

# *Flowering Plants*

Presentation: Stewart Hougen

Most photographs obtained from :  
WTU Herbarium Image Collection –  
Burke Museum

# Biological Classification, Taxonomic Rank

Kingdom

Phylum

Class

Order

**Family**.....Sunflower Family

**Genus**.....Daisy

**Species**.....Subalpine Daisy

# IDENTIFICATION

## 1. Start general & learn the common ones first

**When there are few:** Conifers & Ferns (moss & lichens)

Learn the common species

Conifers -- learn 19 species (& you know almost 100%)

Ferns -- learn 12 common species (& you know 80%).

**When there are many:** Flowering Plants (also birds & insects)

Learn the **23 common families**

& you will know 80% of the plants you will see.

Then.....learn **80 common genera** (“it is a penstemon but I don’t do penstemons yet”)

& you will know 80% of the plants you will see.

Then..... learn the **2000+ species**

**Families.....143**

**Genera.....917**

**Species.....2000+**

# IDENTIFICATION

## 2. Study the Patterns & Handles

*Learning to see*

Patterns: the big picture

Handles: main Id. feature

Patterns  
&  
Handles

Patterns  
&  
Handles

Start general -- at the best taxonomic level

Order.....Insects  
Family.....plants  
Genus  
Species.....conifers & ferns

Learn the common ones

Learn the patterns

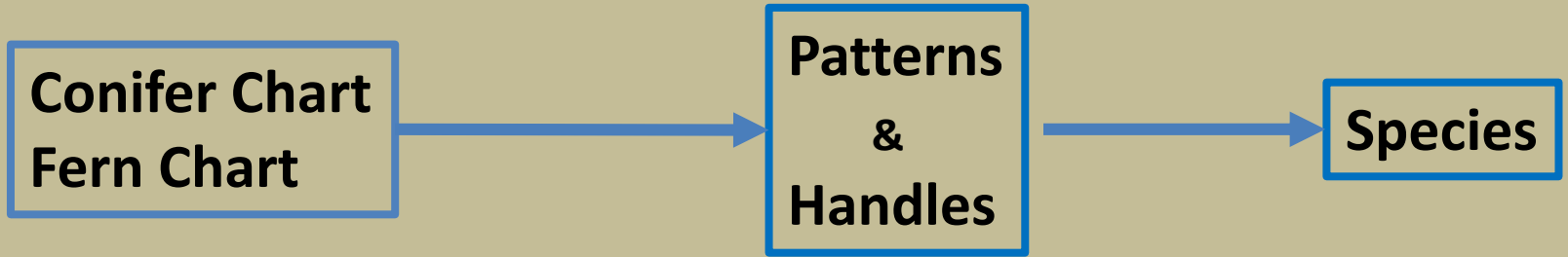
Learn the handles

# Charts

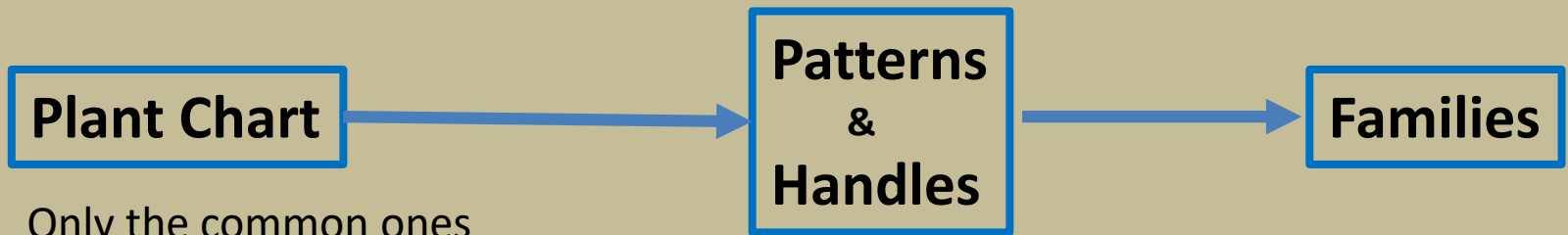
Opening the door for beginners.

