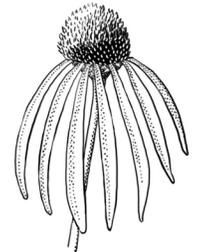
The fuzzy Black-Eyed Susan (*Rudbeckia hirta*) occupies many different habitats: woodland edges, savannas, prairies, yards. Note the dark brown cone-shaped center with ray flowers along the edge. (The genus *Rudbeckia* honors one of the teachers of Carl Linnaeus, the 'father of botany')



Sawtooth Sunflower (*Helianthus grosseserratus*) can be distinguished by its yellow center and long, lance-shaped leaves, with or without noticeable teeth



Distinctively-shaped sandpapery leaves of lacy Compass Plant (*Silphium laciniatum*) and the foot-wide leaves of Prairie Dock (*Silphium terebinthaceum*) are often indicators of good remnant prairie!

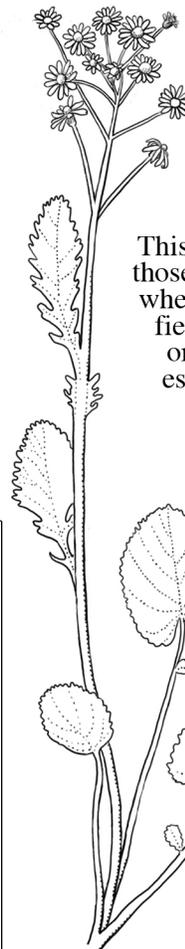


The native Pale Purple Coneflower (*Echinacea pallida*) has reflexed, narrow pink petals, and spiky brown receptacle bracts that give the flower head a distinctive cone shape

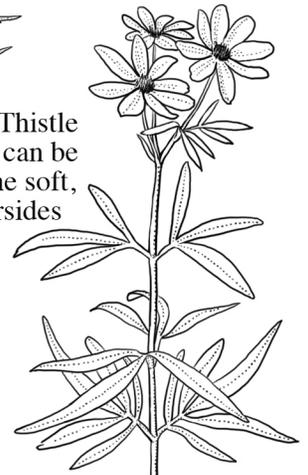
This is one of those families where a good field guide or key is essential!



Our native Pasture Thistle (*Cirsium discolor*) can be distinguished by the soft, silvery-grey undersides of its leaves



Golden Ragwort (*Senecio aureus*) has rounded, toothed basal leaves and fernlike leaves along the stem



Look for the three-to five-parted leaves on Tall Coreopsis (*Coreopsis tripteris*)

Invasives alert!



Canada thistle (*Cirsium arvense*) clusters of purple flowers, smooth stems



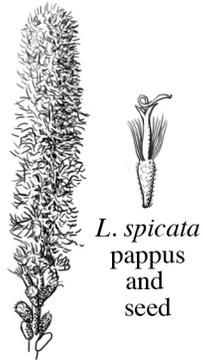
Nodding thistle (*Carduus nutans*)



Bull Thistle (*Cirsium vulgare*)



Spotted knapweed (*Centaurea maculosa*)



The stems of Marsh Blazing Star (*Liatris spicata*) do not have any hairs and the phyllaries are appressed so the base of the flowers feels smooth, open.

Its look-alike cousin, Prairie Blazing Star (*Liatris pycnostachya*), has phyllaries that flare out, making the flowers look crowded and bristly



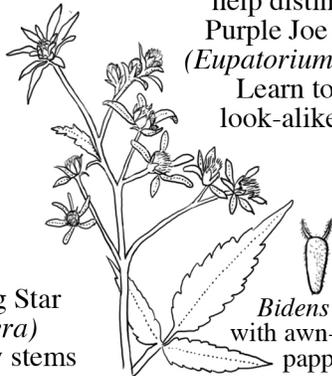
Rough Blazing Star (*Liatris aspera*) has rough, hairy stems



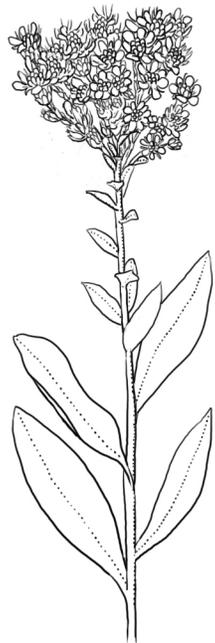
Savanna Blazing Star (*Liatris scariosa* var. *niewlandii*) has very long peduncles and often sends out flowering branches after the main stem has finished blooming!



Whorls of four to five leaves help distinguish this Purple Joe Pye Weed (*Eupatorium purpureum*). Learn to ID the look-alike species!

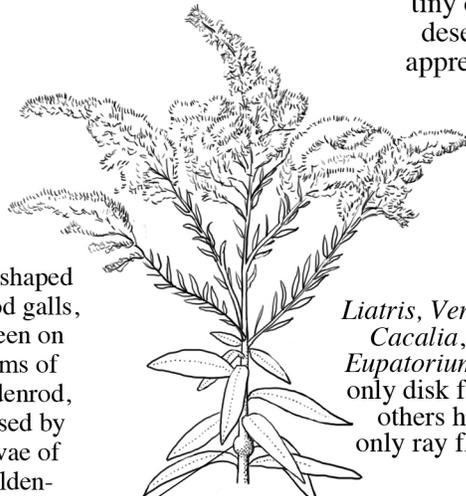


Common Tickseed (*Bidens frondosa*) has inconspicuous ray florets, prominent phyllaries, and seeds with little barbs that stick to clothes and fur to spread their range



Stiff Goldenrod (*Solidago rigida*) has a stiff, upright stem and large yellow flower heads in flat or rounded inflorescences

Marble-shaped goldenrod galls, often seen on the stems of tall goldenrod, are caused by the larvae of the goldenrod gall fly



Tall Goldenrod (*Solidago altissima*) is clonal, spreading by long underground runners, growing into very large patches that can crowd out other plants

Liatris, *Vernonia*, *Cacalia*, and *Eupatorium* have only disk florets; others have only ray florets



Ironweed (*Veronia fasciculata*) is so named for its very tough roots and stems. Its purple-red flower clusters are distinctive!

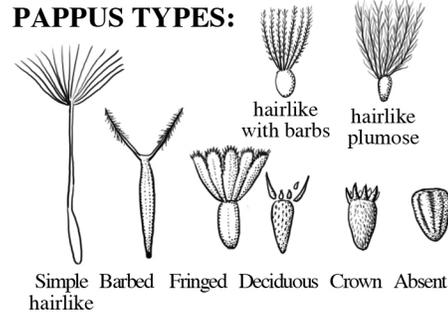


Notice the winged petioles and heart-shaped, softly hairy lower leaves in Drummond's Aster (*Aster drummondii*)



Our dainty Lion's Foot (*Prenanthes alba*) can grow tall in shaded woodlands. Its pink tubular flowers are actually heads made up of six to eight ray florets!

PAPPUS TYPES:



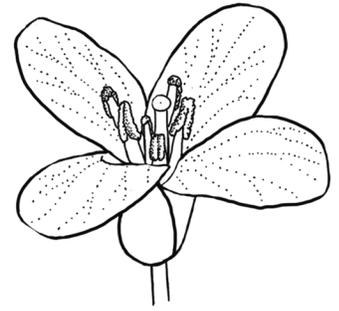
Did You Know?
The pappus is an extension of the achene, or seed, which helps it travel away from the parent plant

Brassicaceae

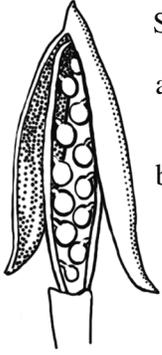
Globally: 338 genera /
3710 species
Chicago Region:
41 genera (31 non-native)/
85 species (59 non-native)

Crucifer, Cress or Mustard Family (Formerly Cruciferae)

Four-petaled flower arranged in a 'cross';
important human food source; noted for
pungent, bitter, peppery or mustard-like juice

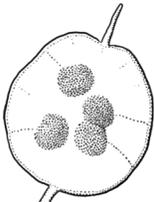


Typical cress flower:
Flowers regular, four parted,
usually six stamens;
note four long stamens
and two short stamens

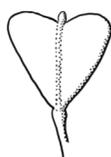


silique

Seed pods split open from
both sides to expose
a clear center membrane,
or silicle. They come in
many different shapes
but always radiate around
the center stem



Money Plant
(*Lunaria annua*) is
common in gardens
but seldom escapes

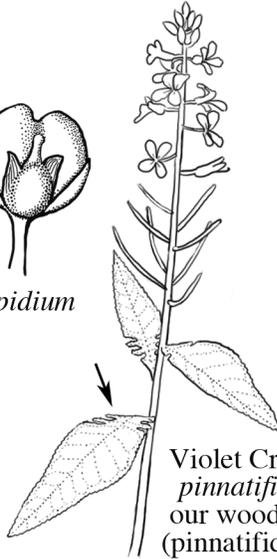


Capsella
capsule

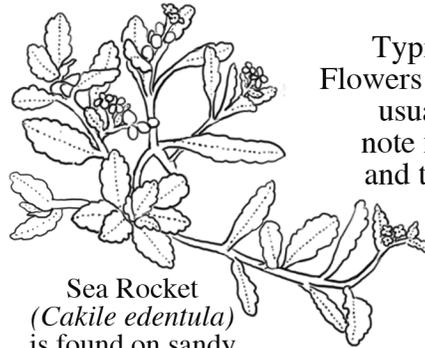
SOME OF THE
MANY CAPSULE FORMS



Lepidium



Violet Cress (*Iodanthus
pinnatifidus*) is rare in
our wooded floodplains
(pinnatifid = featherlike;
note the 'fringes' at
the leaf bases!)



Sea Rocket
(*Cakile edentula*)
is found on sandy
or rocky lakeshore;
listed as threatened in IL



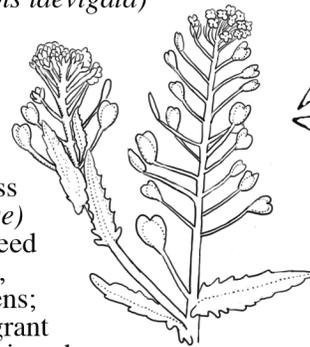
Typical mustard leaf
(*Sinapis arvensis*)



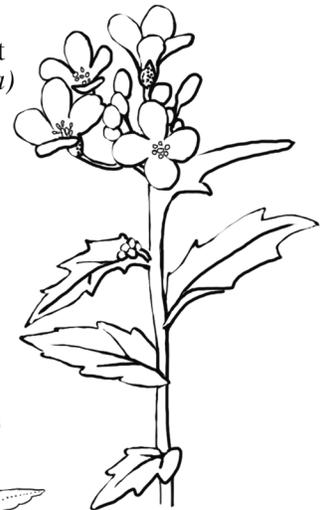
Cutleaf Toothwort
(*Dentaria laciniata*)



Smooth Bank Cress
(*Arabis laevigata*)

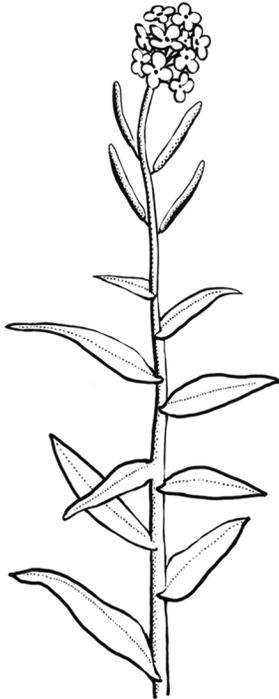


Field Pennycress
(*Thlaspi arvense*)
is a common weed
of waste places,
neglected gardens;
a European migrant
that doesn't yet invade
our quality natural areas.
Note the heart-shaped pods!

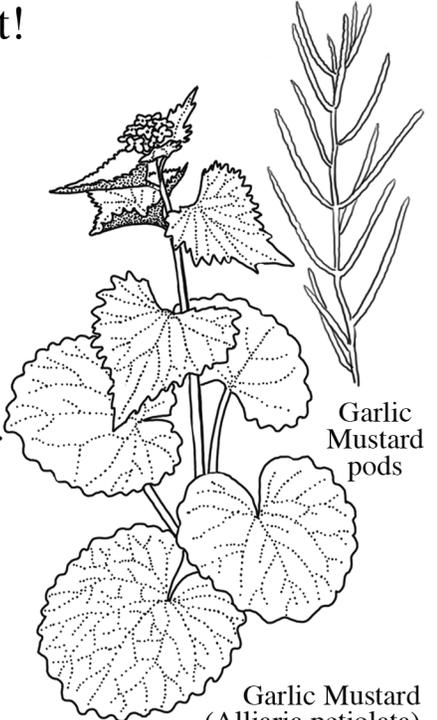


Spring Cress
(*Cardamine bulbosa*)
is one of five native
cresses in our area

Invasive Alert!



