



Tips for Becoming an “Expert” Botanist

Laura Walter, Plant Materials Program Manager



About your instructor



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BOTANY BEGINNERS SPEAKER

LAURA WALTER

Laura Walter is the Plant Materials Program Manager at the Tallgrass Prairie Center. In her spare time, she enjoys visiting nearby prairie remnants and reconstructed prairies.

I'm excited to help others develop a deeper appreciation and understanding of prairie plants.

Favorite plant: In May-June, Hairy Puccoon, *Lithospermum carolinense*



Acknowledgements



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Quick Shout-outs & Reminders

- To all of you, for wanting to learn more about plants!
 - To the UNI Information Technology staff
 - To Paige and Staci, who are helping me today to field your questions
-
- ✓ June 8 and 11 webinars have been posted
 - ✓ Quiz 1 will be posted soon
 - ✓ If you haven't already done so, please take the survey
 - ✓ Connect with one another on the BB Facebook Group
 - ✓ Visit the [Tallgrass Prairie Center](#) Resources section for all kinds of information on planting and managing prairies.

Why Botany Beginners?

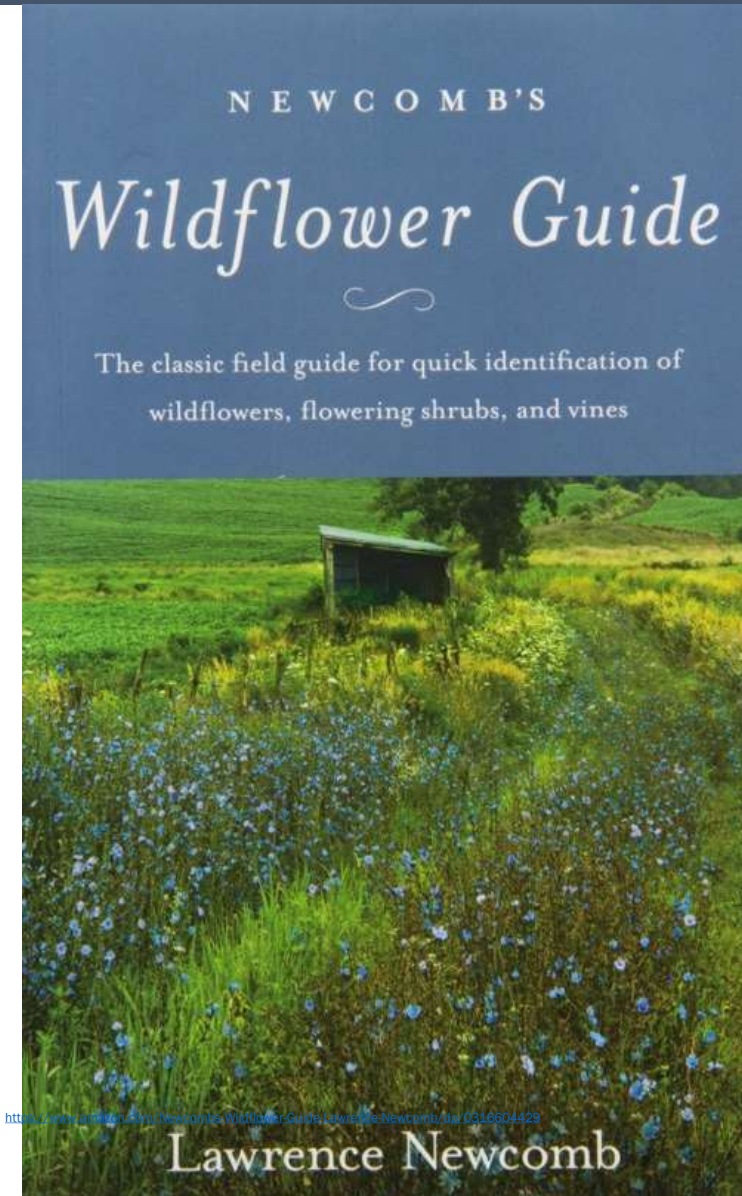
We want to help you learn how to learn plants!

- This class will help you:
 - Learn the names of plants that are important to you
 - Feel comfortable using botanical language and field guides
 - Appreciate Iowa's natural areas
 - Connect with other botanists across the state



Course Components

- Six Lectures (recorded)
- Plants of the Day
 - Student Plant lists
- Homework and Quizzes
- Facebook Group
- Virtual Field Days (recorded)
- Newcomb's Wildflower Guide



Botany Beginners Topics

1. Paige Shafer – Introduction to Botany Beginners
2. Laura Jackson – Botany Fundamentals & Field Guide Usage
3. **Laura Walter – Tips for Becoming an Expert Botanist**
4. Justin Meissen & Kristine Nemec – CRP & Roadside Plants
5. Laura Walter & Justin Meissen – Remnant Prairie Plants
6. Paige Shafer – Continuing your Botanical Journey