- Most common ones  
(80% rule)
- Patterns
- Handles



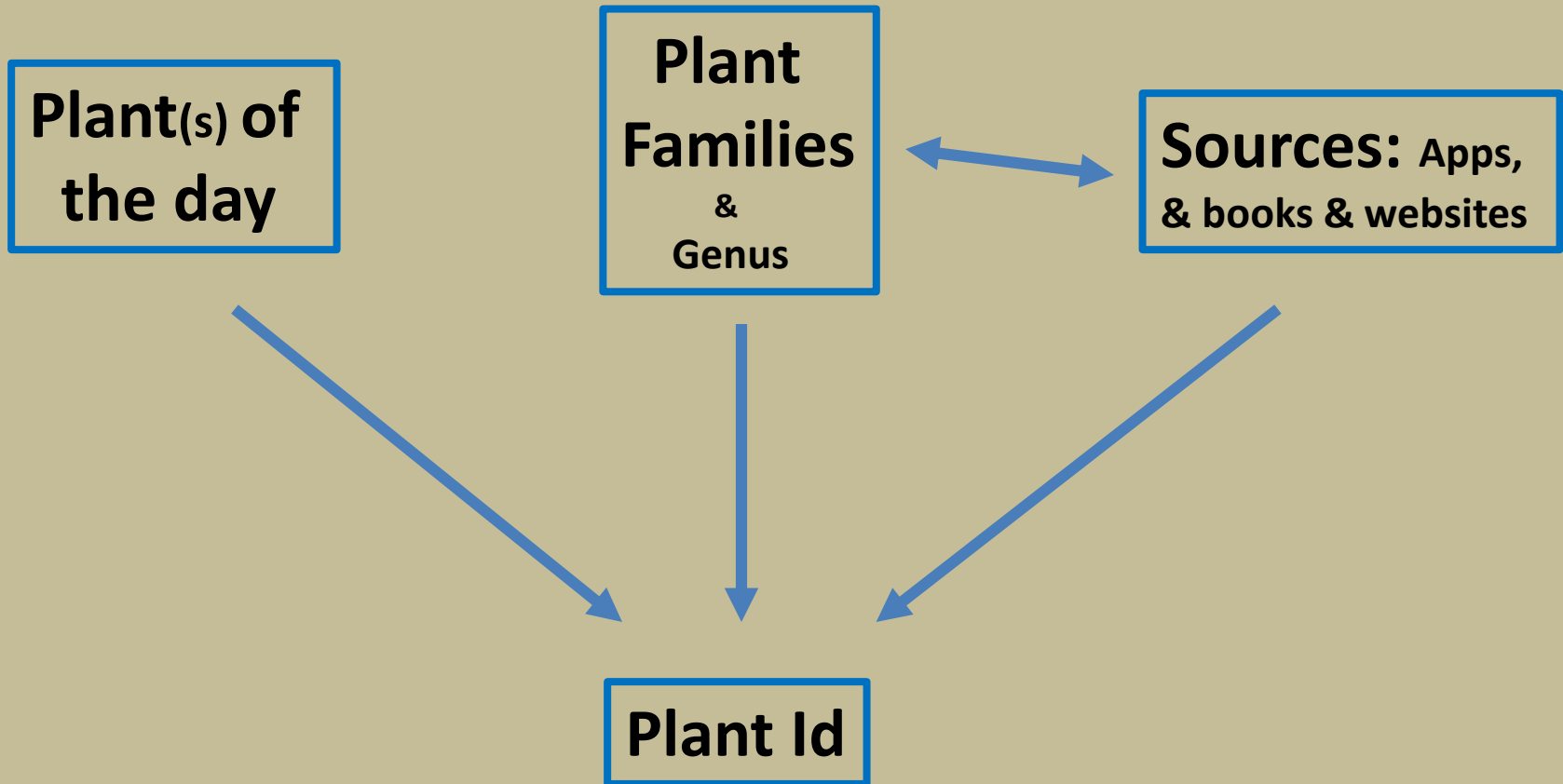


Only the common ones

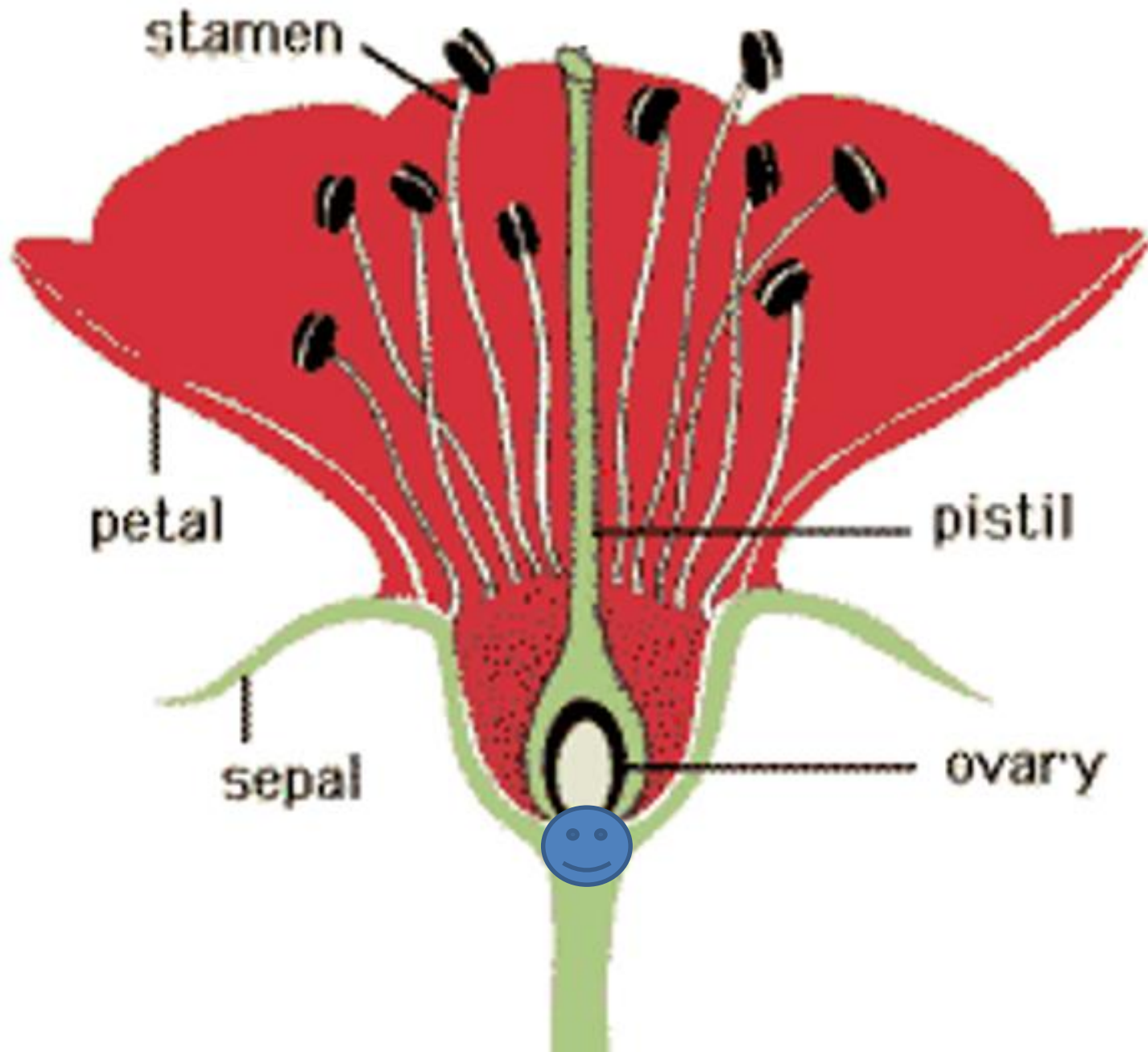


Only the common ones

# Approaches to Identifying flowering plants







# **PATTERNS**

**Learning to see**

Some terms



Urns

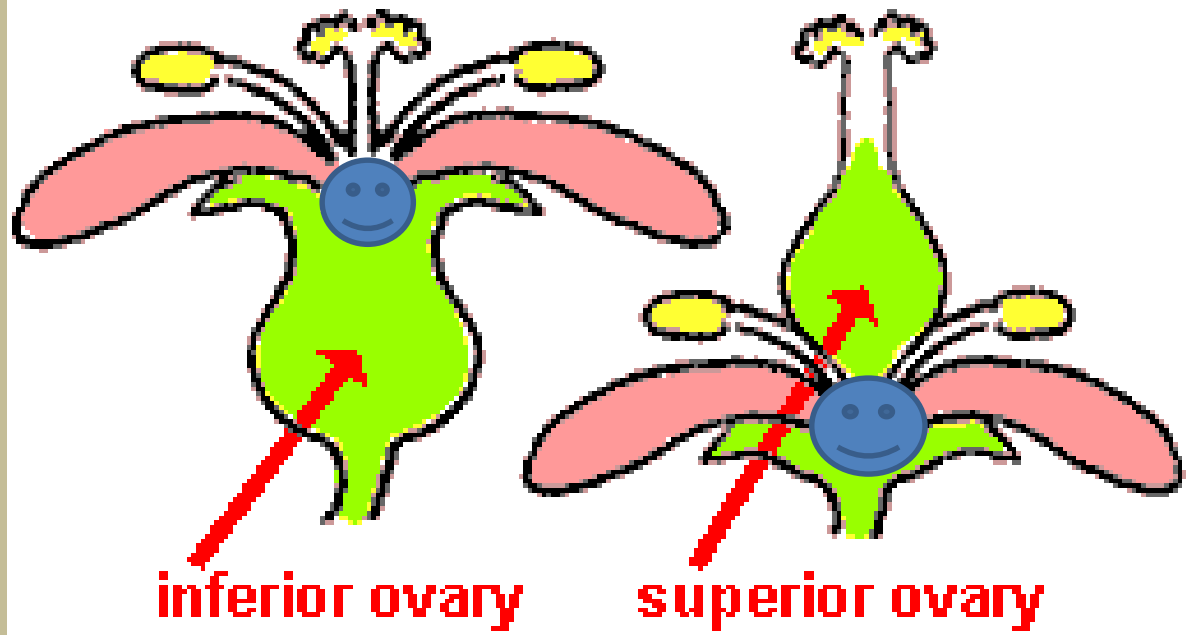


Bells

Petals fused



Petals free



Radial Symmetry



Bilateral Symmetry





**Flowers with central clusters  
(10+ stamens)  
(or non at all)**



**“Normal Flowers”**



Leaves  
Opposite



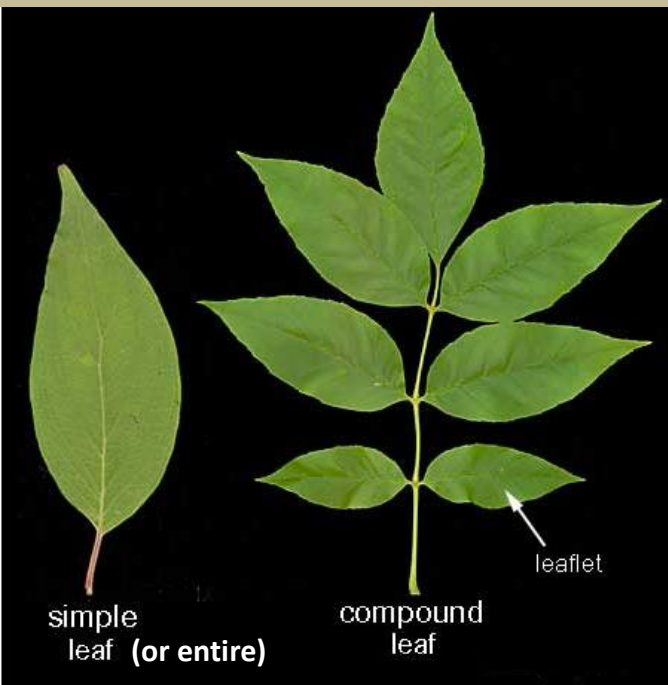
Leaves  
Alternate



Leaves  
Basal



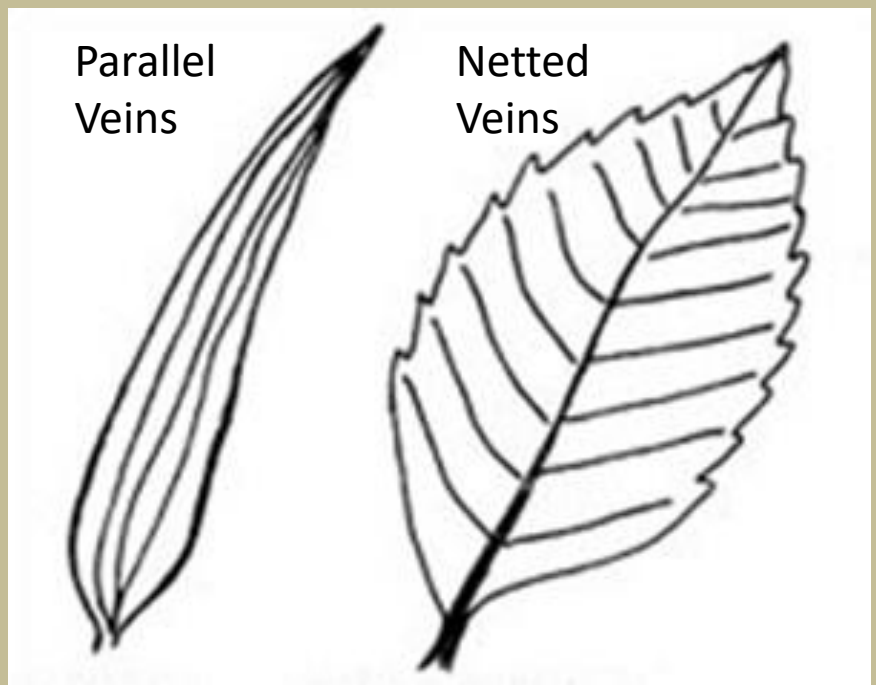
Leaves  
On stem



simple  
leaf (or entire)

compound  
leaf

leaflet










Parallel  
Veins

Netted  
Veins

# PLANT EVOLUTION TIMELINE



Geologic Time			NON-VASCULAR		VASCULAR				
Era	Period	Years Ago (MYA)	Aquatic	Land	No Seeds	Gymnosperms			Angiosperms
			Algae	Mosses 24,000	Ferns 12,000	Ginkgos	Conifers 600	Cycads	230,000 Flowering Plants
Cenozoic	Quaternary	1.8							
	Tertiary	65							
Mesozoic	Cretaceous	145							
	Jurassic	213							
	Triassic	248							
Paleozoic	Permian	286							
	Carboniferous	360							
	Devonian	410							
	Silurian	440							
	Ordovician	504							
	Cambrian	544							

First Dinosaurs, Mammals, birds

First Reptiles  
And Amphibians

First land plants

First fishes

PRECAMBRIAN

700 First Invertebrates

# COMMON PLANT FAMILY CHART

## KEY TO 25 COMMON FLOWERING PLANT FAMILIES

Start general

Learn the common ones

Learn the patterns

Learn the handles

# START GENERAL

# Plant Kingdom

## Divisions

1. Flowering Plants
2. Conifers
3. Ferns
4. Mosses

## → Flowering Plants –

### Families (143)

1. Sunflower Family
2. Pea Family
3. Mustard Family
4. Rose Family
5. Figwort Family