Dame's Rocket
(*Hesperis matronalis*)
Look for pink and white
forms; similar to large
Smooth Phlox, but the
four petals give it away

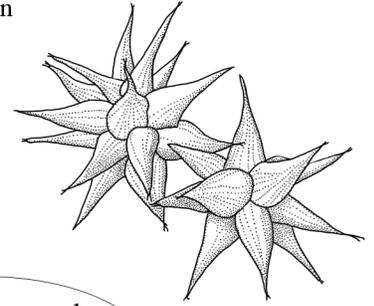


Garlic Mustard
(*Alliaria petiolata*)
has both round and
triangular leaves with
toothed margins. Flowers
have 4 white petals. Each
plant can produce
several thousand
seeds each season!

Cyperaceae

Sedge Family

Grasslike monocots with (usually) triangular stems and leaves that are spirally arranged in ranks of three. Common in wetlands



Gray's Sedge (*Carex grayi*) looks like the spiky heads of a medieval mace!

Globally:
110 genera / 5784 species
Chicago Region:
14 genera / 219 species
(13 non-native)

Achenes (seeds) enclosed in a sac; flowers often imperfect: *Carex*

Achenes exposed, flowers mostly perfect: 14 different genera in our region

This large and complex family requires patience and close observation - but learning a few key characters will speed you on your way to learning them!

Let's look at the Charming Wood Sedge (*Carex blanda*) flower:

Very small differences in the shape of achenes help tell the species apart

The shapes of floral scales also help identify species

Ligule fused to leaf blade in sedges, separate in grasses

Sedge stems are triangular in cross-section leading to the saying: "Sedges have edges"

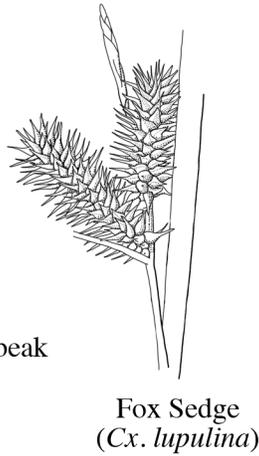
Leaves often form an 'M' in cross-section

Leaves arranged in whorls of three

'Perfect' flowers have both male and female parts; 'imperfect' flowers have only one or the other

Carex romance is complicated! Some sedges have male pistillate spikes, others have male and female flowers on the same or different plants

Carex blanda fertile culm with seeds and flowers; vegetative culms do not produce seed heads, just leaves



Fox Sedge (*Cx. lupulina*)

Cx. lupuliformis achene

Cx. blanda achene

Sac (AKA perigynium): notice the 'beak'! Some sacs are very inflated, like balloons

beak

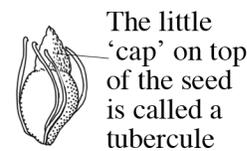
male stamens with pollen

Windblown pollen from the staminate spikes floats onto the pistillate flowers, resulting in pollination and seed production

stamens

ovary

Eleocharis palustris flower; notice both ovary and stamens, making this a 'perfect flower'



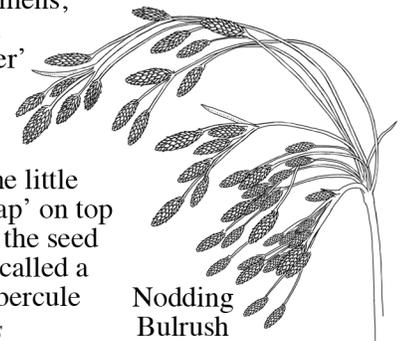
Eleocharis palustris seed

Eleocharis is noted for inconspicuous, bractlike basal leaves, terminal flower spike

Common Spike Rush (*Eleocharis palustris*)

Eleocharis palustris spike

Field Nut Sedge (*Cyperus esculentus*) is weedy but native; its edible tubers make it an important wildlife food source



Nodding Bulrush (*Scirpus pendulus* (pendulous means 'drooping'))

Did you know? Ancient Egyptians made paper from the stems of *Cyperus papyrus*, the Papyrus Sedge! (But sadly, habitat loss is pushing it to the brink of extinction in its native African range)

©2014 Kathleen Marie Garness/ Linda Curtis

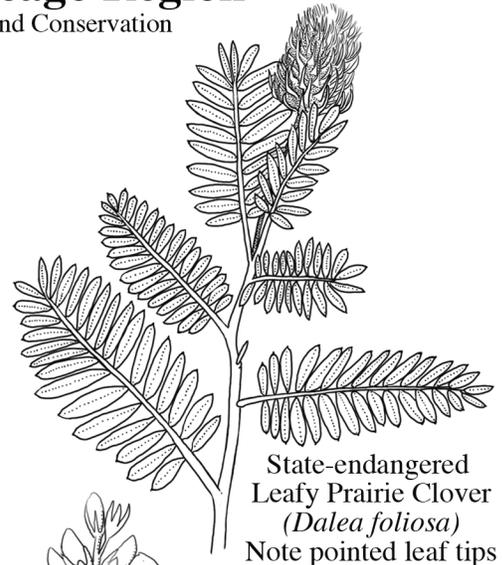
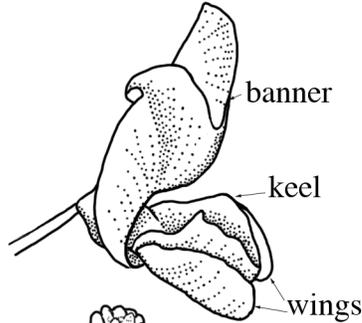
Globally: 745 genera /
19,500 species
Chicago Region:
36 genera (13 non-native)/
108 species (53 non-native)

Fabaceae

(Formerly Leguminosae)
Legume or Bean Family

Key nitrogen-fixing plants,
valuable food sources;
third largest plant family

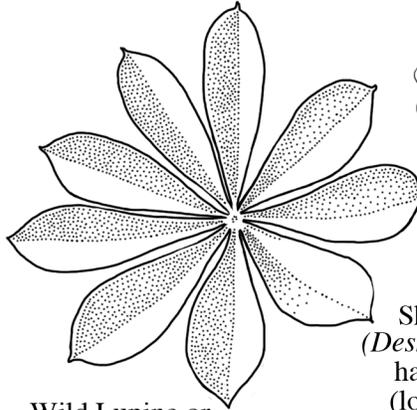
Flowers are distinctive: they are
irregular, with 5 petals: one broad
'banner' petal, 2 'wing' petals
(one on each side of the banner),
and 2 lower 'keel' petals that
join to make a 'boat' shape;
leaves may be palmate, pinnate
or trifoliate; often pinnately compound



Purple Prairie Clover
(*Dalea purpurea* -
also sometimes referred
to as *Petalostemum*
purpureum) may be found
in dry to mesic prairies;
also look for its wider-leaved
cousin, White Prairie Clover!
(*Petalostemum candidum*)



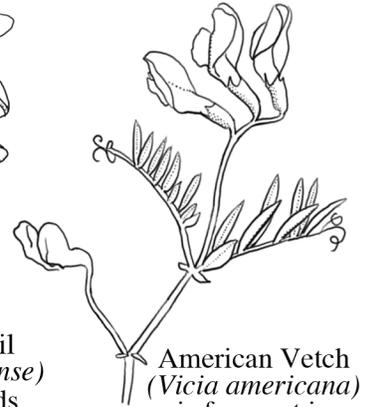
Round-Headed
Bush Clover
(*Lespedeza*
capitata) is
characteristic
of dry prairies



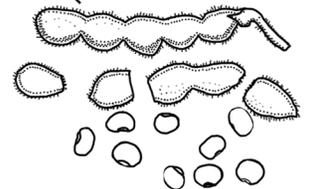
Wild Lupine or
Sundial Lupine
(*Lupinus perennis*)
loves sandy areas, is
the only host plant
to the endangered
Karner Blue Butterfly



Showy Tick-trefoil
(*Desmodium canadense*)
has distinctive pods
(loments) which split
into units (articles)
and have spiny hairs
that attach to clothing
or fur as an aid to
colonizing
new territories

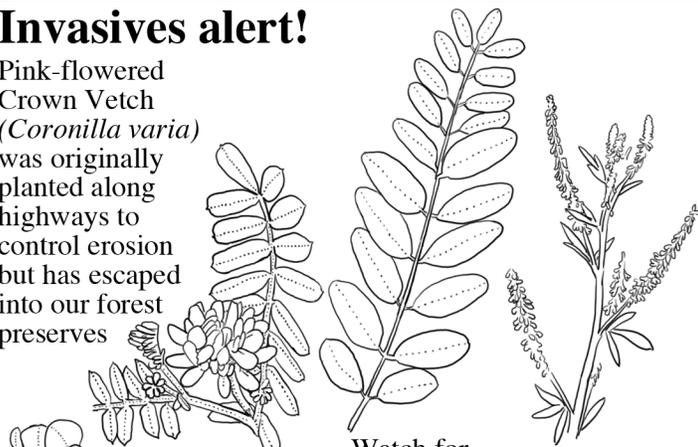


American Vetch
(*Vicia americana*)
is frequent in
remnant prairies!



Invasives alert!

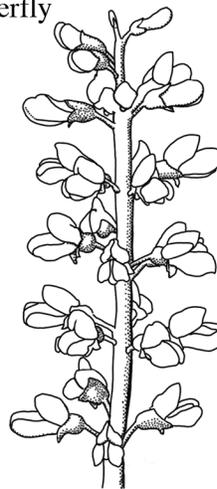
Pink-flowered
Crown Vetch
(*Coronilla varia*)
was originally
planted along
highways to
control erosion
but has escaped
into our forest
preserves



yellow
flowers!
Bird's-foot Trefoil
(*Lotus corniculatus*)

Watch for
thorns on
Black Locust!
(*Robinia*
pseudacacia)

White
Sweet Clover
(*Melilotus alba*)
was planted as
cattle forage



White Wild Indigo
(*Baptisia leucantha*)
formerly had a
wide range but
is rare now



Canada
Milkvetch
(*Astragalus*
canadensis)



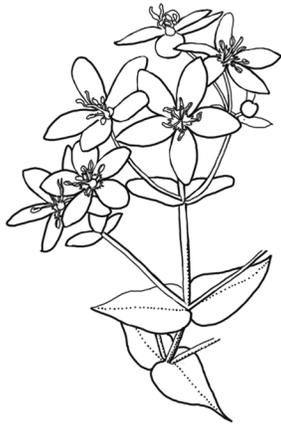
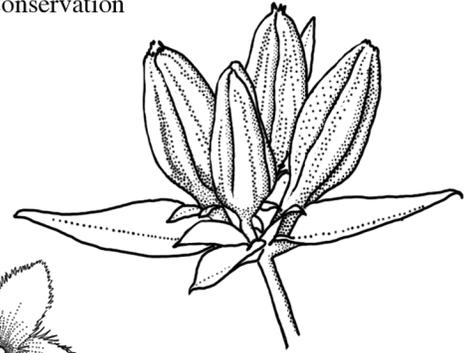
Upland Hog Peanut
(*Amphicarpa bracteata*)
is a frequent woodland
understory plant

Globally:
87 genera /1655 species
Chicago Region:
6 genera (1 non-native)/
16 species (3 non-native)

Gentianaceae

Gentian Family

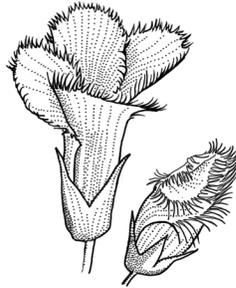
Herbaceous; mycorrhizal roots;
petals and ovaries in 4s or 5s;
economically important in
medicine and horticulture



The rare Rose Pink (*Sabatia angularis*) is found on calcareous pond shores and in sandy or acidic old fields; keep an eye out for other *Sabatia* too!