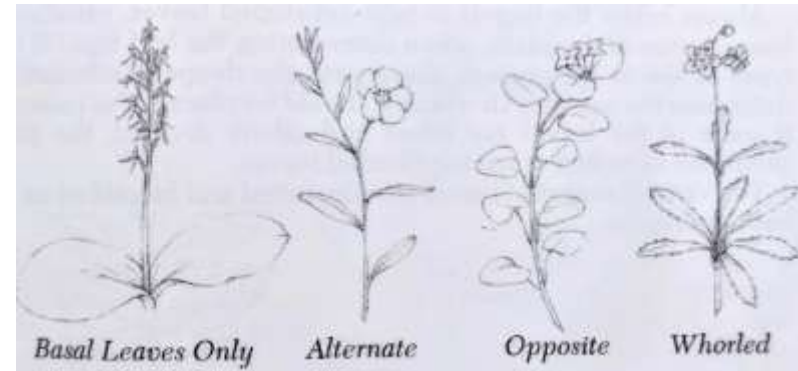
Quick Recap of Previous Lectures



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- Overview of Botany Beginners course
- Basic Terminology for describing plants
- Safety while botanizing
- Comparing field guides
- Practicing with Newcomb's Wildflower Guide
- Plants of the Day



Today's Learning

- More practice using Newcomb's Wildflower Guide
- Finding current common and scientific names
- Recognizing four common plant families
- Troubleshooting tips
- Four new “species of the day”

Don't have a Newcomb's guide today?

- Follow along and apply botany terms to today's plants
- Learn about online tools you can use to supplement any field guide
- Learn about several important species NOT in Newcomb's

*Advanced botanists –
pull out a notebook
and write down the
names of the 15
“mystery plants” in the
numbered photos*

Web Resources

- [USDA Plants Database](#) – for finding currently accepted plant names
- [Minnesota Wildflowers](#) – for identification of species not in Newcomb's
- [Illinois Wildflowers](#) – for ecological information about each species (search bar is at bottom)
- If you have a smart phone, follow along to try using these sites. You should be able to Google the titles to find them.

Practice: Plant of the Day #1

Step 1 – The Three Classifications

- Find the chart in the front flyleaf
- What's the flower type?
 - Answer in chat
- Plant type?
 - Answer in chat
- Leaf type?
 - Answer in chat
- Group Number = **134**

THE THREE CLASSIFICATIONS

1	FLOWER TYPE	Irregular Flowers		1
		2 Regular Parts		2
		3 Regular Parts		3
		4 Regular Parts		4
		5 Regular Parts		5
		6 Regular Parts		6
		7 or More Regular Parts		7
		Parts Indistinguishable		8
2	PLANT TYPE	Wildflowers	No Apparent Leaves	1
			Basal Leaves Only	2
			Alternate Leaves	3
			Opposite or Whorled Leaves	4
		Shrubs		5
3		Vines		6
4	LEAF TYPE	No Apparent Leaves		1
		Leaves Entire		2
		Leaves Toothed or Lobed		3
		Leaves Divided		4



3. Locator Key (p2) → Page Number

134 Irregular Flowers, Wildflowers with **Alternate** Leaves, Leaves **divided**

Leaflets 3, entire or finely toothed	
Yellow flowers	58
Flowers not yellow	
Middle leaflet stalkless or nearly so	60
Middle leaflet distinctly stalked	
Leaflets finely toothed	60
Leaflets entire	62
Leaflets 4 or more, entire or finely toothed	66
Leaves deeply cleft into irregularly lobed or very narrow segments	



4. Page 60 → to plausible ID



60

WILDFLOWERS WITH ALTERNATE LEAVES / Leaves Divided

Leaflets 3, Entire or Finely Toothed, the Middle One Stalkless or Nearly So; Flowers Not Yellow

Clovers (*Trifolium*) White, pink or purple flowers in dense heads. These familiar plants are found in fields, roadsides and waste places. Pea Family.

Red Clover (*T. pratense*) * Magenta or purple flowers in stalkless heads. The blunt, oval leaflets are usually blotched with a white V. 6-24" high. Fields and meadows; very common. Spring to fall.

Rabbit-foot Clover (*T. arvense*) * Flower heads grayish pink, grayish white, oblong, furry. The leaflets are rather narrow and silky-hairy. 4-10" high. Dry fields and roadsides. Summer to fall.

Alsike or Alsatian Clover (*T. hybridum*) * Pink or pinkish flowers in a round head, turning brown with age; stem erect or ascending. The heads are long-stalked, and the flowers are sweetly fragrant. 10-24" high. Fields and roadsides. Summer to fall.

White Clover (*T. repens*) White or pale-pink flowers in a round head; plant creeping at the base. See p. 36.

False Indigos (*Baptisia*) Blue or white flowers, about 1" long, in loose racemes. Leaflets 3, entire. Wild Indigo (p. 58) has yellow flowers. 2-5' high. Rich woods and thickets. Late spring and early summer. Pea Family.

Blue False Indigo (*B. australis*) Indigo-blue flowers. W. Pa. to S. Ind. south; escaped east to N. Eng.