6. Parsley Family
7. Buttercup Family
8. Lily Family
9. Pink Family
10. Borage Family
11. Buckwheat Family
12. Heath Family
13. Mint Family
14. Phlox Family
15. Orchid Family
16. Etc.

Families.....143  
Genera.....917  
Species.....2000+

## → Sunflower Family –

### Genera (120)

1. Daisy
2. Pussytoes
3. Yarrow
4. Asters
5. Sagebrush
6. Balsamroot
7. Hawksbeard
8. Hawkweed
9. Groundsel
10. Agoseris
11. Thistle
12. Luina
13. Sagewort
14. Rabbitbrush
15. Etc.

## → Daisy –

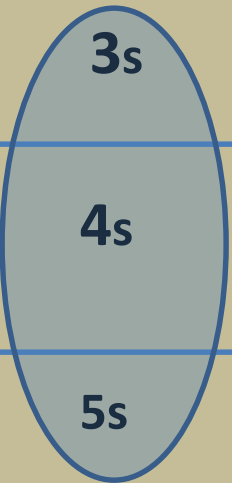
### Species

1. Subalpine Daisy
2. Cut-leaved Daisy
3. Golden Daisy
4. Desert Yellow Daisy
5. Purple Cushion Daisy
6. Shaggy Daisy
7. Aspen Daisy
8. Longleaf Daisy
9. Threadleaf Daisy
10. Olympic Mt. Daisy



spec. #	Scientific name	Common name	ID Gr. 1	ID Gr. 2	ID Gr. 3	ID Gr. 4	ID Gr. 5	ID Gr. 6	ID Gr. 7	App.
375	Asteraceae	Sunflower Family			X					
154	Fabaceae	Pea Family				X	<b>THE COMMON ONES</b>			
127	Brassicaceae	Mustard Family		X						
110	Rosaceae	Rose Family			X					
97	Scrophulariaceae	Figwort Family				X				
78	Apiaceae	Parsley Family					X			
78	Ranunculaceae	Buttercup Family			X					
73	Liliaceae	Lily Family	X							
73	Caryophyllaceae	Pink Family							X	
59	Boraginaceae	Borage Family						X		
57	Polygonaceae	Buckwheat Family					X			
53	Ericaceae	Heath Family							X	
52	Saxifragaceae	Saxifrage Family						X		
49	Onagraceae	Evening-primrose F.		X						
48	Lamiaceae	Mint Family				X				
46	Polemoniaceae	Phlox Family							X	
33	Orchidaceae	Orchid Family	X							
26	Portulacaceae	Purslane							X	
23	Hydrophyllaceae	Waterleaf Family					X			
20	Violaceae	Violet Family				X				
18	Grossulariaceae	Currant Family								X
15	Crassulaceae	Stonecrop Family						X		
12	Valerianaceae	Valerian					X			
11	Primulaceae	Primrose Family								X