The tiny Yellow Bartonia (*Bartonia virginica*) flowers are only 1/8" long! Look for it in sphagnum bogs, mossy acidic sand flatwoods



Startlingly clear blue, fall-blooming, rare Fringed Gentian (*Gentiana crinita*)

Lesser Fringed Gentian (*Gentiana procera*) is occasional in calcareous fens



White or cream-colored Cream Gentian (*Gentiana flavida*), beautiful blue Bottle Gentian (*Gentiana andrewsii*) and Soapwort Gentian (*Gentiana saponaria*) are all similar in shape but not color or size. *G. flavida* usually has much larger 'bracts' (the uppermost pair of leaves) just below the inflorescence, stiff cilia along leaf margins



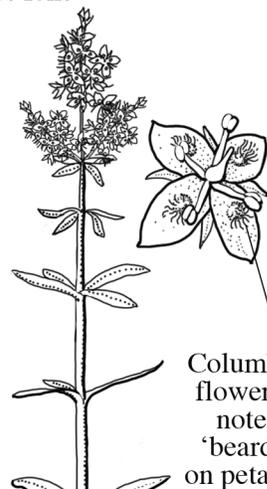
Prairie Rose Gentian (*Sabatia campestris*) is now extirpated from our area



Stiff Gentian (*Gentiana quinquefolia*) only opens its blooms in full sun; is one of our later-blooming gentians; prefers calcareous soil



Downy Gentian (*Gentiana puberulenta*) is characteristic of remnant mesic to dry prairie; look for the pair of bracts that are just below each calyx, a minute fringe of stiff cilia along the leaf margin



Columbo flower - note 'beard' on petals!

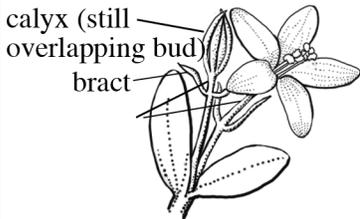
Ovaries and petals in 4s: *Swertia caroliniensis*, *Gentiana procera*, *Gentiana crinita*; all others in 5s

American Columbo grows up to 7 feet tall, and has a deep tap root.

Its greenish-white to cream-colored, purple-spotted flowers are probably pollinated by short-tongued bees but are also a nectar source for other kinds of bees, skippers, and wasps. Flowering individuals are rare; shaded populations may consist mostly of non-flowering rosettes.

It will live as a basal rosette for a long time (up to 30 years!), and die after flowering. It prefers drier, calcareous upland woodlands and savannas

Non-native but not invasive: good to know the difference!



Showy Centaury (*Centaureum pulchellum*) is non-native, frequent in our area. (Note pedicel between bracts and calyx, and smaller, rounded leaves)



Bog Buckbean (*Menyanthes trifoliata*) is very rare here because most of our bogs have been drained and/or plowed; blooms in spring; the second half of its Latin name means 'three-leaved'

American Columbo (*Swertia caroliniensis*/*Frasera caroliniensis*)

Common Plant Families of the Chicago Region

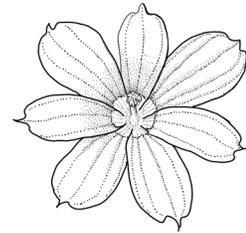
The Field Museum - Department of Environment, Culture and Conservation

Globally:
80 genera / 2315 species
Chicago Region:
3 genera / 11 species
(5 non-native)

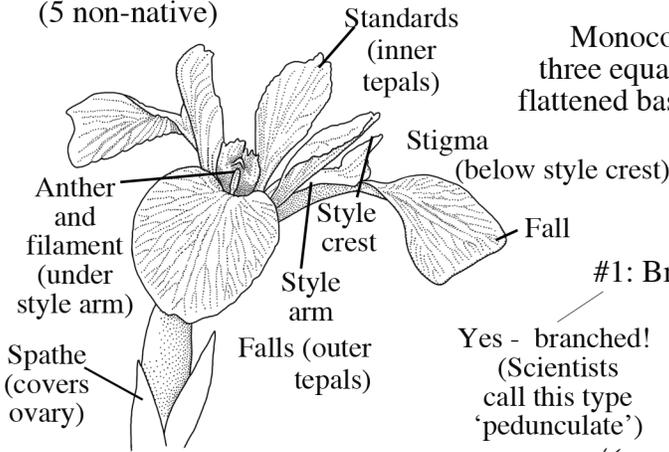
Iridaceae

Iris Family

Monocots with two whorls of three equal or unequal tepals each, flattened bases, parallel-veined leaves



Sisyrinchium flowers come in many colors: intergrading from white through blue to purple!



This tiny Iris cousin is our lovely Blue-eyed Grass! Flattened leaf fans are the giveaway that this is an Iris, not a grass! Here's a little visual guide to telling these apart:

#1: Branched flower stems - or not?

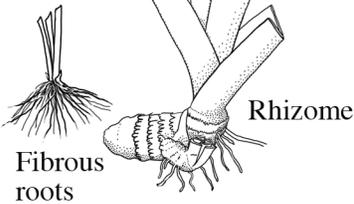
Yes - branched! (Scientists call this type 'pedunculate')

No? So now we have to look more closely at the base of the sheath that encloses the flower buds:

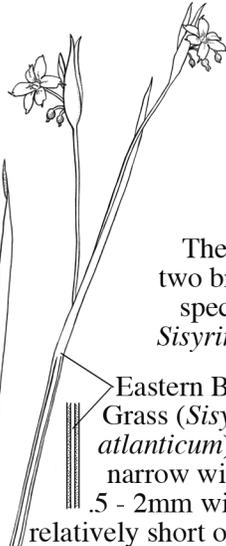
There are three unbranched species of *Sisyrinchium*. (Scientists call this arrangement 'sessile,' meaning that the buds attach directly to the stem)

The native Blue Flag Iris (*Iris virginica* var. *shrevei*) graces wetlands with its purple flowers in early summer

Notice the folded leaves and flattened fan shape!



Some iris have fibrous roots, such as *Sisyrinchium*. Others grow from corms or rhizomes, such as your garden iris



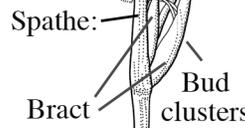
There are two branched species of *Sisyrinchium*:

Eastern Blue-eyed Grass (*Sisyrinchium atlanticum*) has very narrow wings on its .5 - 2mm wide stems, relatively short outer bract

Stout Blue-eyed Grass (*Sisyrinchium angustifolium*) often has wider wings on its branched 3-4mm wide stem, longer outer bract

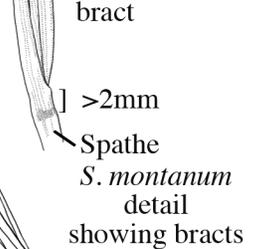
#2: Is it free at the base or almost (less than 2mm of connection at the most)?

Yes? #3: How many pairs of bracts and clusters of buds do you see?



Two clusters? Is there an extra leafy bract? That's Common Blue-eyed Grass (*Sisyrinchium albidum*)

Not free? If the base of the spathe is connected for more than 2mm (such a tiny difference, we know!) it's Mountain Blue-eyed Grass (*Sisyrinchium montanum*) (Also look for an outer bract much longer than the inner one!)



Sisyrinchium albidum habit



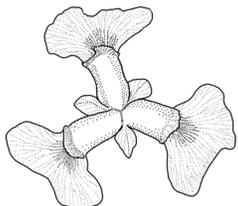
Sisyrinchium campestre



Just one flower cluster inside that little spathe? You found the very rare Prairie Blue-eyed Grass (*Sisyrinchium campestre*), found - rarely - in dry prairies

Pretty... but some are invasive!

Dwarf Iris (*Iris pumila*) and Bearded Iris (*Iris germanica*), are not invasive but occasionally are found in abandoned homesites



The yellow *Iris pseudacorus* invades wetlands, crowding out our native Blue Flag Iris, even taking over from cattails! Pretty - but a bully! Hard to tell from *I. virginica* when not in flower - best to remove when it is in bloom



Bearded Iris (*Iris germanica*) can range in color from white to almost black!



Blackberry Lily (*Belamcanda chinensis* - note orange flowers!), Dwarf and German Iris very occasionally escape, are not usually pesty

Globally:
8 genera / 506 species
Chicago Region:
2 genera / 27 species
(2 non-native)

Juncaceae

Rush Family
Monocots with six tepals,
six stamens, three carpels;
grows from rhizomes

Plants completely glabrous
(smooth, not hairy):
capsules many-seeded: *Juncus*

Look for
the subtle
differences
in length of
pedicels;
number and
arrangement
of flowers!

Grassleaf
Rush (*Juncus
marginatus*)

Note variation in
height of plants
from one species
to another and
differences in
presentation
of flowers



Bristly globes
on Torrey's Rush!
(*Juncus torreyi*)

Do they branch?
Do they come
out of just one
side of the
stem? Where?

Smallhead Rush
(*Juncus brachycephalus*)
likes wet habitats with
some limestone in
the soil layer

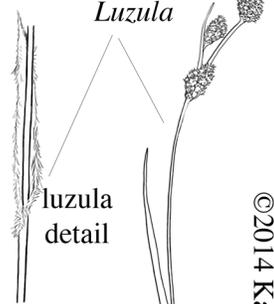
Path Rush
(*Juncus tenuis*)

Aside from the 'true' rushes (plants in the genus *Juncus*, many plants have "rush" in their name. These include the bullrushes, the wood rushes, scouring rush, and others. Botanists prefer scientific rather than common names, to avoid confusion. Other misnamed rushes: Dark Green Rush is not a *Juncus* but a *Scirpus* (in Cyperaceae). Scouring Rush is *Equisetum*; Spike Rush is *Eleocharis* in Cyperaceae



Knotted
Rush
(*Juncus
nodosus*)

Plants densely hairy,
almost appearing
cobwebby:
Luzula



luzula
detail



Baltic Rush
flower - note
the spiral
stigmas!

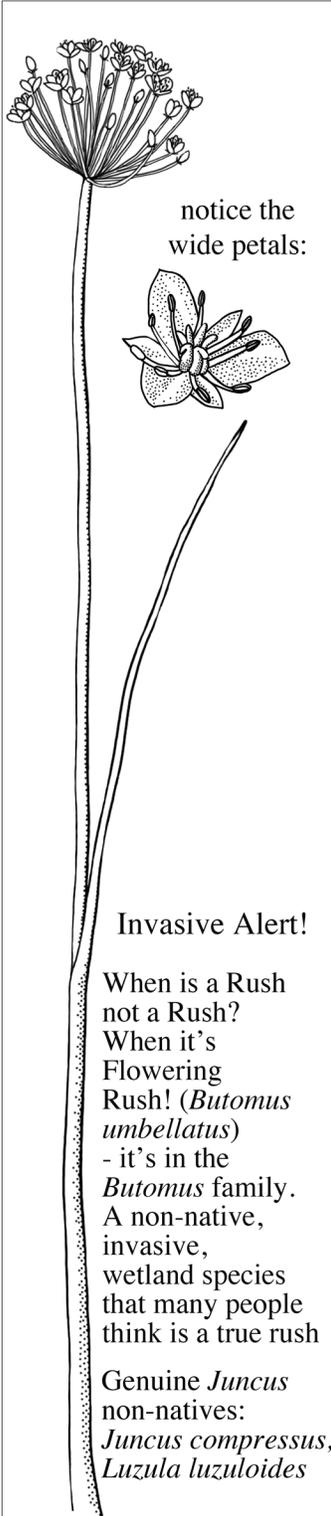


Rush stem:
notice the
solid pith in
cross-section

Some rush
stems are
round, others
are oval or
somewhat
flattened

Baltic Rush
(*Juncus balticus*)
can be found in
many different
wet habitats, is
salt-tolerant

Wood Rush
Luzula multiflora



notice the
wide petals:



Invasive Alert!