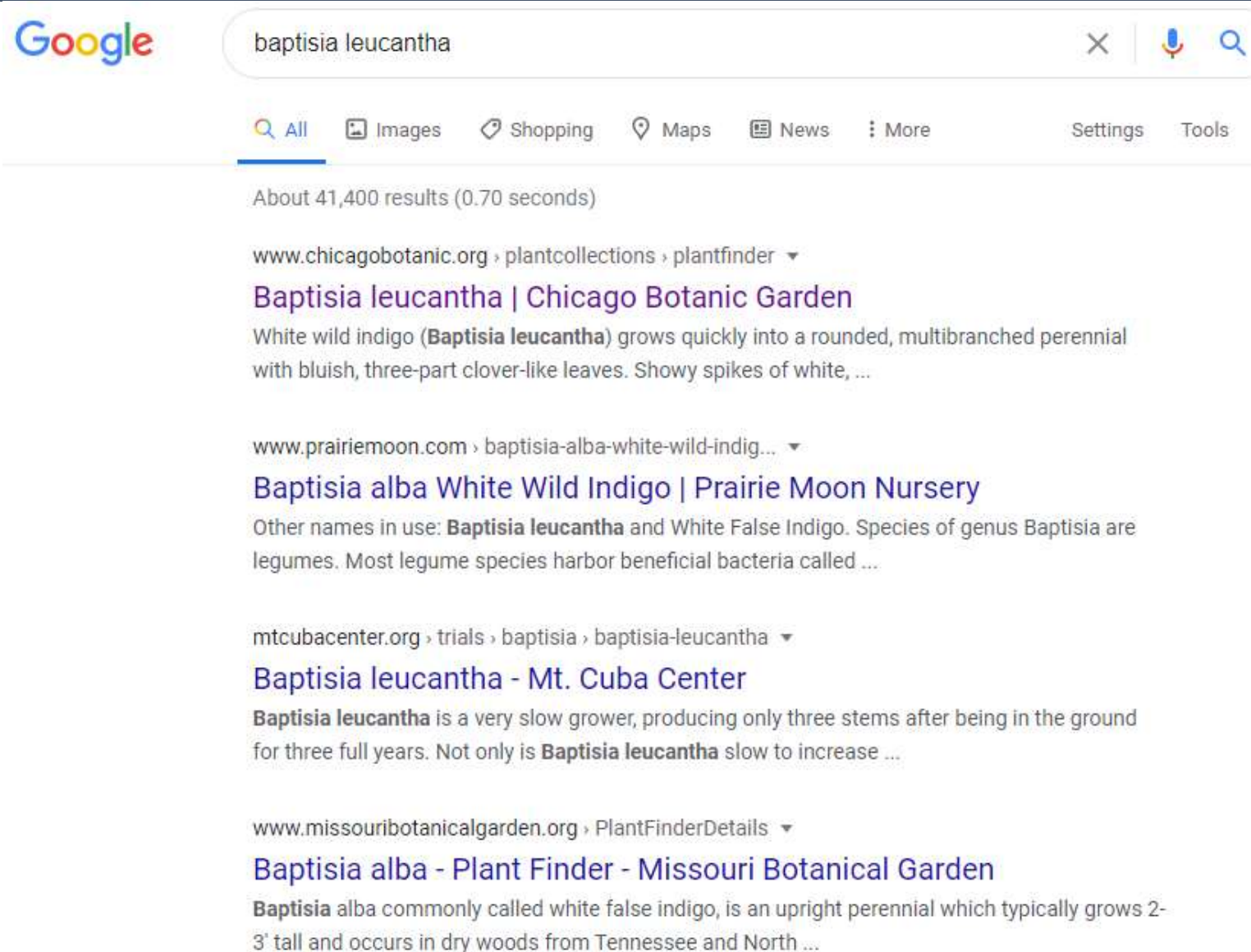
White False Indigo (*B. leucantha*) † White flowers. S. Ont. and Ohio to Minn. south.

Jack-in-the-pulpits (*Arisaema*) Brown or green flowers, growing beneath the leaves. See p. 36.

Leaflets 3, Finely Toothed, the Middle One Distinctly Stalked; Flowers Not Yellow











PoD#1 = Baptisia leucantha or B. alba?



Google

baptisia leucantha

× |  

 All  Images  Shopping  Maps  News  More Settings Tools

About 41,400 results (0.70 seconds)

www.chicagobotanic.org › plantcollections › plantfinder ▼

Baptisia leucantha | Chicago Botanic Garden

White wild indigo (**Baptisia leucantha**) grows quickly into a rounded, multibranched perennial with bluish, three-part clover-like leaves. Showy spikes of white, ...

www.prairiemoon.com › baptisia-alba-white-wild-indig... ▼

Baptisia alba White Wild Indigo | Prairie Moon Nursery

Other names in use: **Baptisia leucantha** and White False Indigo. Species of genus Baptisia are legumes. Most legume species harbor beneficial bacteria called ...

mtcubacenter.org › trials › baptisia › baptisia-leucantha ▼

Baptisia leucantha - Mt. Cuba Center

Baptisia leucantha is a very slow grower, producing only three stems after being in the ground for three full years. Not only is **Baptisia leucantha** slow to increase ...

www.missouribotanicalgarden.org › PlantFinderDetails ▼

Baptisia alba - Plant Finder - Missouri Botanical Garden

Baptisia alba commonly called white false indigo, is an upright perennial which typically grows 2-3' tall and occurs in dry woods from Tennessee and North ...