**Family Key**



↑ monocots

↓ dicots

Bilateral symmetry

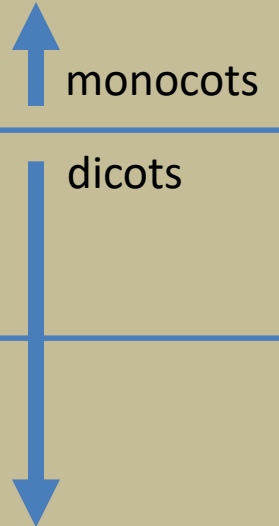
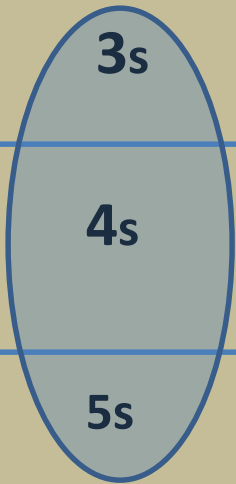
Small flowers in tight bunches

Central clusters

Normal flowers

# THE PATTERN

**Family Key**



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

Petals free

**THE  
PATTERN**

**Flowering parts in 3s** (or multiples)

**Family Key**

Lily, Orchid, & Iris

**Leaves with parallel veins**

**Flowering parts in 4s**

Leaves with veins in branching pattern

Evening Primrose  
Mustard

**Flowering parts in 5s** (leaves with branching veins)

Flowers with **bilateral symmetry**

Petals fused

Mint  
Figwort

Pea  
Violet  
Buttercup - some

Petals free

Flowers with radial symmetry

Many **small flowers in tight bunches**

Buckwheat  
Parsley  
Waterleaf  
Valerian  
Rose - some

Flowers not in tight bunches

Buttercup  
Rose  
Sunflower – technically belongs with “Many small flowers in tight bunches”

Flowers with **central clusters** or seemingly so  
(more than 10 stamens crowding the center)

**Normal flowers** (10 or fewer stamens)  
(or just use the “handles” to Id. these 7 Families)

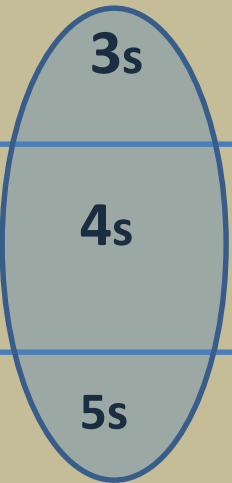
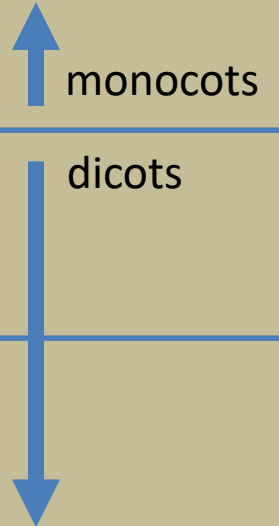
Heath  
Phlox  
Primrose  
Borage

Petals fused

Petals free (or nearly so)

Pink  
Purslane  
Saxifrage

Family Key



**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

- Petals fused
- Petals free

# THE PATTERN



## Lily Family

In the broad sense

- Flowers: radial
- 6 tepals & 6 stamens

## Iris Family

- Flowers: radial
- 6 tepals & 3 stamens
- Leaves: basal in flat plane

Flower parts in 3s

## Orchid Family

- Flowers: bilateral
- Lower petal forming lip or bowl

Leaves

PARALLEL VEINS

Flower parts in 4s

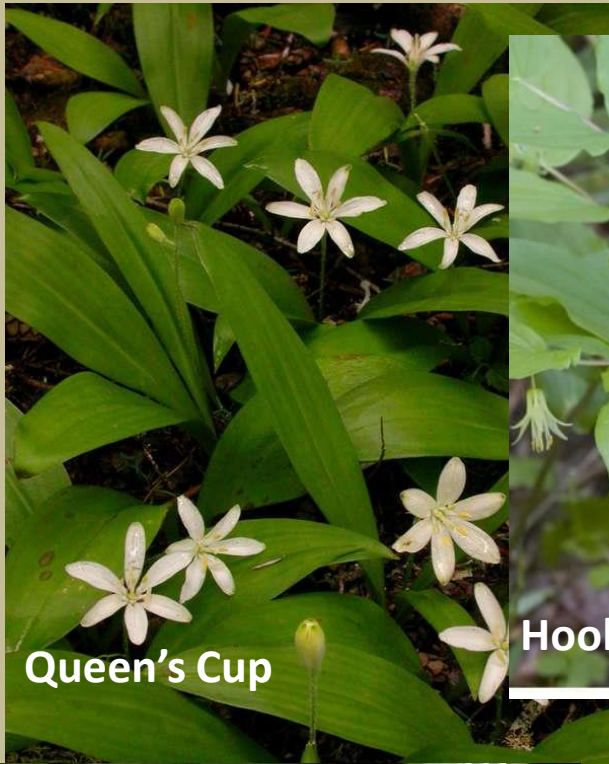


## Mustard Family

- Ovary superior.
- 6 stamens – 4 long, 2 short usually
- Leaves: alternate
- Seed pods in many shapes. 2 sections