When is a Rush
not a Rush?
When it's
Flowering
Rush! (*Butomus
umbellatus*)
- it's in the
Butomus family.
A non-native,
invasive,
wetland species
that many people
think is a true rush

Genuine *Juncus*
non-natives:
Juncus compressus,
Luzula luzuloides

Lamiaceae

Globally:

236 genera / 7173 species

Chicago Region:

30 genera (14 non-native)/

72 species (33 non-native)

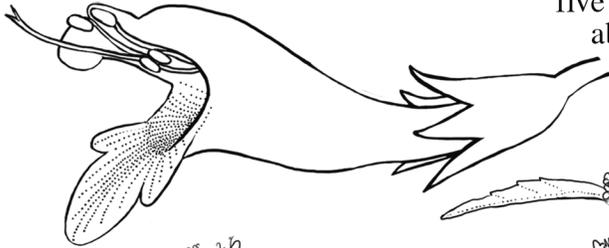
Mint Family (formerly Labiatae)

Characterized by opposite leaves, square, often pubescent stems, and glands that contain fragrant volatile oils

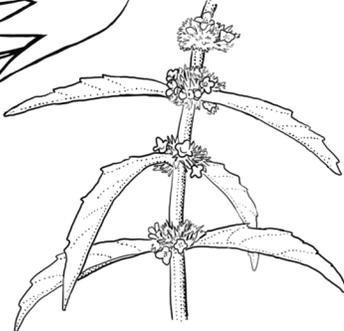
Four stamens - two long, two short, five fused petals with two lobes above, three lobes below; five fused sepals



nutlet showing four carpels

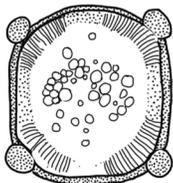


When walking through a prairie full of Common Mountain Mint (*Pycnanthemum virginianum*) look for its smooth, small leaves and tall smooth stems



Water Horehound (*Lycopus americanus*) loves wet, sunny prairie

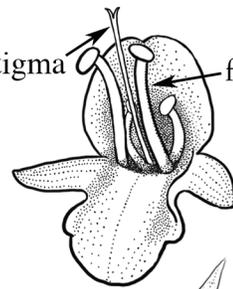
stem cross-section:



feel the square stems with 'bundles' along the sides



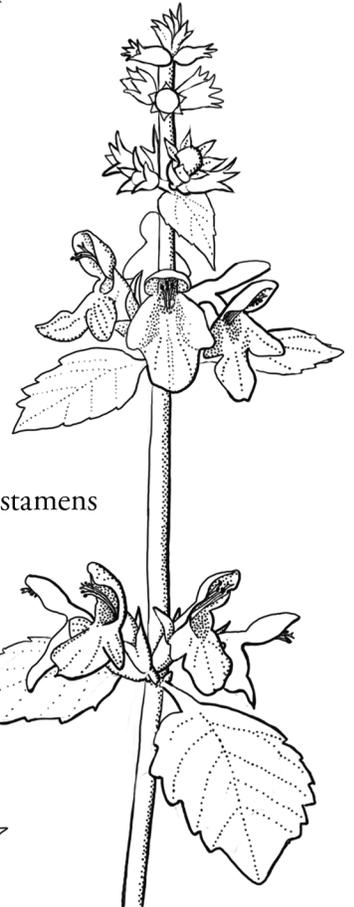
stigma and four-sectioned ovary



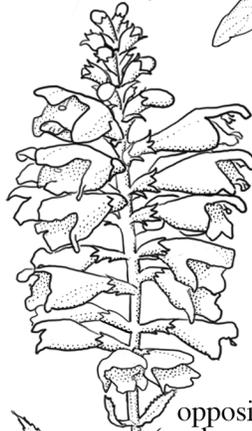
stigma four stamens



Marsh Scullcap (*Scutellaria epilobiifolia*)



Marsh Hedge Nettle (*Stachys tenuifolia*) showing flower clusters emerging from leaf axils, often typical for many mints



Obedient Plant (*Physostegia virginiana*)

opposite leaves (each pair emerges from a single node along the stem)

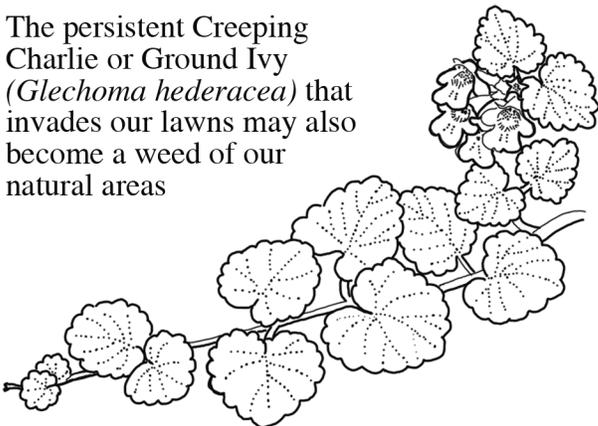


Wild Bergamot, also known as Bee Balm (*Monarda fistulosa*).

Fistulose = hollow or reed-like, referring to the hollow elongated flowers

Invasive Alert!

The persistent Creeping Charlie or Ground Ivy (*Glechoma hederacea*) that invades our lawns may also become a weed of our natural areas

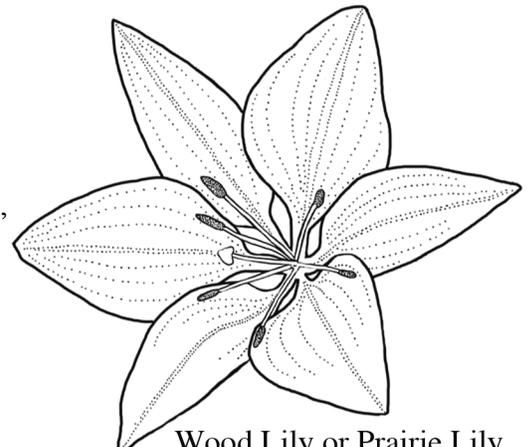


Globally:
 19 genera / 610 species
 (family is undergoing major revision)
 Chicago Region:
 26 genera (9 non-native)/
 49 species (19 non-native)

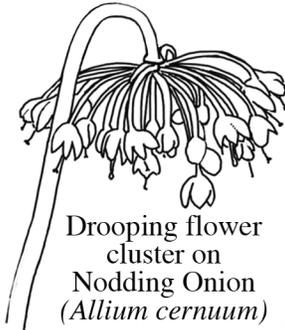
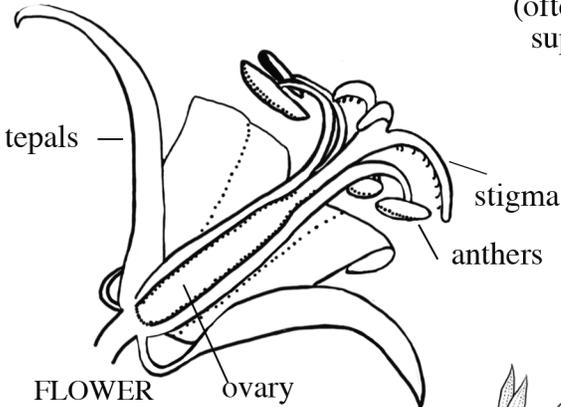
Liliaceae

Lily Family

Monocots, characterized by six (often colorful) tepals, six stamens, superior ovary and a three-lobed or three-branched stigma

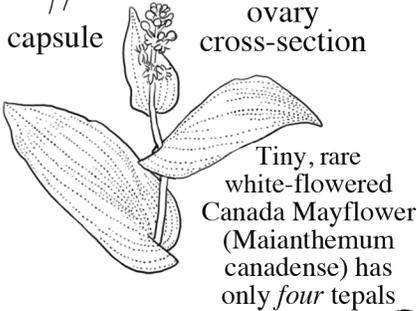
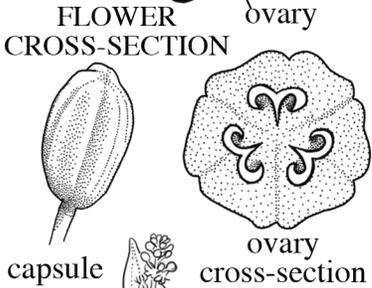


Wood Lily or Prairie Lily (*Lilium philadelphicum*) has upright flowers



Drooping flower cluster on Nodding Onion (*Allium cernuum*)

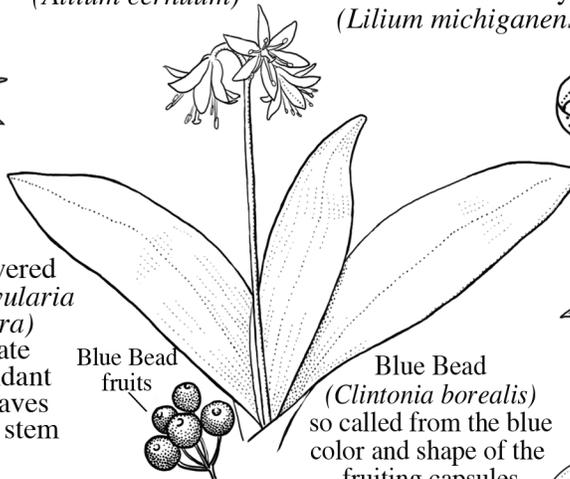
Note recurved tepals, pendant flowers and whorled leaves in Michican Lily (*Lilium michiganense*)



Tiny, rare white-flowered Canada Mayflower (*Maianthemum canadense*) has only four tepals



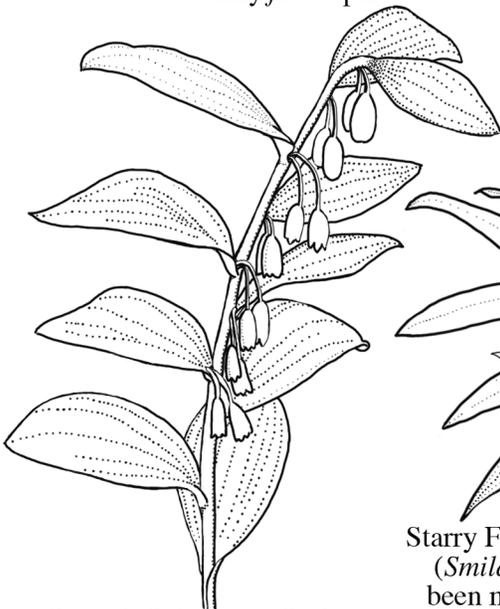
Large-Flowered Bellwort (*Uvularia grandiflora*) has delicate yellow pendant flowers, leaves clasping the stem



Blue Bead fruits

Blue Bead (*Clintonia borealis*) so called from the blue color and shape of the fruiting capsules

Note paired pendant flowers at leaf axils in *Polygonatum* and terminal raceme of starry flowers in *Smilacina*



Smooth Solomon's Seal (*Polygonatum canaliculatum*)



Starry False Solomon's Seal (*Smilacina stellata*) has been moved to the genus *Mainthemum*, so is now *Maianthemum stellatum*



Indian Cucumber Root (*Medeola virginiana*), when flowering, will send up a second whorl of leaves



White Trout Lily (*Erythronium albidum*) is so called because its mottled leaves resemble a trout's speckled skin

Globally:

22 genera / 656 species

Chicago Region:

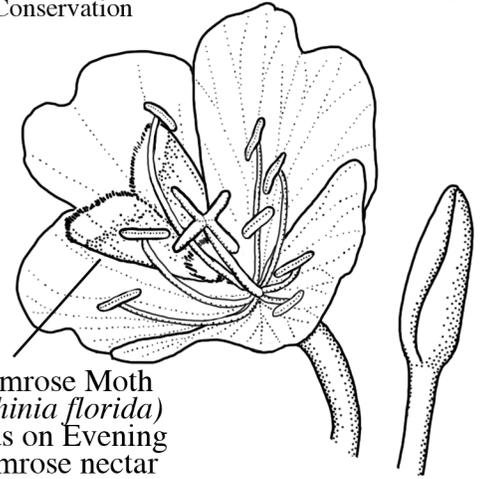
7 genera (2 non-native)/

30 species (7 non-native)

Onagraceae

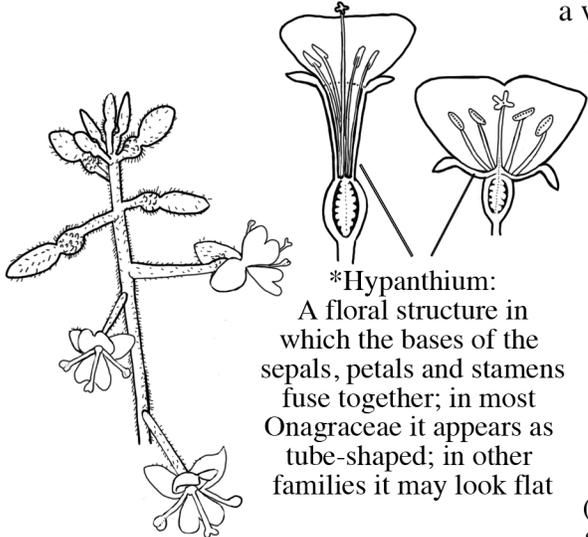
Evening Primrose Family

Characterized by the presence of a cross-shaped stigma, pollen grains connected by sticky threads and a well-developed hypanthium*; floral parts usually in fours

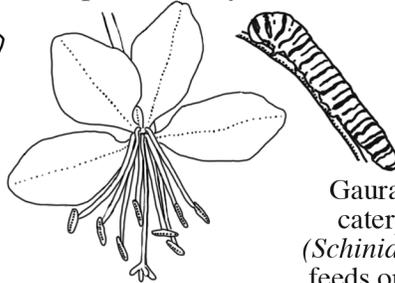


Primrose Moth (*Schinia florida*) feeds on Evening Primrose nectar

The yellow-flowered Common Evening Primrose (*Oenothera biennis*) is part of a taxonomic group that often confounds even the experts!