What is the accepted name?

- Go to [USDA Plants](#)



USDA United States Department of Agriculture
Natural Resources Conservation Service

PLANTS Database

About PLANTS Team Partners What's New

Search
Name Search

Scientific Name Go

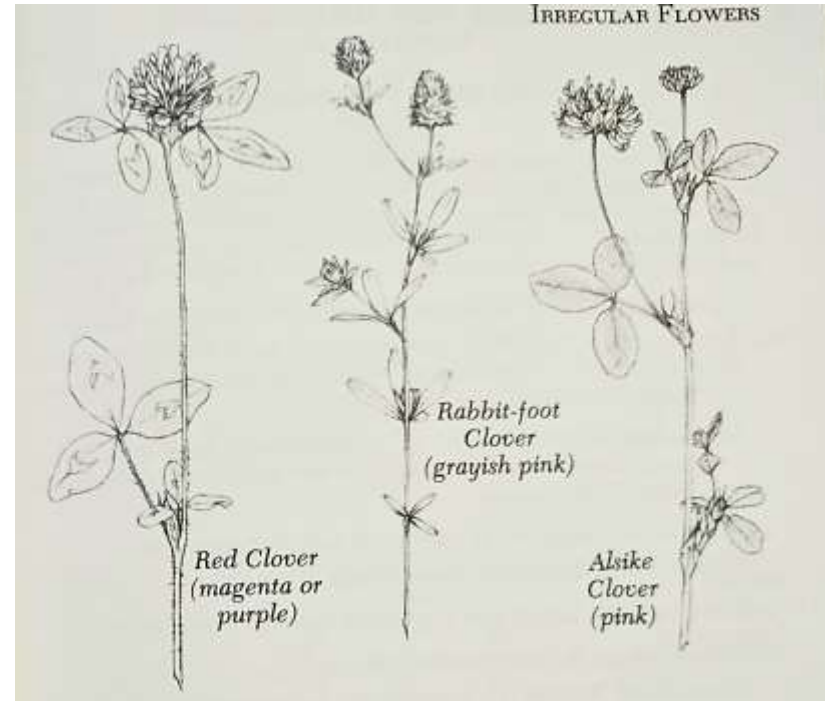
State Search

The PLANTS Database provides standardized information about the vascular plants, mosses, liverworts, hornworts, and lichens of the U.S. and its territories.

- Enter *Baptisia leucantha* in Name Search
- Click “Go”
- The current accepted name is *Baptisia alba*

What's in a name?

- Format of scientific name:
Genus species
 - Genus is more GENeral (plural is genera)
 - Species is more SPECific
- Genera are familiar categories: oaks, roses, clovers
- Several species in a genus may be on the same page
- New evidence → renaming



Newcomb's, page 60:
3 clovers in genus *Trifolium*

1



Botany Break: how are we doing?



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What do these have in common?



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4



5



3

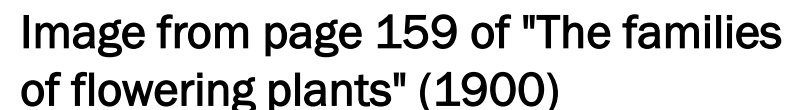


2



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AKA Legumes, Fabaceae
(Fab-ay-suh-ee)



What is a plant family?

Family = a group of genera that are more closely related to each other (evolutionarily) than to other genera

- Have characteristics that often “go together”
- Short-cut to recognition
- How many field guides are organized
- An analogy: from loose papers (just knowing lots of species) to files in folders (knowing how they are related)



Four important plant families

- Legumes (Fabaceae)
- Composites (Asteraceae “aster-ay-suh-ee”)
- Sedges (Cyperaceae “sip-er-ay-suh-ee”)
- Grasses (Poaceae “poh-ay-suh-ee”)

Many prairie plant species are in these four families.

Composites

Plants in this family have “heads”

- very reduced flowers (florets)
- tightly packed on expanded end of stem
- appearing as a single flower

Disk florets

Ray florets

Receptacle



Types of Composite Heads

- Both rays and disk florets
 - Newcomb's: "regular flowers"
- Ray florets only
- Disk florets only
 - Newcomb's: "indistinguishable"