## Evening-Primrose Family

# Lily Family



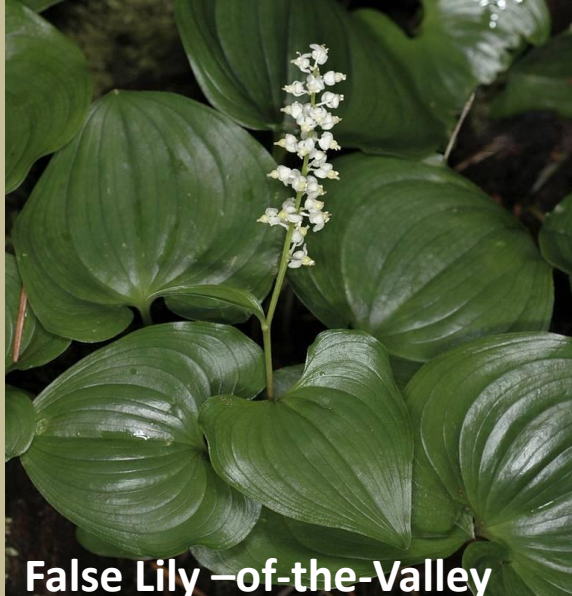
Queen's Cup



Hooker's Fairy Bell



Fawn Lily



False Lily-of-the-Valley



Tiger Lily

# Orchid Family



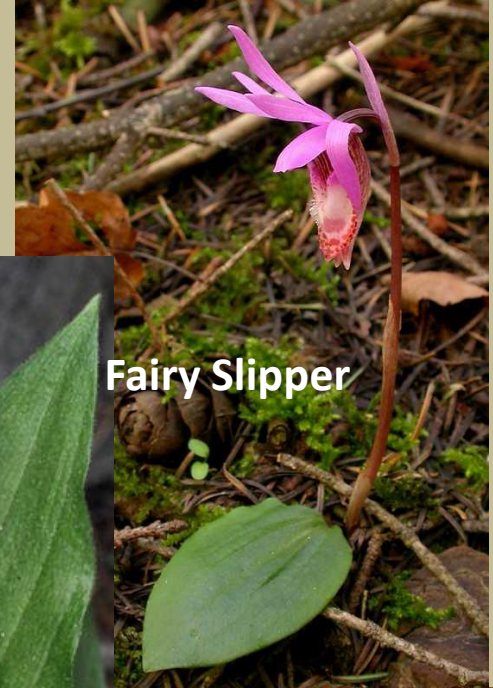
Heart-Leaved Twayblade



White Bog Orchid



Lady Slipper


















Fairy Slipper



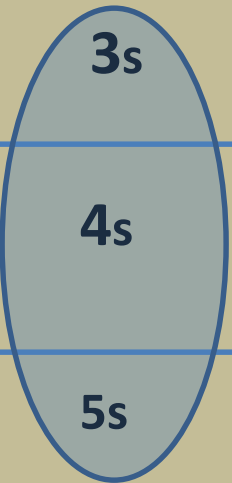
Spotted Coral Root



## Flowering Parts in 3s -- Parallel Veins

Family	Leaves	Flowers	Genus Common Name
Lily Family	Group 1: On stem Broad		Trillium
			Twisted Stalk
			Fairy Bells
	Group 2: Basal Grasslike		False Hellebore
			Solomon Seal
			Camas
			Bear Grass
			Onion
	Group 3: Basal Broad		False Lily-of-the-Valley
			Queens Cup
Orchid Family	Broad & on the stems		Slipper
			Bog Orchid
	Tiny bracts Not green		Coral Roots
Iris Family	Basal & numerous Grass- to sword- like		Douglas' Grass Widow
			Irises
Leaves mostly with parallel veins		Flower parts mostly in 3s	
		Radial	
		Single or two	
		Numerous in terminal clusters	
		Single	
		Bilateral	
		Radial or nearly so	
		Large & single	
		Small & clustered	
		"normal"	
		Iris like	

Family Key



**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

- Petals fused
- Petals free

# THE PATTERN



## Lily Family

- Flowers: radial
- 6 tepals & 6 stamens



## Iris Family

- Flowers: radial
- 6 tepals & 3 stamens
- Leaves: basal in flat plane

Flower parts in 3s



## Orchid Family

- Flowers: bilateral
- Lower petal forming lip or bowl



Leaves

PARALLEL VEINS

Flower parts in 4s



- Ovary inferior
- Leaves: often opposite
- Long seed pods in 4 sections



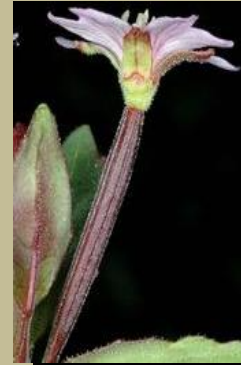
- Ovary superior. **Mustard Family**
- 6 stamens – 4 long, 2 short usually
- Leaves: alternate
- Seed pods in many shapes. 2 sections

## Evening-Primrose Family

# Evening – Primrose Family



Yellow Willow-Herb



Fireweed



Alpine Willow-Herb



# Mustard Family



Draba



Mountain Wallflower


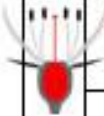









Rockcress

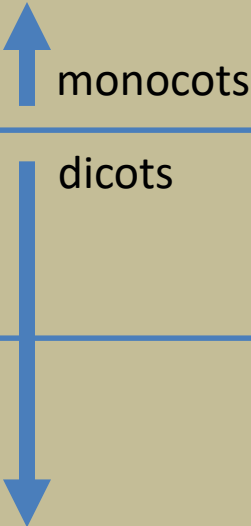
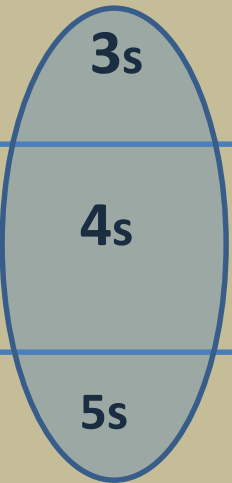




Flowering Parts in 4s

Family	Fruit	Flowers	Leaves	Genus Common Name
Evening-Primrose Family		 Ovary inferior	Most genera have opposite & narrow leaves	Fireweed
				Evening Primrose
				Willow-Herbs
				Clarkia
Mustard Family		 Ovary superior	Basal & alternate	Wallflower
				Rockcress
				Draba

Family Key



Bilateral symmetry



Petals fused  
Petals free

Radial symmetry

Small flowers in tight bunches

Flowers not in tight bunches

Central clusters

Normal flowers

Petals fused  
Petals free

# THE PATTERN





## Figwort Family

- Petals fused into tubes  
w/ distinct & sometimes dissimilar "lips"
- Leaves: opposite or alternate

5s Flowers bilateral..... Fused



## Mint Family

- Leaves: opposite
- Square stems
- Aromatic usually

## Pea Family

- Flowers: pea-like  
banner & wings/keel
- Seed/pea pod
- Leaves: palmate or pinnate



5s Flowers bilateral.....Free

## Buttercup Family (some)



## Violet Family

- Lower petal the largest
- Leaves: simple





Monkeyflowers



Louseworts



Penstemons

## Figwort Family

# Figwort Family

## Paintbrush



# Figwort Family Paintbrushes (Castilleja)



**Bracts**

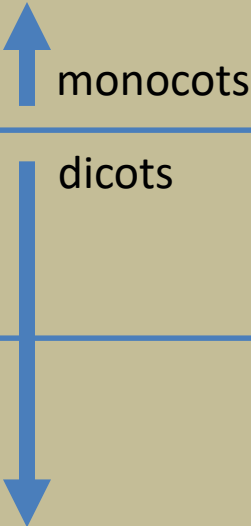
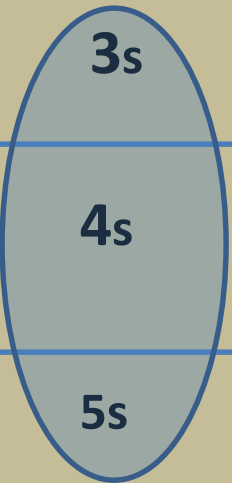
“Brush” is not flower. The leafy bracts surround flowers & resemble brush dipped in paint. Yellowish or reddish.

**Flower**

Crowded in axils of showy bracts  
Long, tubular with beaklike tip  
Often greenish.



Family Key



**Bilateral symmetry**

Petals fused



Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

Petals free

# THE PATTERN



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- Leaves: simple













Lupine



Vetch

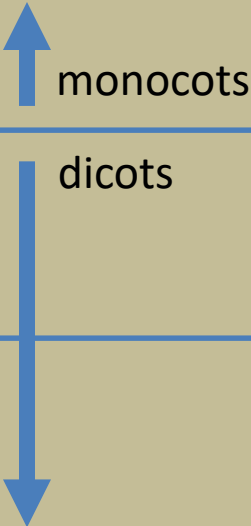
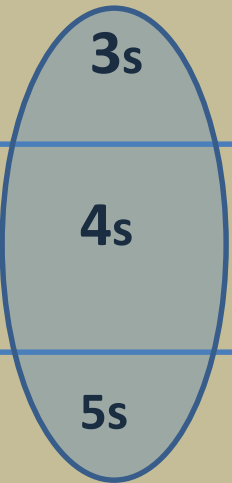