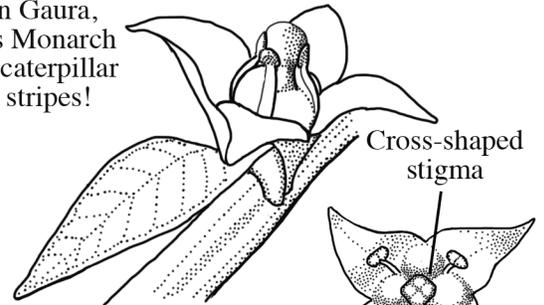


*Hypanthium: A floral structure in which the bases of the sepals, petals and stamens fuse together; in most Onagraceae it appears as tube-shaped; in other families it may look flat



Gaura Moth caterpillar (*Schinia gaurae*) feeds on Gaura, resembles Monarch butterfly caterpillar with its stripes!

Biennial Gaura (*Gaura biennis*) is a lovely biennial with pink flowers in late summer, and tall (4'-6") stems covered with soft, long white hairs. The pistil and stamens hang down, while the petals point upward

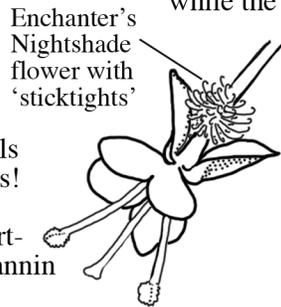


Many Fruit Primrose Willow (*Ludwigia polycarpa*)

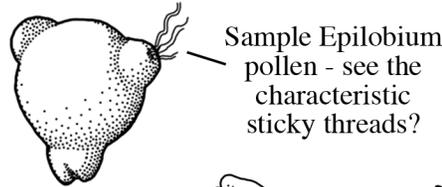
The square shape of Ludwigia ovaries give it its nickname, 'seedbox'!

Enchanter's Nightshade (*Circaea lutetiana*)

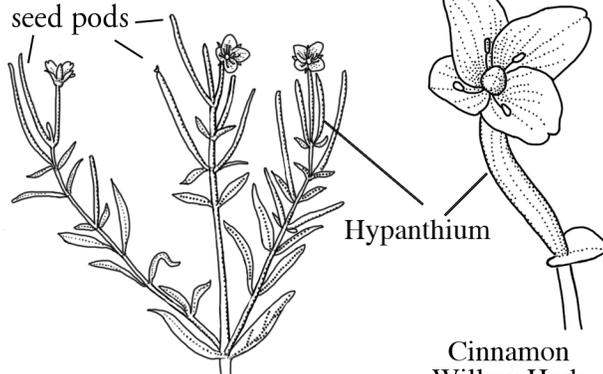
has two notched white petals, two sepals, and two stamens. Notice the curled 'sticktights' that help its seeds travel quite a distance on the fur of mammals helping it establish new colonies! Despite its name, it is not poisonous, but its opposite, heart-shaped leaves are very rich in tannin



Enchanter's Nightshade flower with 'sticktights'

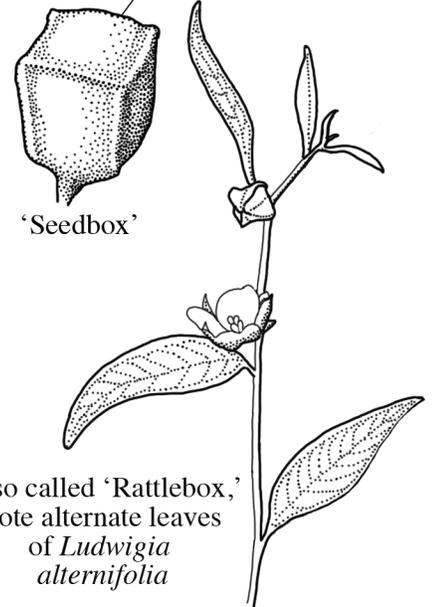


Sample Epilobium pollen - see the characteristic sticky threads?



Cinnamon Willow Herb (*Epilobium coloratum*) may be found in wet places like their willow namesakes; note pods, full of fluffy seeds, forming right after blooming

Cinnamon Willow Herb flower



Also called 'Rattlebox,' note alternate leaves of *Ludwigia alternifolia*

Invasive Alert:

Non-native Hairy Willow Herb (*Epilobium hirsutum*) has become widespread here; note petals more than 1 cm long distinguish from native species, except Fireweed (*Epilobium angustifolium*)



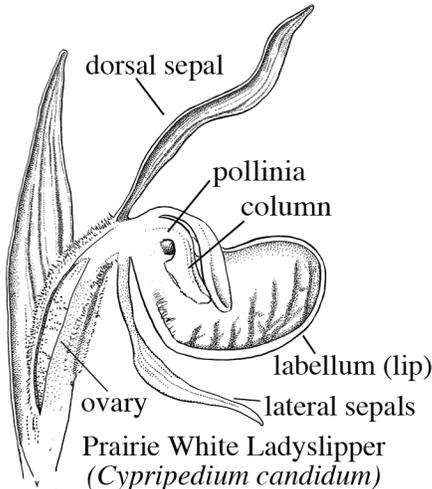
Globally:
880 genera / 22,075 species
Chicago Region:
16 genera / 43 species

Orchidaceae

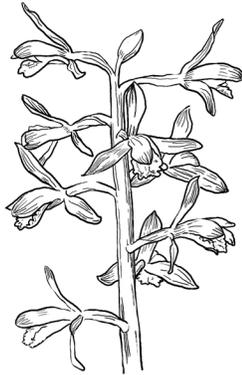
Orchid Family

Monocots; one of the largest plant families; definitely the most diverse in terms of flower shapes

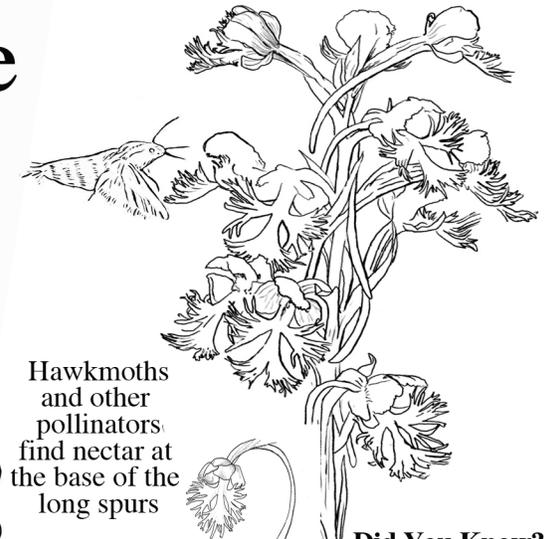
Characterized by very tiny seeds lacking endosperm; the fusion of the stamens (male reproductive parts) and carpels (female parts) into the column; and usually the presence of a showy lip (labellum)



Prairie White Lady'slipper (*Cypripedium candidum*) showing pouch-like lip that directs insects back to the pollinia; Please never dig wild orchids: they need their fungal connections to grow and will die if dug up!



Putty Root Orchid (*Aplectrum hyemale*) has its seasons backwards! It produces its flower spike in the spring and a dark green and white striped leaf in the fall



Hawkmoths and other pollinators find nectar at the base of the long spurs

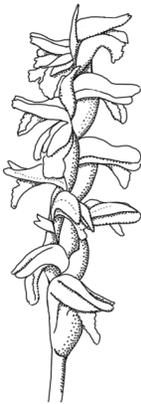
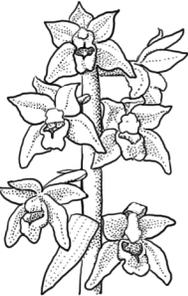
spur:

Did You Know?

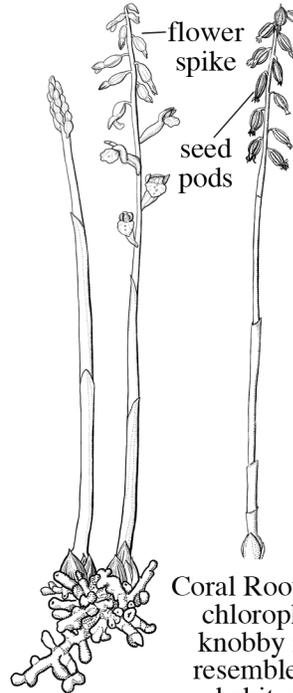
There are 12 species of *Platanthera* (formerly *Habenaria*) orchids in our region!

Some orchids have showy fringed lips - this one is the Prairie White Fringed Orchid (*Platanthera leucophaea*). It is listed federally as threatened, but is slowly gaining a comeback thanks to volunteers who hand-pollinate each year!

Helleborine Orchid (*Epipactis helleborine*) is our only non-native orchid; look for its black and green flowers



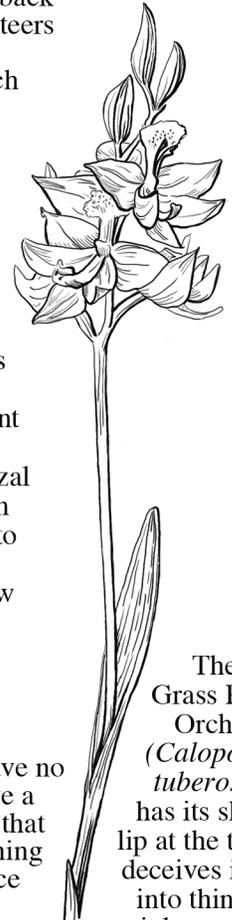
Nodding Ladies' Tresses (*Spiranthes cernua*) is probably the commonest orchid here; there are eight *Spiranthes* species in our region, some fragrant, most summer or fall blooming!



Autumn Coral-root
Corallorhiza odontorhiza

Orchids are dependent on mycorrhizal fungi in the soil to sprout and grow

Coral Root Orchids have no chlorophyll and have a knobby root system that resembles the branching habit of coral, hence their name



The Grass Pink Orchid (*Calopogon tuberosus*) has its showy lip at the top and deceives insects into thinking it has nectar!



Purple Twayblade Orchid (*Liparis liliifolia*) is sometimes seen in woodlands and prairie edges

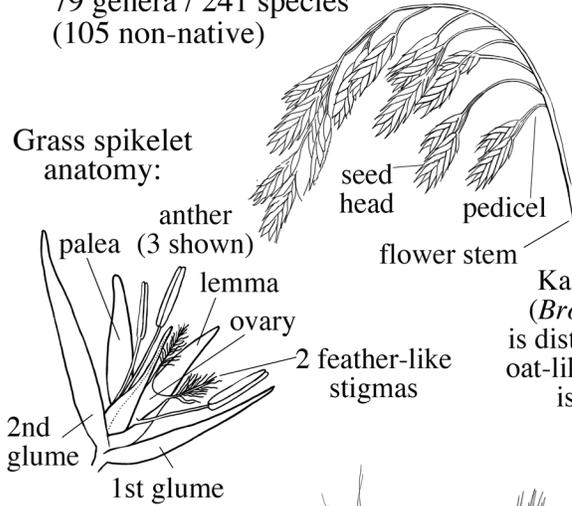
Globally:
759 genera / 11,554 species
Chicago Region:
79 genera / 241 species
(105 non-native)

Poaceae

Grasses Family (formerly Gramineae)

Monocots with usually inconspicuous flowers; one of the most important food sources for humans and livestock. The fifth-largest plant family

Grass spikelet anatomy:

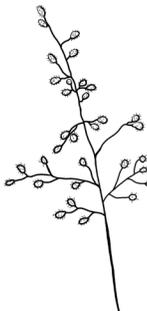


Kalm's Brome (*Bromus kalmii*) is distinctive for its oat-like appearance; is fairly rare



Big Bluestem (*Andropogon gerardii*) AKA 'Turkey Foot' is aptly named - can you see why?

Leiburg's Panic Grass (*Panicum leibergii*)



Bottlebrush Grass (*Elymus hystrix*)



Virginia Wild Rye (*Elymus virginicus*)



non-native Timothy-grass (*Phleum pratense*)

Side-oats Grama floret detail:



Side-oats Grama (*Bouteloua curtipendula*)



Bottlebrush Grass flower

There are three forms of seed heads: panicle (branching), spike (unbranched, with uniformly spaced spikelets) and spike-like panicle (unbranched, with uniformly spaced spikelets)

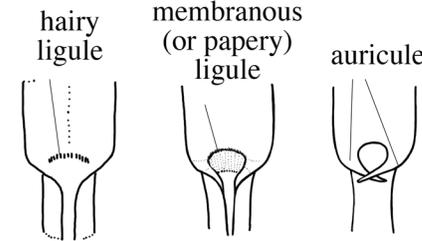
Invasive Alert!