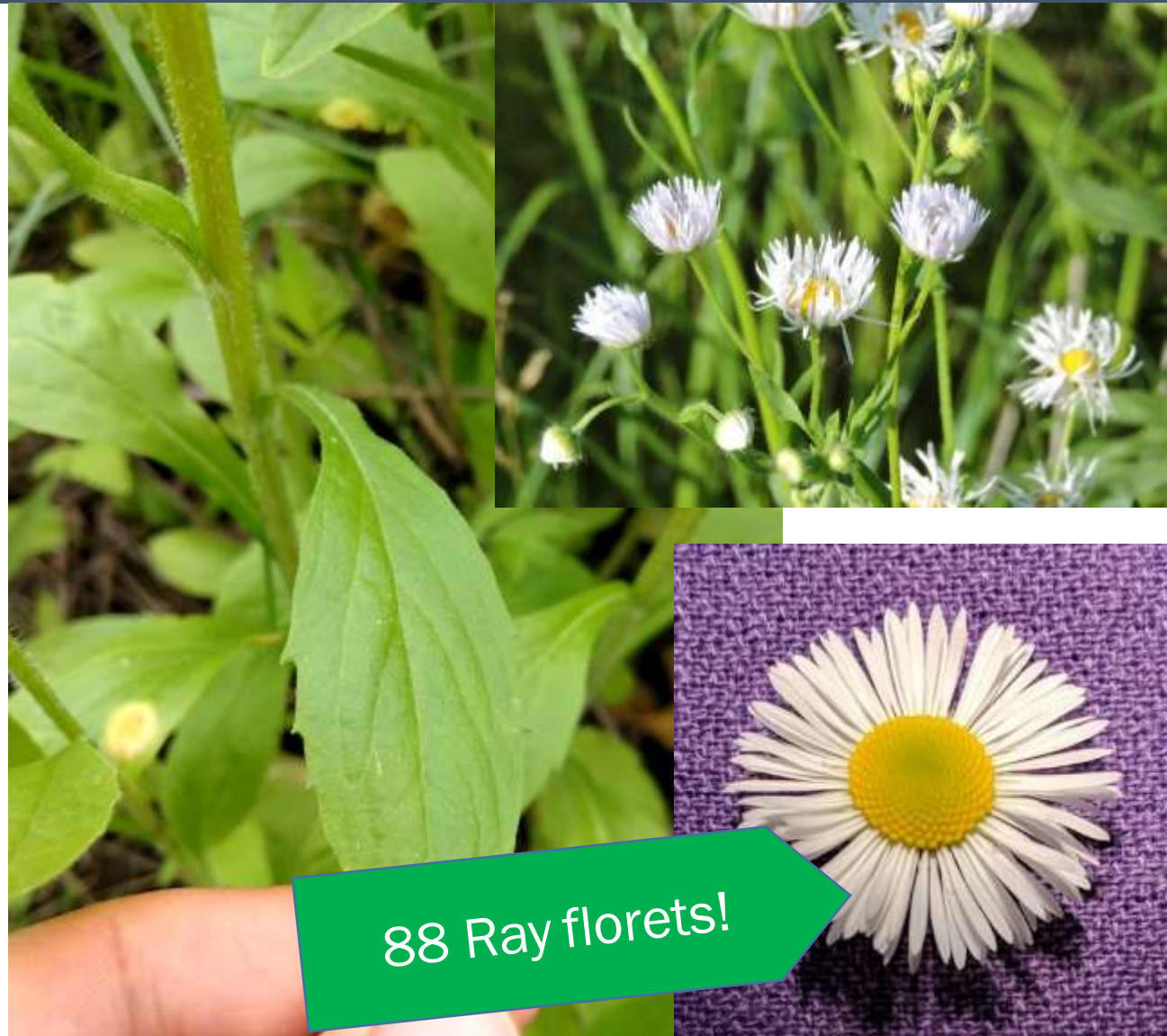
Plant of the Day #2



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- Group Number:
 - 733
- Page Number
 - 382
- Plausible ID
 - *Erigeron annuus*,
 - Daisy fleabane





Botany Break: how are we doing?