Pea Vine

ID Group	Family	Fruit	Flowers			Leaves	Genus Common Name	
<b>Flowers with Bilateral Symmetry</b>	<b>Petals Fused</b>			Colored "brushes" are bracts	Yellow red		Linear on stem	Paintbrush
		Figwort Family		Flowers form a tube	Greenish		Mostly basal & fernlike	Lousewort
					Lavender, white, yellow			
					Blue purple			
					Pink yellow			
	Monkey flower says "Ahhhh"				Prominently veined	Monkeyflower		
	<b>Petals Free</b>	Pea Family		Sweetpea like		Palmate	Lupine	
								Clover
			Long Ladder Group Pinnately compound	Vetch Peavine Locoweed Crazyweed				
	Violet Family		Pansy-like Blue-violet to yellow		Broad & Basal	Violets		



**Family Key**



**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

- Petals fused
- Petals free

**THE  
PATTERN**





## Buckwheat Family

- Flowers: small & in tight bunches
- 6 tepals form small flowers
- Leaves: basal or on stem
- Leaves entire & usually not toothed

## Rose Family (some)



## Parsley Family



- Flowers: small & in true umbels
- Leaves: usually compound & often fern-like

## 5s Flowers radial & small in tight bunches

- Flowers: small - forming bottlebrush or oval clusters
- Stamens long exerted
- Leaves: usually pinnately compound

## Waterleaf Family

(In Borage Family now)



- Flowers: small & in dense clusters
- Petals fused into narrow 5-lobed tube
- Small family

## Valerian Family





Northern Buckwheat



Round-headed  
Buckwheat



Sulfur  
Buckwheat

**Buckwheat Family**  
**Desert Buckwheats (genus)**

# Buckwheat Family

## Docks & Sorrels (*Rumex*)

Introduced



Common Sheep Sorrel  
*R. acetosella*  
to 1' tall



Curly Dock 3'  
*R. crispus*



Winged Dock 1.5'  
*R. venosus*

Natives



Western Dock  
*R. occidentalis* 6.5'

### Leaves

Fleshy leathery. May be basal rosette with different leaves on stem.

### Flowers

Long clusters at top of stalk. Green or red.

# Parsley Family Flowers



Compound umbel.

True umbel: the stems, or spokes, must all radiate from exactly the same point, like an umbrella. At the end of each flower stem there is yet another “umbrella” of smaller stems.



# Parsley Family Leaves



Usually compound  
Often fern-like or carrot-like





Fern leaf Desert Parsley



Big Seed Lomatium

**Parsley Family**  
**Desert Parsleys (genus)**

Barestem Desert Parsley



# Parsley Family

## Angelica (*Angelica*)

Both in moist places.  
Not standing water.  
Wet meadows.

### Leaves

Twice compound.  
Ovate to lanceolate.

.....not bending down

.....bending down




Lyall's Angelica 6'  
or Sharp-tooth  
*Angelica arguta*

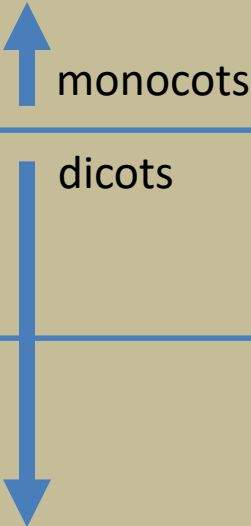
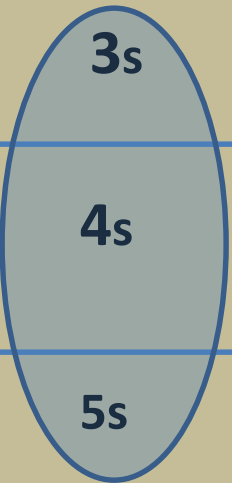
Kneeling Angelica 3'  
*Angelica genuflexa*



**Many Small Flowers in Tight Bunches**

Parsley Family		Buckwheat Family		Waterleaf Family	
<p>Angelicas</p> 	<p>Desert Parsleys</p> 	<p>Bistorts</p> 	<p>Desert Buckwheats</p> 	<p>Waterleafs</p> 	
<p>Lovages</p> 	<p>Sweet-Cicelies</p> 	<p>Knotweeds</p> 	<p>Docks</p> 	<p>Phacelias</p> 	

**Family Key**



**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

- Petals fused
- Petals free

# THE PATTERN





## Buttercup Family

- Flowers: **petals 5 to 12**
- Flowers radial or bilateral
- Flowers simple to **elaborate**
- **Leaves: compound or deeply divided**



## Rose Family

- Flowers: **petals 5**
- Flowers radial
- Leaves: often oval & serrated



## Sunflower Family

- Flowers: **appear many "petaled"**
- **Central cluster present or appears to be absent entirely.**
- **A compound flower:** tiny flowers with 5 fused petals. All flowers packed into a single head.

**5s   Radial   Not bunches**  
**Flowers w/central clusters**



Western Pasqueflower



## Buttercup Family



Columbine



Delphinium



Monkshood

# Buttercup Family Flowers





## Buttercup Family

- Flowers: **petals 5 to 12**
- Flowers radial or bilateral
- Flowers simple to **elaborate**
- **Leaves: compound or deeply divided**



## Rose Family

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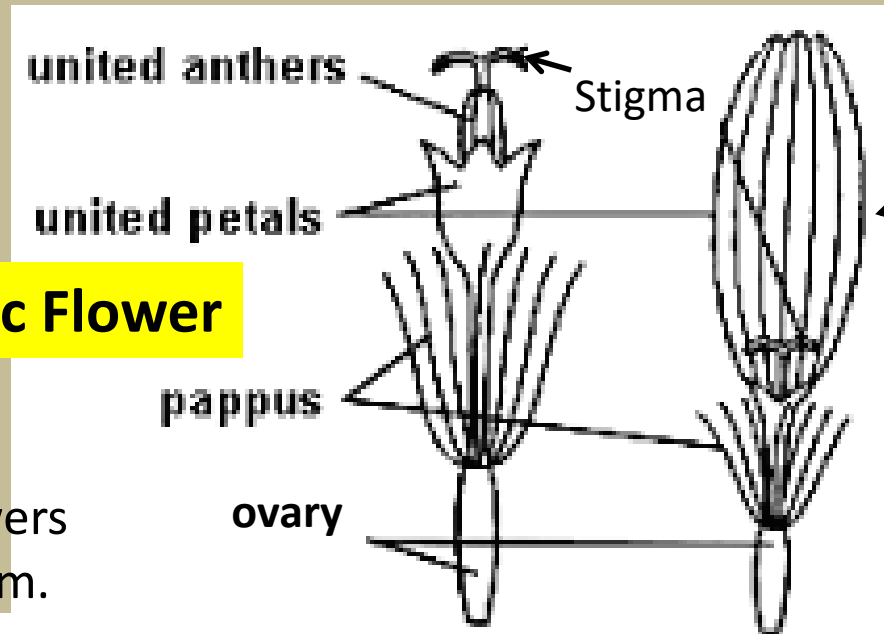
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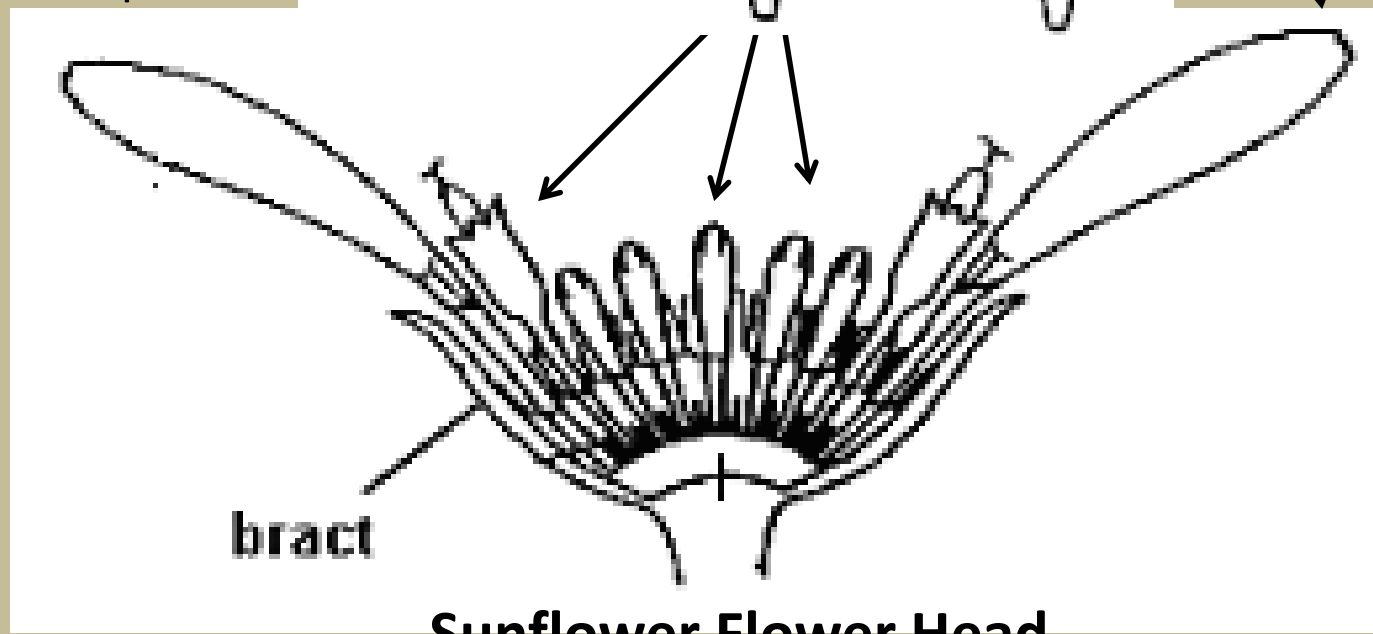
**5s   Radial   Not bunches**  
**Flowers w/central clusters**