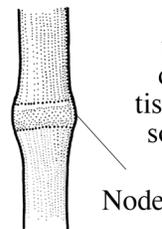
Reed Canary Grass (*Phalaris arundinacea*) is a tall, very invasive, coarse grass that creates dense stands, crowding out valuable native species. It can grow in very wet or very dry soils. Depending on the season, the flower head can appear loose, as on the left, or a much more compact head, almost like Timothy grass. There are no auricles. To tell it from other grasses, look for the distinctive white, papery membrane that often looks long and ragged.



Common Reed (*Phragmites australis*) is even taller, with dense, plume-like heads. Common along roadsides in wet ditches



Different shapes and textures of ligules and auricles are just two ways to tell the many different grasses apart!



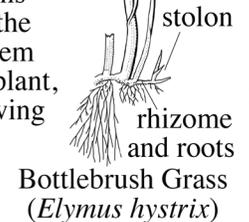
Node

Grass stem cross-section: (mostly hollow; but solid at the nodes)



fibrous roots can reach down several feet!

One of their adaptations to constant grazing is the development of meristem tissue at the base of the plant, so that it will keep growing - from the base up!



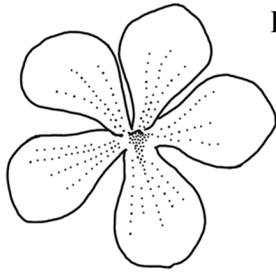
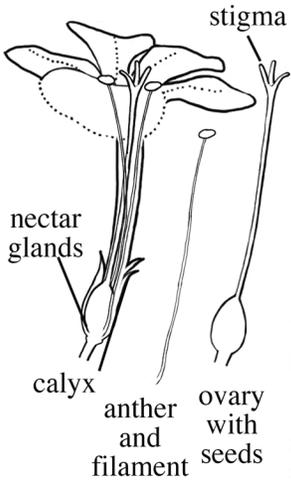
Bottlebrush Grass (*Elymus hystrix*)

Porcupine Grass (*Hesperostipa spartea*) seed and awn (life size!)

Polemoniaceae

Globally:
30 genera / 455 species
Chicago Region:
4 genera / 11 species
(5 non-native)

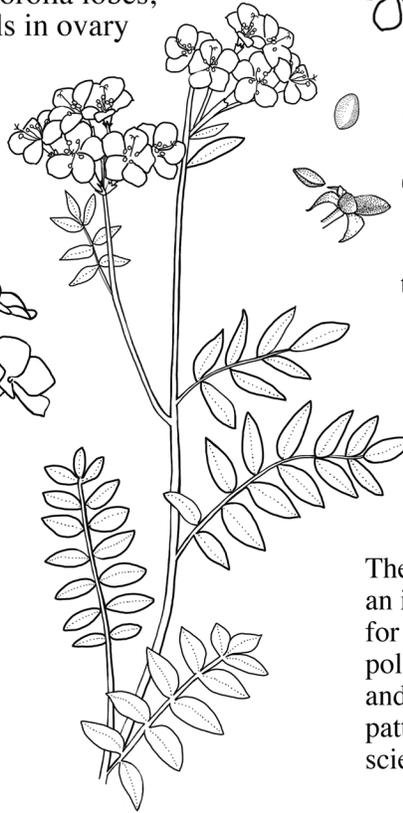
Phlox Family
Dicots with 5 united sepals,
5 united petals;
5 stamens that alternate
with the corolla lobes;
3 carpels in ovary



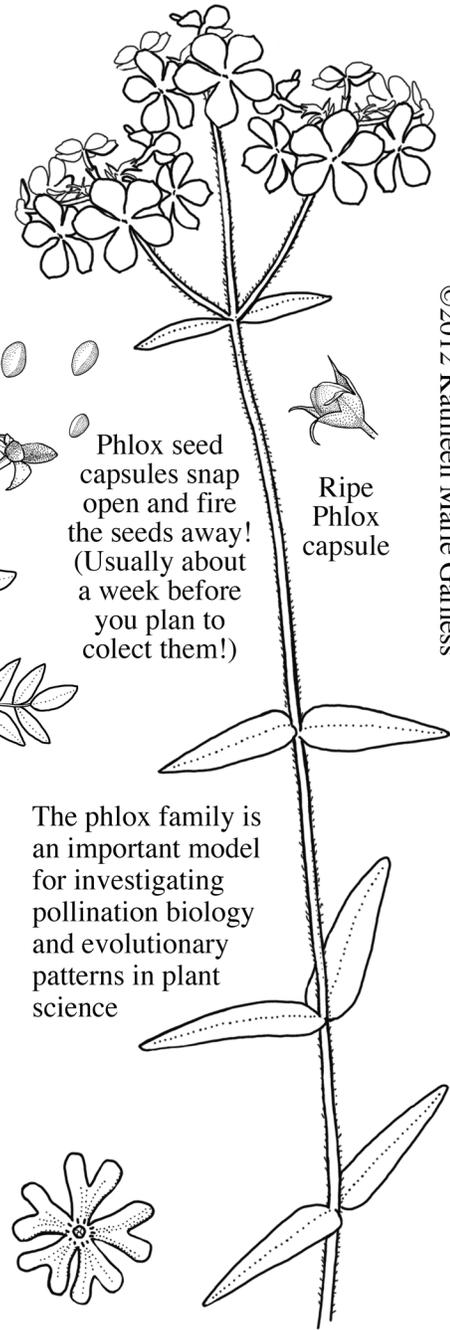
Tube-like flowers contain life-giving nectar for long-tongued bees, moths and butterflies, which in turn, pollinate our flowers, vegetables and fruit crops!



Marsh Phlox (*Phlox glaberrima*) has lanceolate leaves and smooth (glabrous) stems; is frequent in wet prairies, marshes



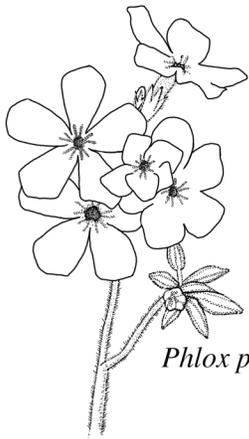
Notice the ladder-like pinnate leaflets in Jacob's Ladder (*Polemonium reptans*)



Phlox seed capsules snap open and fire the seeds away! (Usually about a week before you plan to collect them!)

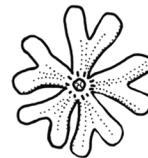
Ripe Phlox capsule

The phlox family is an important model for investigating pollination biology and evolutionary patterns in plant science



Downy Phlox (*Phlox pilosa*) gets its name from the fine hairs on stems and leaves (*pilose* = hairy)

Phlox pilosa



Each petal in *Phlox bifida* is deeply divided (bifid) up the center

Our common Woodland Phlox (*Phlox divaricata*) usually finishes blooming by mid-June. Flowers are blue to purple; stem is softly hairy

Invasives and look-alikes:

Only 4 petals in Dame's Rocket!



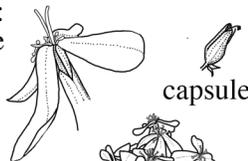
Notice that invasive Dame's Rocket (*Hesperis matronalis*) has only 4 petals and the leaves are alternate. The fruit is a long silique, not a capsule

Garden phlox



Native much further south but extensively hybridized for the garden trade, *Phlox paniculata* cultivars tend to crowd out native species so we'd rather not see them in our preserves. (Key: Leaves > 1/2" wide)

Soapwort: Notice the reflexed flowers, divided petals, protruding stamens and narrow capsule



Notice three prominent veins

Soapwort (*Saponaria officinalis*)

Speckled Phlox (*Phlox maculata*) can be recognized by the tiny purple spots on the stems



Globally:

62 genera / 2525 species

Chicago Region:

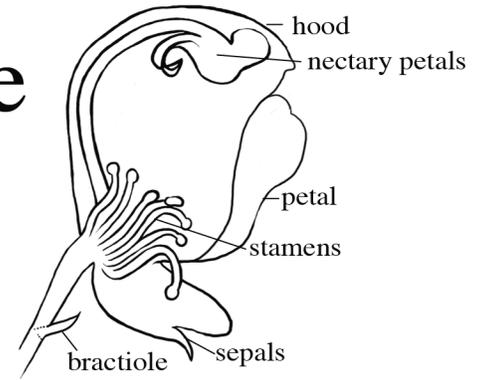
18 genera (4 non-native)/

47 species (12 non-native)

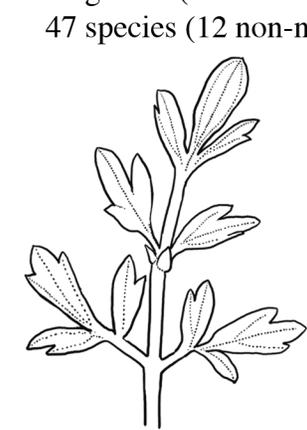
Ranunculaceae

Buttercup Family

Frequently lacinate or lobed leaves, numerous stamens surrounding many fused carpels



Monkshood (*Aconitum*)



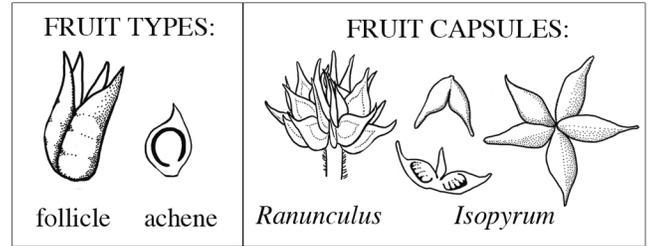
Early Buttercup (*Ranunculus fascicularis*)



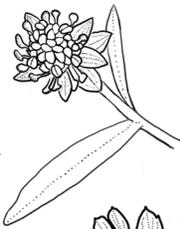
Swamp Buttercup (*Ranunculus septentrionalis*) has bold, waxy yellow flowers in springtime in moist remnant woods



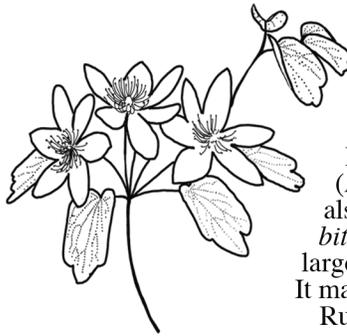
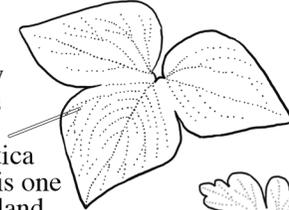
Wood Anemone (*Anemone quinquefolia*) has 5-9 white, petal-like sepals, sharply pointed, usually 5-lobed leaves



Small-Flowered Buttercup (*Ranunculus abortivus*) with 1/4" flowers, has five green sepals, five yellow petals; rounded, basal-lobed leaves below and oblong leaves above; common in our woodlands

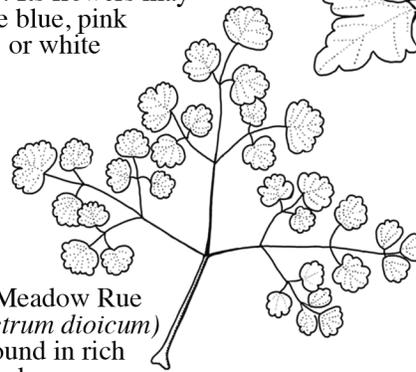


Sharp-Lobed Hepatica (*Hepatica acutiloba*) is one of our earliest woodland blooms! Its flowers may be blue, pink or white

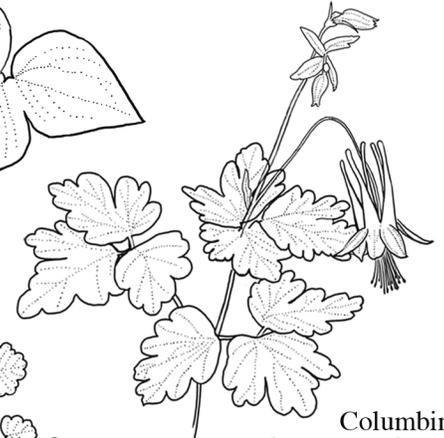


False Rue Anemone (*Enymion biternatum* - also known as *Isopyrum biternatum*) tends to form large colonies in rich woods. It may easily be confused with Rue Anemone: look for 5 white sepals, leaflets divided twice into threes

Early Meadow Rue (*Thalictrum dioicum*) is found in rich woods; grows up to 3' tall



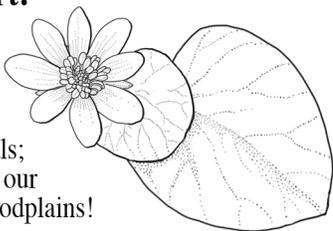
Columbine (*Aquilegia canadensis*) with its red and yellow spurred flowers, is a favorite nectar source of hummingbirds! Find it on slopes, cracks in limestone walls and other undisturbed habitats



The tiny Rue Anemone (*Anemonella thalictroides*) is similar to False Rue Anemone (*Enymion biternatum*) but differs by having 3 compound whorled leaves just below the flower, 5-10 petal-like sepals, and fruit with one seed

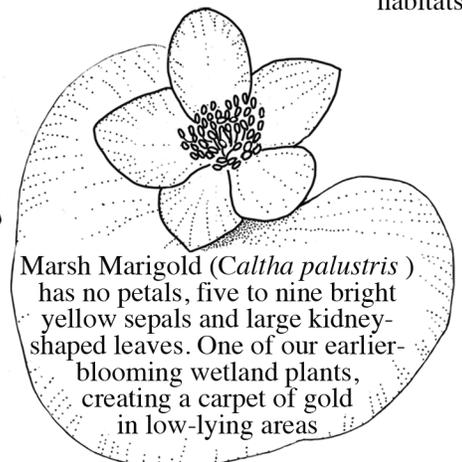
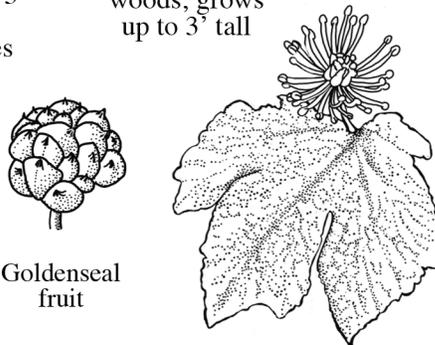
Invasives Alert!