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Plant of the Day #3

Group 732

Page 368



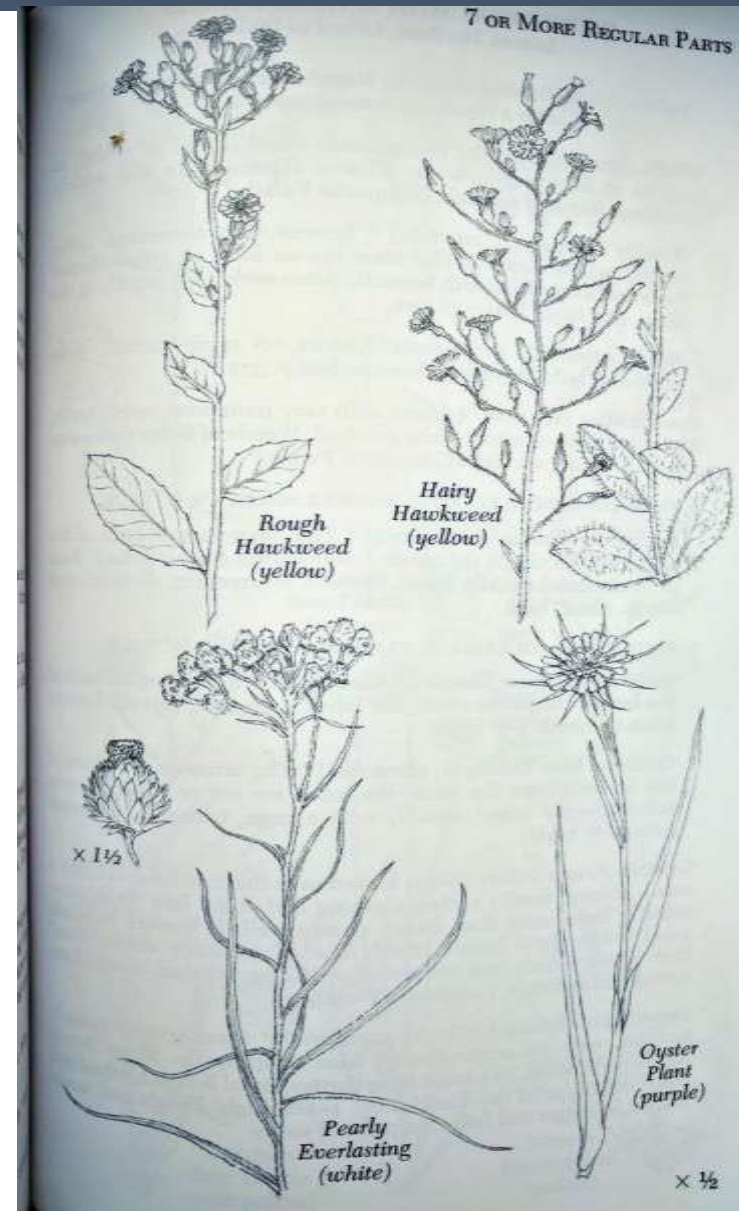
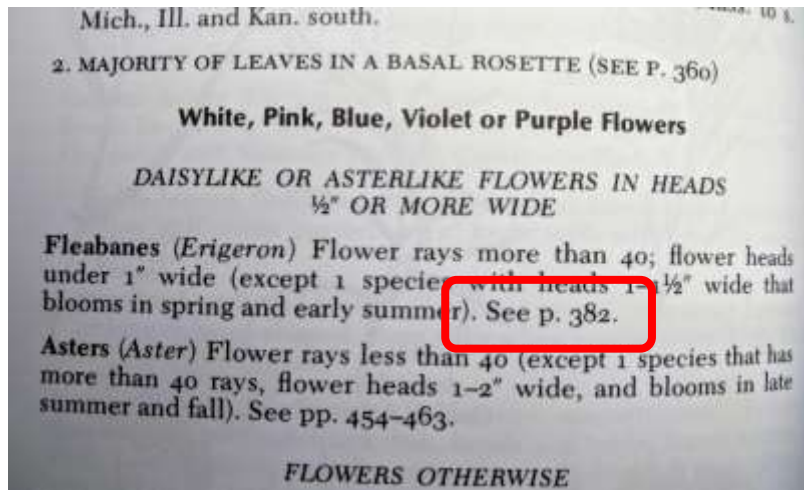
Troubleshooting PoD #3



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- Page 368 - No picture matches
- Read text
 - Daisy or aster-like, $>1/2$ "
 - Blooms in early summer
 - But...rays <40
 - Doesn't fit either, but Newcomb's lists alternatives



Troubleshooting PoD#3, cont'd

- Try p 382 (Fleabanes)
 - Looks like purple coneflower, *Echinacea purpurea*
 - Not exactly...
 - Maybe same genus, *Echinacea*, but our species is not in Newcomb's
 - What next?



Troubleshooting PoD#3, cont'd

- Go to [Minnesota Wildflowers](#)
- Find Plant Name search bar
- Type in Echinacea
- Which of the three is the best match?
 - Answer in chat
- Click on photo to check description and other info
- Plant family?



Echinacea pallida, pale
purple coneflower

What are Grasses and Forbs?



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- Graminoids = grass-like plants

- Long, blade-like leaves
- Inconspicuous flowers
- Important families: sedges and grasses

Dangly stamens

Fuzzy stigmas

- Forbs = **not** graminoids

- Often broad-leaved
- Often have showy flowers

10



Sedge Family, Cyperaceae

- “Sedge stems have edges”
- Leaves in 3 ranks
- Flowering structures often cylindrical or round/oval
- Important genus: *Carex*
- *Carex* sp = unspecified sedge