**Disc Flower**

Head-like flower clusters.  
Not a single flower.  
Numerous individual flowers  
on broadened top of stem.

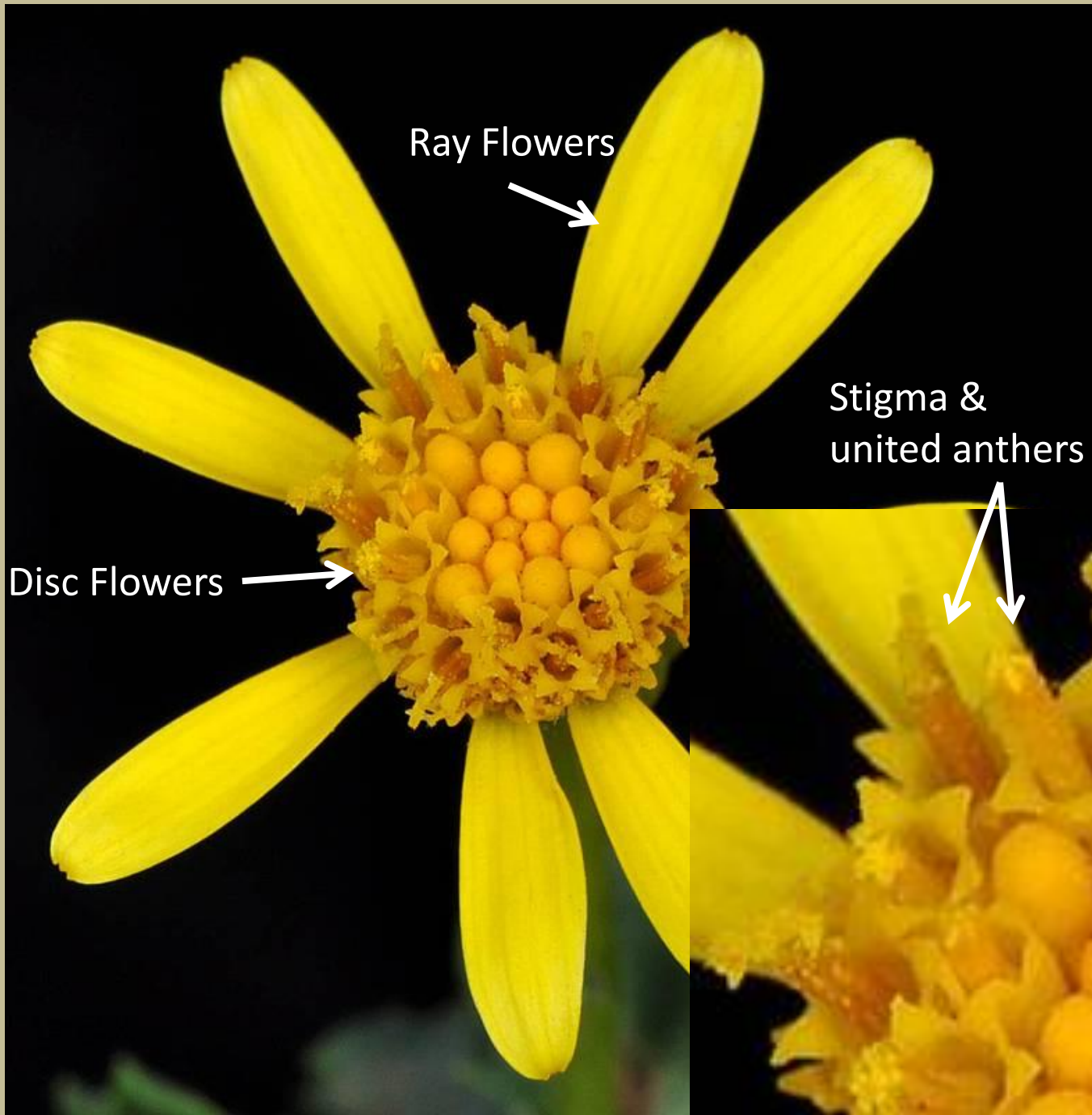


**Ray Flower**

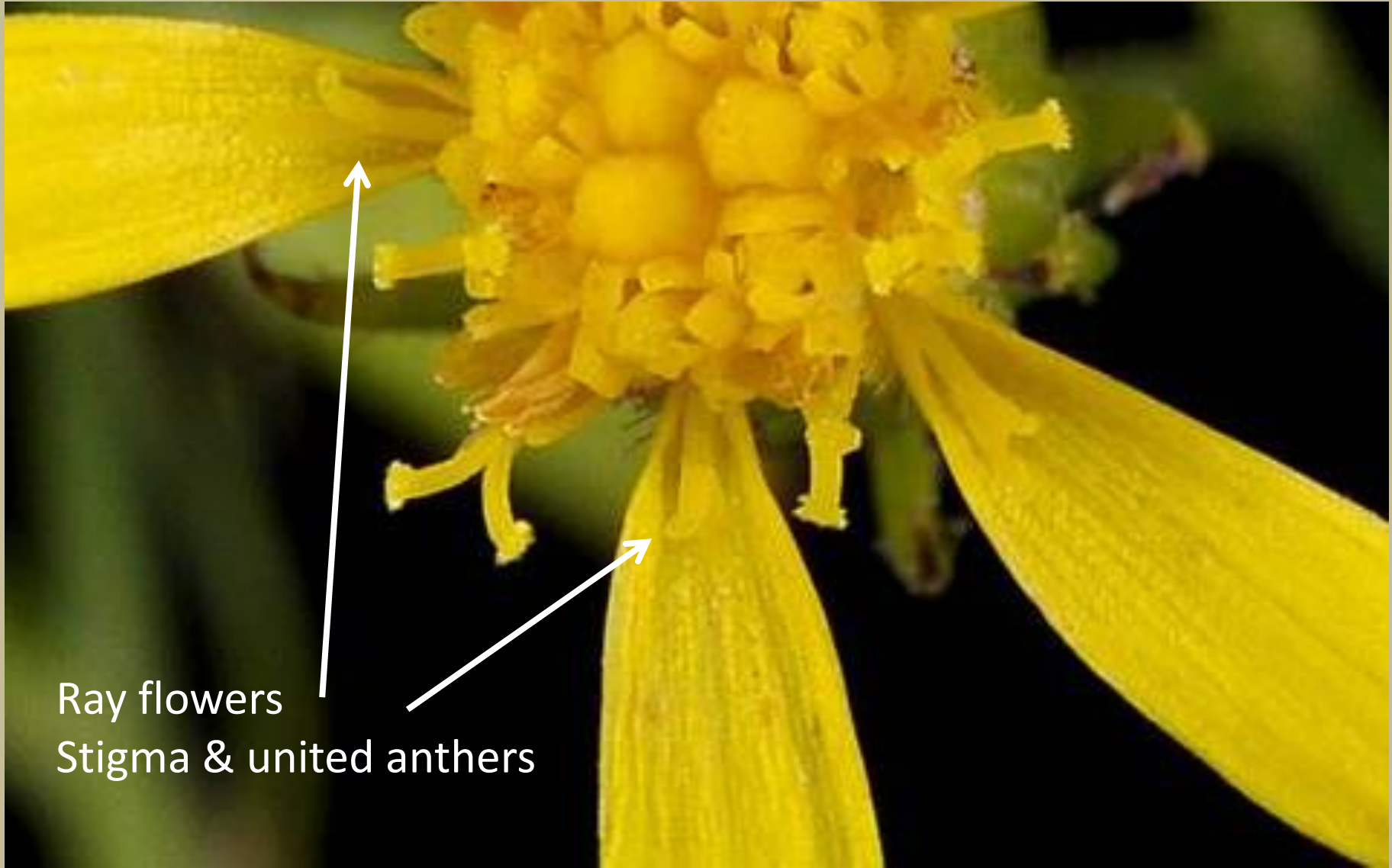


**bract**

**Sunflower Flower Head**







Ray flowers

Stigma & united anthers



**Ray & disk flowers**










































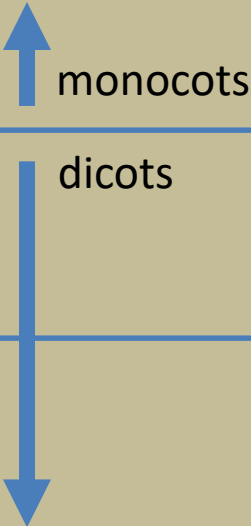
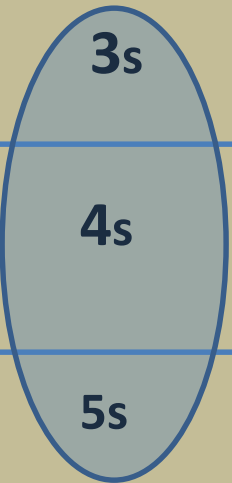
**Ray flowers only**



**Disc flowers only**

ID Group	Family	Flowers	Leaves	Genus	Genus Common Name
<b>Flowers with Central Clusters</b>	 <b>Buttercup Family</b> 71 species in WA. — All nonwoody Annuals & perennials	Petals/sepals 5 to 12 Radial symmetry mostly Some bilateral sym. Blue to purple Red/yellow Whitish	               	Mostly compound or deeply divided	Anemone Pasqueflower Caltha Marsh Marigold Aquilegia Columbine Delphinium Larkspur Aconitum Monkshood
	 <b>Rose Family</b> 107 Species in WA. — Trees, shrubs, annuals, perennials — Hypanthium	Petals/sepals 5 Radial symmetry All simple with one also in tight clusters. Usually white Bright yellow Usually reddish	           	3 or 3-5 leaflets. Basal. Low growing. Toothed 10' shrub 3 leaflets. Toothed	Potentilla Cinquefoil Rubus Bramble Fragaria Strawberry Rubus Salmonberry
	 <b>Sunflower Family</b> 350 species in WA. — Mostly annuals & perennials. 1 shrub group. — Headlike Flower Cluster	"Petals" several to numerous Radial symmetry. Pictures show nearly true colors. Ray only Disc only Normal appearance	     	Brd lvs. Not basal. Arnica - opp. lvs. Linear. 1 also fernlike. Often appear basal - more &/or larger	Senecio Groundsel Arnica Arnica Erigeron Daisies Achillea Yarrow Agoseris Agoseris Antennaria Pussytoes

**Family Key**



**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

- ★ Petals fused
- Petals free