Lesser Celandine (*Ranunculus ficaria*) has 1" flowers with 8-12 glossy yellow petals; is very invasive in our woodlands and floodplains!



Goldenseal fruit

Goldenseal (*Hydrastis canadensis*) with leaf, flower and fruit. The flower has no petals, only deciduous sepals and many stamens that just look like fine petals surrounding a central cluster of pistils



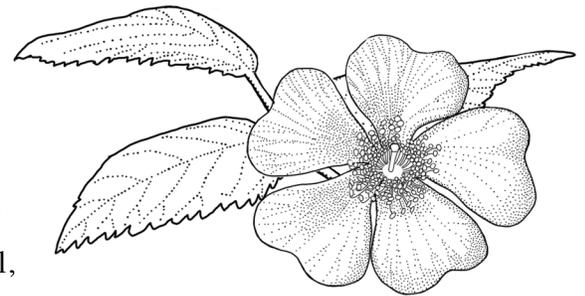
Marsh Marigold (*Caltha palustris*) has no petals, five to nine bright yellow sepals and large kidney-shaped leaves. One of our earlier-blooming wetland plants, creating a carpet of gold in low-lying areas

Globally:
90 genera / 2520 species
Chicago Region:
21 genera
(4 non-native) /
106 species
(39 non-native)

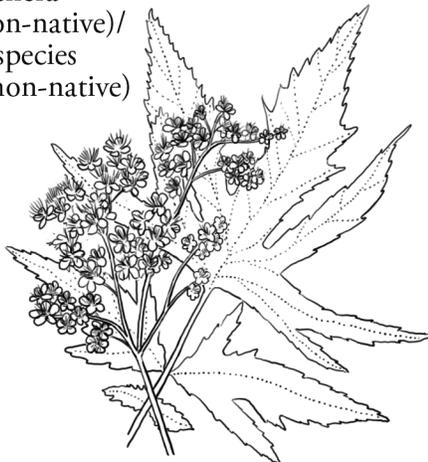
Rosaceae

Rose Family

Worldwide distribution:
herbs, shrubs, trees; of great economic importance;
FLOWERS radially symmetrical, petals and sepals often in 5s, many spirally-arranged stamens;
LEAVES alternate or arranged spirally; sometimes compound; mostly serrated margins; paired stipules; STEMS frequently have prickles or thorns



Illinois Rose (*Rosa setigera*) is notable for its height (up to 12' tall) and leaves with usually only three leaflets



Fluffy pink panicles of state-endangered Queen of the Prairie (*Filipendula rubra*) may reward a summer foray!

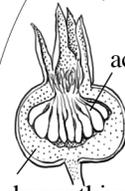


The seeds of Wild Strawberry (*Fragaria virginiana*) are achenes; the entire fruit is called an 'accessory fruit' because not all of the flesh comes from the developed ovary



FRUIT MAY BE:

a drupe (or aggregate of drupelets); a pome; a single (or aggregate of) achenes; or a follicle



Meadowsweet (*Spiraea alba*) produces a cluster of 5 sturdy follicles for its seeds

The rose hip is an aggregate of achenes surrounded by a fleshy hypanthium



Black Raspberry (*Rubus occidentalis*) fruit is a cluster of drupelets

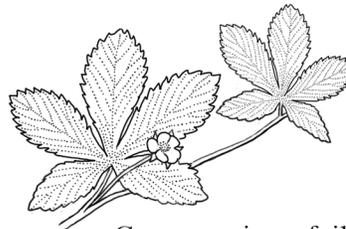
Notice the shallowly-lobed leaves of Prairie Crabapple (*Malus ioensis*). The fruit of apple and crabapple trees are called 'pomes' from a very old French word for apple



White Avens (*Geum canadense*)



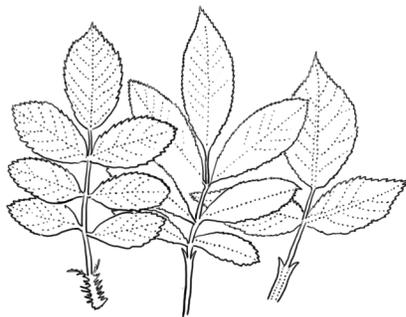
Small birds can get tangled in the sticky seeds of Tall Agrimony (*Agrimonia gryposepala*) or some of its other 'stick-tight'-producing cousins!



Common cinquefoil (*Potentilla simplex*) is recognized by 5 leaflets and sprawling habit

Invasives Alert!

Multiflora Rose can be distinguished from Illinois' native roses by its feathery fringes on the narrow stipules (a green, leaf-like structure) found at the base of each leaf stalk. Compare to the 'winged' stipules of native *Rosa setigera* and the narrow stipules of *Rosa palustris*



Multiflora Rose (*R. multiflora*) Swamp Rose (*R. palustris*) Illinois Rose (*R. setigera*)



Feathery seed heads and fern-like leaves on early-blooming Prairie Smoke (*Geum triflorum*)



There are a dozen species of hawthorn in our area; this drawing shows Downy Hawthorn (*Crataegus mollis*) with its sharp sturdy thorns

Globally:

65 genera / 1800 species

(Note: Family is being revised; updated DNA analysis indicates that many species will be reassigned to new genera and families)

Chicago Region: 27 genera

(7 non-native) / 70 species

(29 non-native)

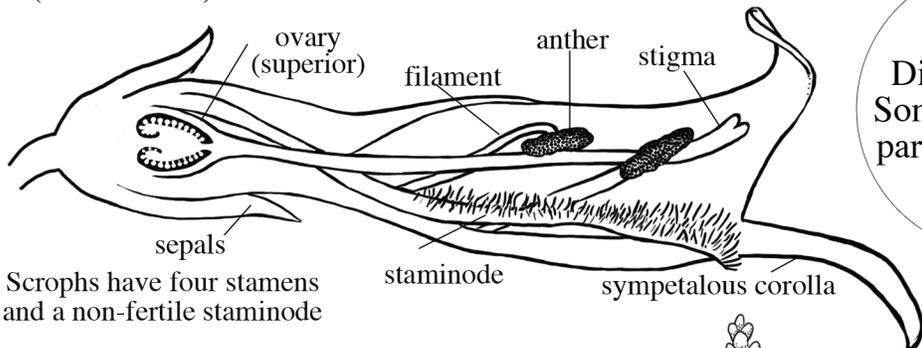
Scrophulariaceae

Veronica/Snapdragon Family

Very diverse, with many leaf and flower forms; most flowers are tubular with parts in 4s, 5s or 8s



Two-lipped appearance



Scrophs have four stamens and a non-fertile staminode

Did you know? Some species are partially parasitic

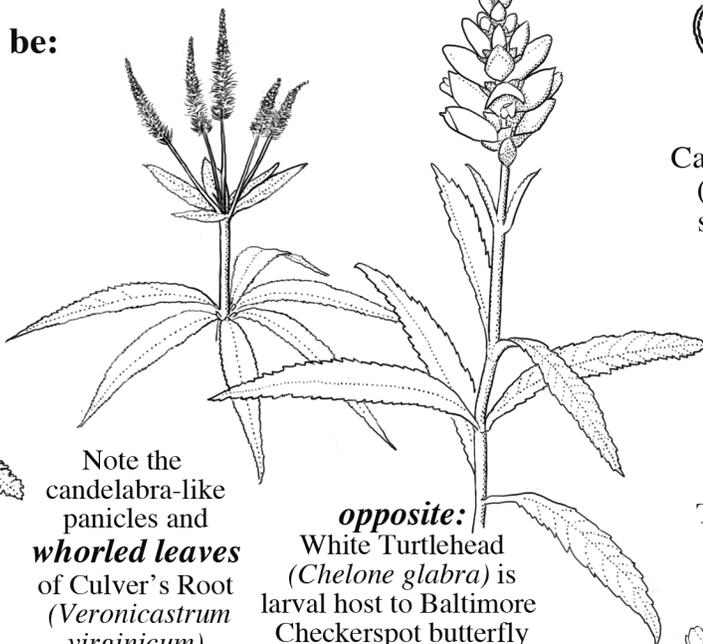


Often, curving stamens for best pollen placement

Leaves can be:

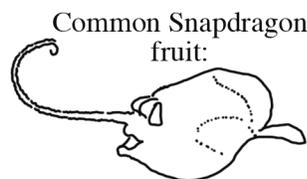


alternate:
Wood Betony (*Pedicularis canadensis*)



Note the candelabra-like panicles and **whorled leaves** of Culver's Root (*Veronicastrum virginicum*)

opposite:
White Turtlehead (*Chelone glabra*) is larval host to Baltimore Checkerspot butterfly



Common Snapdragon fruit:
Capsules, of two carpels, (many seeds in each) split along the seams between the cells



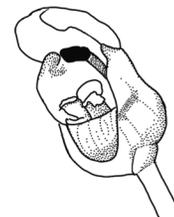
Occasionally spurred, as in Toadflax (*Linaria*)



White Turtlehead capsules



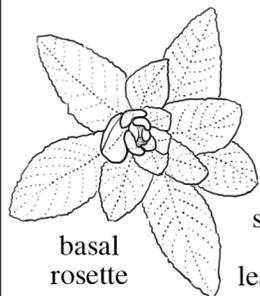
Penstemon digitalis capsules



Eastern Figwort (*Scrophularia marilandica*) has tiny green-brown flowers in panicles; 5' tall plants!

Invasives alert!

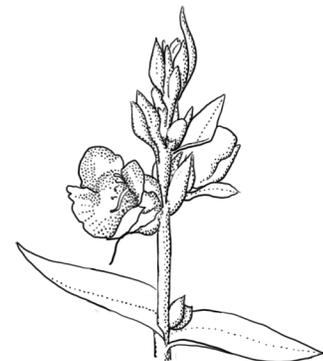
Common Mullein (*Verbascum thapsus*)



basal rosette



look for: soft, fuzzy, silver grey leaves, yellow flowers



The uncommon purple Eared False Foxglove (*Tomanthera auriculata*) is a state-listed species in IL, IN, and MI; look for the reddish-bronze edges of its leaves



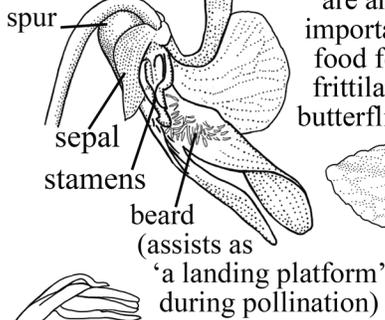
Indian Paintbrush

Look for Indian Paintbrush (*Castilleja coccinea*) brightly painting wet sandy summer prairies with its yellow, orange or red. It takes its color from its brilliantly-colored bracts! The inconspicuous flower is actually the yellowish-green structure above each bract. Look for the rounded calyx lobes, protruding corolla with a helmet-shaped upper lip, and the stigma which protrudes out from the modest flower tube

Globally: 22 genera /
1100 species
Chicago Region:
2 genera / 23 species
(4 non-native)

Spur: short and blunt in most, long and curved in *V. labradorica*, long and straight in *V. rostrata*

©2014 Kathleen Marie Garness/Harvey Ballard



Self-pollinating cleistogamous flowers are a 'backup' reproduction system!