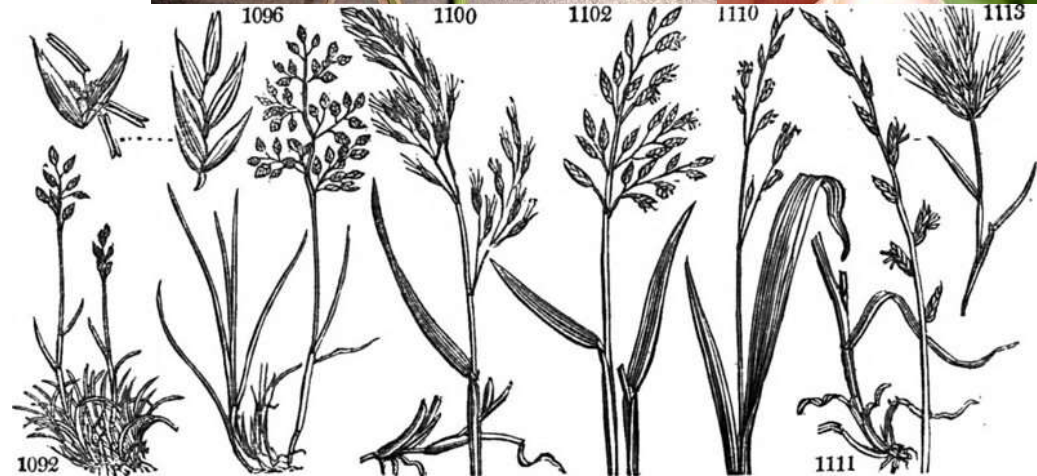
Grass Family, Poaceae



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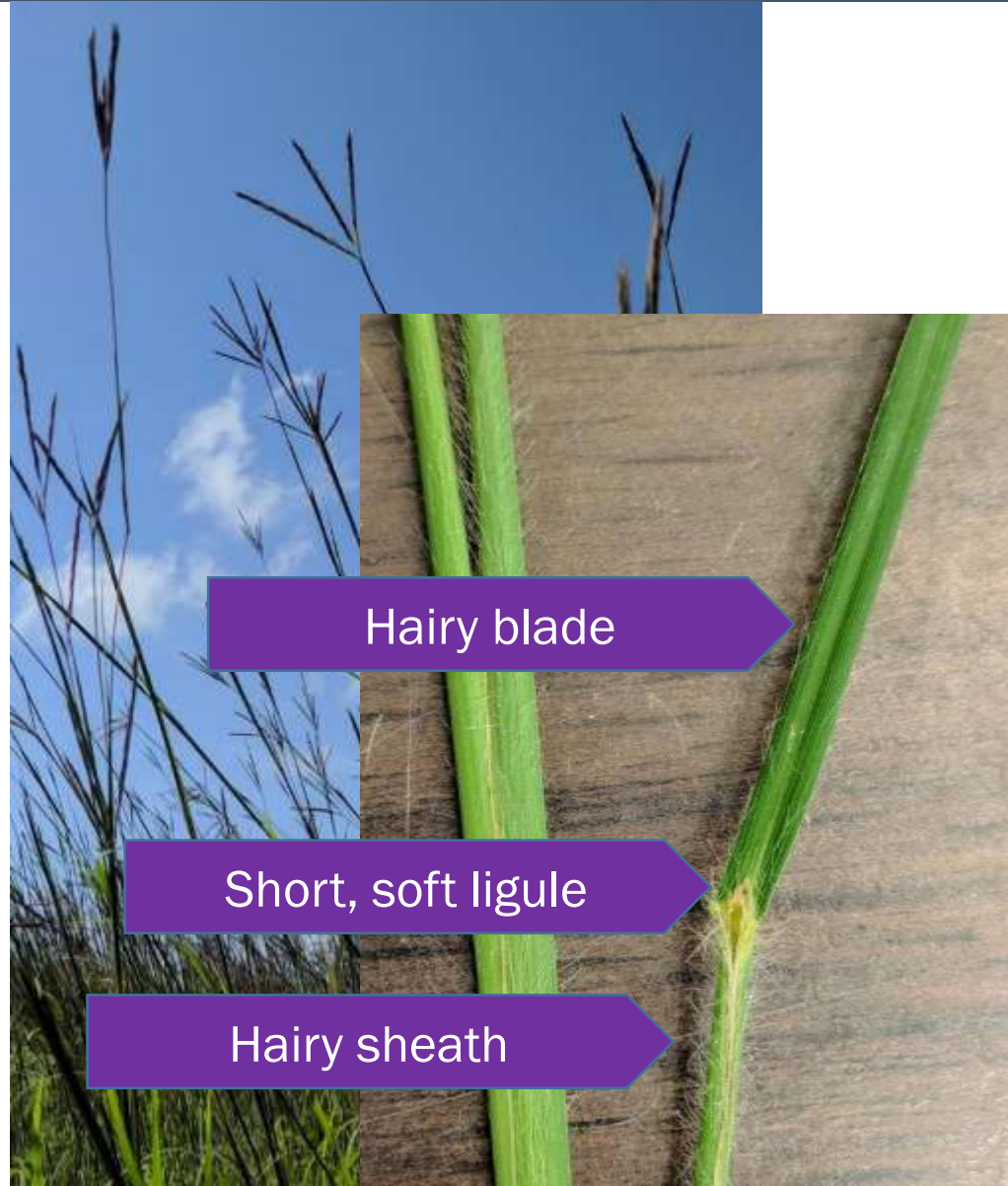
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- Grass stems have knobby knees
- Stems are round to flattened
- Leaves in 2 ranks
- Flowering arrangements: spikes, racemes, or panicles
- Dominant plants of prairies



Big Bluestem, *Andropogon gerardii*

- Flowering structure = “turkey foot”
- Stems are slightly flattened
- Blade and sheath often have many longish hairs
- Ligule is short, membranous
- Forms loose, spreading clumps
- Perennial



Indiangrass, *Sorghastrum nutans*

- Flower structure is a plume-like, golden panicle
- Stems are round
- Sheaths are often furred with neat, short hairs
- Ligule is tall, stiff, and notched
- Stems come up in bunches from roots



Notched Ligule

Hairy sheath

Botany Break: how are we doing?



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Plant of the Day #4



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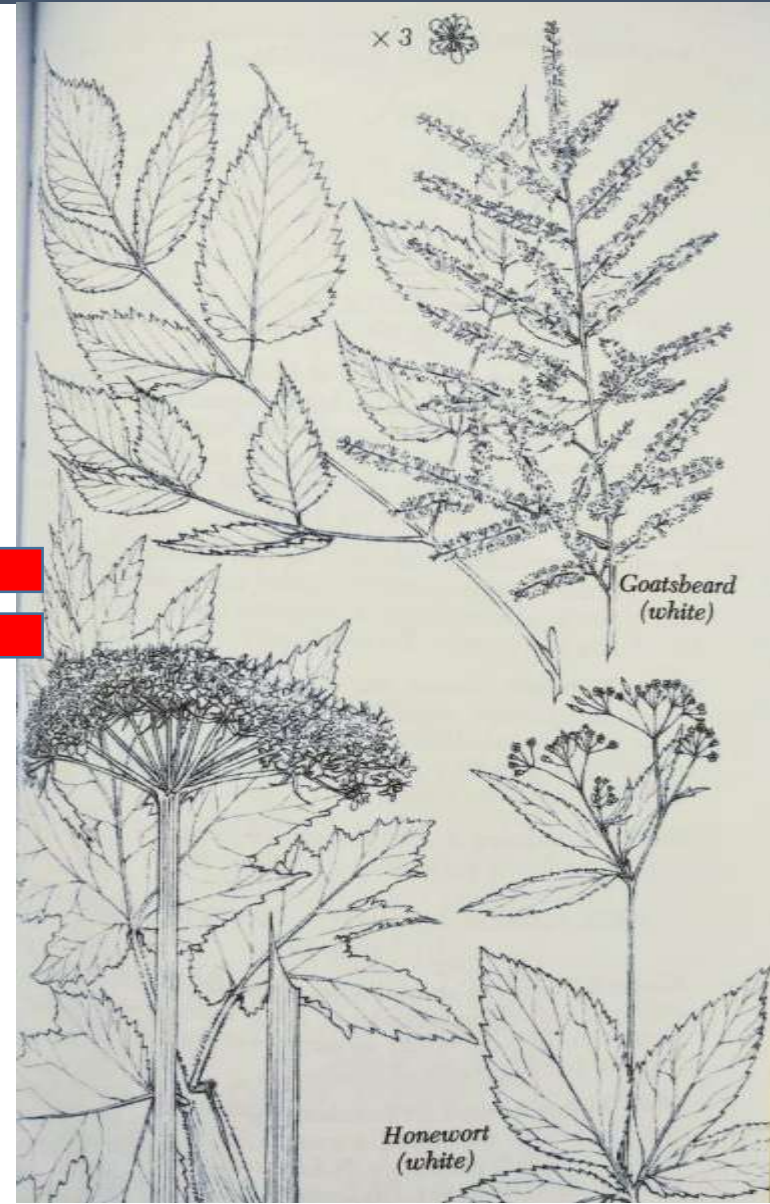
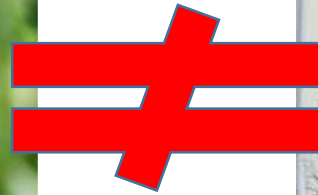
- Group Number:
 - 534
- Very small flowers in dense heads
 - page 218?



By L. Braun - Own work, CC BY-SA 4.0,
<https://commons.wikimedia.org/w/index.php?curid=60470226>

Troubleshooting PoD#4

- Not even close!
- What now?



Troubleshooting PoD#4



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- Go to [Minnesota Wildflowers](#)
- Find **advanced plant search**
- Remember the traits?
 - Regular flowers, 5 parts
 - Flowers are in spikes
 - Purple
 - Alternate leaves
 - Divided (compound) leaves
 - When blooming? June-July
- Click the **SEARCH** button



Dalea purpurea,
purple prairie clover



No flowers? What next?

Strategies

- Look around and find one in bloom
- Look for old stalks



No flowers? More strategies

- Wait and see



+ a few days =



- Planted Prairies (next lecture) - Got a seeding list?
- Remnant Prairies (lecture 5) - Habitat clues

What We've Learned Today

- More practice using Newcomb's Wildflower Guide
- Finding current common and scientific names
- Recognizing four common plant families
- Troubleshooting tips
- Four new “species of the day”



A Challenge for this Week



- Go exploring
- Find one member of each family shown in today's talk
- Photograph and identify them
- Share to the Facebook group

Lecture 4: CRP & Roadside Plants



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BOTANY BEGINNERS SPEAKER

JUSTIN MEISSEN



Justin Meissen is the Research and Restoration Program Manager at the Tallgrass Prairie Center.

"Justin is looking forward to helping people demystify the sea of green at their feet."

Favorite plant:
Purple milkwort (*Polygala sanguinea*)

BOTANY BEGINNERS SPEAKER

KRISTINE NEMEC



Kristine Nemec is the Program Manager for the Iowa Roadside Management Program at the Tallgrass Prairie Center.

"I am excited to help people learn more about plants they might encounter in roadsides."

Favorite plant: Bee Balm

In closing...

- Please feel free to ask additional questions on plant identification through the BB Facebook Group
- Advanced botanists:
 - Answers to today's 15 “mystery plants” will be shared soon
 - Let us know how many you “got”