Violaceae

Violet Family
Dicots with spurred flowers, three-carpeled ovaries; rosette or leafy stems; species easily hybridize

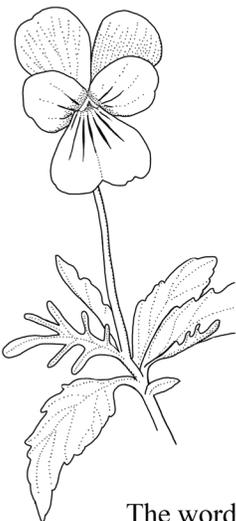
When is a violet not a violet? When it is 2' tall Green Violet, *Hybanthus concolor*, whose closest relative is a Central American tree!

Their leaves are an important food for fritillary butterflies!

Not just 'violet', their flowers can be any combination of purple, blue, green, white or yellow!

Note how small *Hybanthus concolor's* flowers are relative to the size of the plant!

Non-native, but not invasive: Johnny-jump-up (*Viola tricolor*) seldom invades natural areas but may be found in old homesites adjacent to them



The word 'tricolor' ('tri' = 3) celebrates its rich combination of blue, purple and yellow

Yellow flowers, upright habit point to *Viola pubescens*



Habits are important - tall and upright? Basal rosette? Creeping or upright, single or clustered leafy stems?

V. pedata flower

Notice the differences!

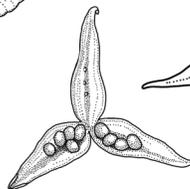
Viola pedatifida flower

V. pedatifida and *V. pedata* have deeply dissected palmate leaves; *V. pedata* has a more pansy-like flower with bright orange stamens

Upright, state-endangered *V. canadensis* has white flowers, smooth, papery or absent stipules

Viola sororia is our common, native yard violet

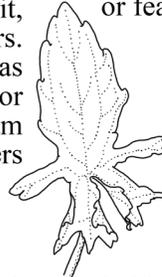
When ripe, pods stand erect on their stem; the seed pod splits open. But the sides hold the seeds tight. Then the sides tighten further and fire the seeds out!



Little waxy elaisomes on some violet seeds are delicious to ants, who 'plant' the seeds in their nests!

More 'stemmy' violets: *V. labradorica* (formerly *V. conspersa*) has a multistemmed, prostrate habit, pale blue flowers. *V. striata* has white or cream flowers

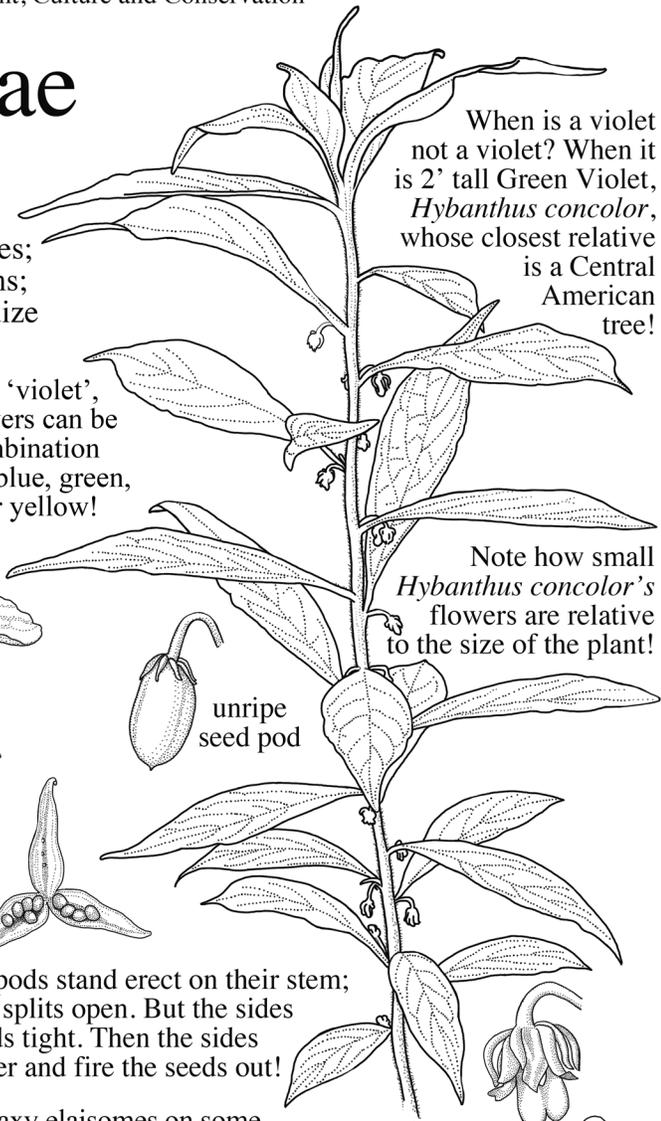
Stipules - those paired leafy bracts at the base of leaves - are important! Note: smooth, jagged or feathery?



Look for the broad triangle leaf in *V. missouriensis*

The bottom half of *V. palmata* is often deeply dissected

Rare *Viola sagittata* may have gently lobed or smooth leaf bases - loves wet, acidic sandy prairies



unripe seed pod

Hybanthus flower

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GLOSSARY

- Achene:** A small, dry, indehiscent fruit with a single seed that is attached to the ovary wall at a single point. [*Cyperaceae*, *Ranunculaceae*; *Rosaceae*]
- Adventitious:** Structures or organs developing in an unusual position, as roots originating on the stem. [*Araceae*]
- Alternate:** Referring to leaves borne singly at a node, compare to opposite and whorled. [*Scrophulariaceae*; *Onagraceae*]
- Anther:** The expanded, pollen-bearing, portion of the stamen. [*Liliaceae*; *Scrophulariaceae*]
- Auricle:**
- Axil:** The upper angle formed between the junction of a leaf and stem. [*Liliaceae*; *Lamiaceae*]
- Axillary:** Positioned in or arising from an axil.
- Calcareous:** Soil containing calcium carbonate (CaCO₃) and having a basic pH reaction. [*Orchidaceae*]
- Calyx:** The outer perianth whorl (outer floral envelope); collective term for all of the sepals of a flower. [*Asclepiadaceae*]
- Carpel:** A floral organ that contains ovules in angiosperms. It is either borne separately or a unit of a compound pistil. [*Orchidaceae*; *Lamiaceae*]
- Clasping:** Wholly or partly surrounding the stem.
- Compound:** Referring to a leaf separated into two or more distinct leaflets. [*Apiaceae*]
- Corm:** A short, solid, vertical underground stem with thin papery leaves. [*Araceae*]
- Corolla:** The inner perianth whorl (floral envelope); collective name for all of the petals of a flower. [*Asclepiadaceae*; *Scrophulariaceae*]
- Culm:** The stem, such as in sedges, rushes or grasses [*Cyperaceae*, *Juncaceae*, *Poaceae*]
- Dehiscence:** The ability of a plant part to split along a seam in order to release its contents, such as seeds, pollen or spores. Indehiscent structures rely on other mechanisms - such as decay or being eaten - to spread their contents.
- Drupe:** A fleshy or pulpy fruit in which the inner portion of the ovary wall is hard or stony. [*Rosaceae*]
- Drupelets:** A small drupe, as in the individual segments of a raspberry fruit. [*Rosaceae*]
- Endosperm:** The nutritive tissue surrounding the embryo of a seed derived from the fusion of a sperm cell with the polar nuclei of the embryo sac. [*Orchidaceae*]
- Filament:** The stalk of the stamen that supports the anther. [*Scrophulariaceae*]
- Follicle:** A dry, dehiscent fruit composed of a single carpel and opening along a single side, as a milkweed pod. [*Asclepiadaceae*, *Ranunculaceae*; *Rosaceae*]
- Glume:** The bottommost empty scale(s), just below the fertile scales, in spikelets of the grass plant. [*Poaceae*]
- Inflorescence:** The flowering part of a plant; a flower cluster; the arrangement of the flowers on the flowering axis.
- Involucres:** A whorl of bracts subtending a flower or flower cluster. [*Asteraceae*]
- Laciniate:** Cut into narrow, irregular lobes or segments. [*Asteraceae*; *Apiaceae*]
- Lemma:** The lower of the two scales that form the floret in the grass spikelet [*Poaceae*]
- Ligule:** a thin outgrowth at the junction of leaf and leafstalk of many grasses and sedges. Also may refer to a strap-shaped corolla, such as that of a ray floret in plants in the *Compositaceae* family.
- Lobed:** Bearing lobes which are cut less than half way to the base or midvein.
- Meristem tissue:** The undifferentiated plant tissue from which new cells are formed, as that at the tip of a stem or root.
- Monocot:** A group of angiosperms with a single cotyledon. Most monocots have parallel veins, flower parts in multiples on three and a fibrous root system. [*Orchidaceae*]
- Mycorrhizal:** A symbiotic association of fungi and the roots of specific plants. [*Orchidaceae*]

- Opposite:** Referring to leaf arrangement when leaves are borne across from one another at the same node; compare to alternate and whorled. [*Scrophulariaceae*; *Lamiaceae*]
- Ovary:** The expanded basal portion of the pistil that contains the ovules.
- Palea:** The upper of the two scales that form the floret in the grass spikelet [*Poaceae*]
- Palmate:** lobed, veined, or divided from a common point, like the fingers of a hand. [*Fabaceae*]
- Panicle:** A branched, racemose inflorescence with flowers maturing from the bottom upwards. [*Asteraceae*; *Rosaceae*; *Scrophulariaceae*]
- Pedicel:** The stalk of a single flower in an inflorescence, or of a grass spikelet.
- Peduncle:** The stalk of a solitary flower or of an inflorescence. [*Asteraceae*]
- Perianth:** Collective term for the calyx and corolla.
- Perigynium:** the hypogynous bristles, scales, or a more or less inflated sac, which surround the pistil in many *Cyperaceae*.
- Petals:** one member of the inner floral envelope (corolla) of a typical flower; usually white or colored. [*Lamiaceae*]
- Petiolate:** A plant with a petiole.
- Petiole:** A leaf stalk. [*Apiaceae*; *Asteraceae*]
- Phyllary:** An involucral bract of the Asteraceae Family. [*Asteraceae*]
- Pinnate:** Resembling a feather, as in a compound leaf with the leaflets arranged on opposite sides of an elongated axis. [*Apiaceae*; *Fabaceae*]
- Pistil:** The female reproductive organ of a flower, typically consisting of a stigma, style, and ovary. [*Onagraceae*]
- Pubescent:** Covered with short, soft hairs.
- Raceme:** An unbranched, elongated inflorescence with pedicellate flowers maturing from the bottom upwards. [*Liliaceae*]
- Recurved:** curved backward. [*Liliaceae*]
- Reflexed:** bent backward or downward.
- Sac:** a pouch or pouch-like structure. [*Cyperaceae*]
- Scale:** A small, thin, usually dry, often appressed plant structure, such as any of the protective leaves that cover a tree bud or the bract that subtends a flower in a sedge spikelet.
- Sepal:** One part of the outer floral envelope (calyx) that is typically leafy and green. [*Asclepiadaceae*; *Ranunculaceae*]
- Sessile:** Attached directly, without a supporting stalk, as a leaf without a petiole.
- Sheath:** An enveloping tubular structure, such as the base of a grass leaf that surrounds the stem [*Poaceae*]
- Spike:** An unbranched, elongated inflorescence with sessile or subsessile flowers or spikelets maturing from the bottom upwards.
- Stamen:** The pollen-bearing, male reproductive organ of a flower, normally consisting of a filament and anther. [*Araceae*; *Brassicaceae*; *Lamiaceae*]
- Staminode:** A sterile stamen that does not produce pollen but which may be part of the flower's strategy for attracting pollinators. Sometimes they produce nectar or are very showy. [*Scrophulariaceae*, *Orchidaceae*]
- Stigma:** The portion of the pistil that is receptive to pollen. [*Liliaceae*; *Scrophulariaceae*; *Lamiaceae*]
- Sympetalous:** With the petals united, at least at the base. [*Scrophulariaceae*]
- Tepal:** A segment of a perianth that is not differentiated into calyx and corolla; or sepal or a petal. [*Liliaceae*]
- Trifoliate:** Having leaves divided into three similar parts [*Fabaceae*; *Gentianaceae*]
- Umbel:** A flat-topped or convex inflorescence with the pedicels arising more or less from a common point, like the struts of an umbrella. [*Apiaceae*; *Asclepiadaceae*; *Liliaceae*]
- Whorled:** Referring to leaves arranged in whorls; three or more leaves arising from a node. [*Liliaceae*; *Scrophulariaceae*]

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Plant Family Pages Credits – editorial and inspirational

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