# THE PATTERN





## Heath Family

- Flower: Petals fused into bells or urns

## Primrose Family

- Flower: petals fused & sometimes reflexed
- Leaves: often basal



## Phlox Family

- Flower: petals fused forming a tube with nearly perpendicular lobes
- Leaves: often narrow or like ladder



**5s Radial Not bunches**  
Normal flowers   Petals fused

## Borage Family

(Includes Waterleaf now)

- Flower: petals fused
- Some flowers with central ring
- Fiddlenecks often
- Plant often hairy



# Heath Family

**Heath Family**  
Bell or urn : Saprophytes



Indian Pipe  
Flower Bell

Pinesap  
Flower Urn

Pinedrops  
Flower Urn

Leaves  
Scalelike  
White, reddish, yellowish

**Heath Family**  
Bell or urn : Heathers



General  
Evergreen shrub by mat

Leaves  
Needle like or scale like

Flower  
Urn or bell  
White, pink, yellow

**Heath Family**  
Bell or urn : Blueberries



General  
Medium sized shrub - 1 to 9 feet

Leaves  
Ovate

Fruit  
Berries bluish to black or red

Flowers  
All urn

**Heath Family**  
Bell or urn : Kinnikinnick



General  
Open or dense mat.

Leaves  
Ovate & leathery

Flower  
Urn

**Heath Family**  
Bell or urn : Salal



General  
Evergreen dense shrub.  
Medium size

Leaves  
Ovate, leathery

Berries  
Purple to black

Flowers  
Urn

**Heath Family**  
Open : Wintergreen



General  
Small - 8"

Leaves  
Very basal

Flowers  
Face downward.  
Bell or open almost bell-like





## Heath Family

- Flower: Petals fused into bells or urns

## Primrose Family

- Flower: petals fused & sometimes reflexed
- Leaves: often basal



## Phlox Family



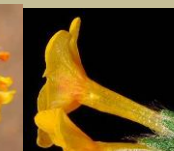
- Flower: petals fused forming a tube with nearly perpendicular lobes
- Leaves: often narrow or like ladder

**5s Radial Not bunches**  
Normal flowers   Petals fused

## Borage Family

(Includes Waterleaf now)

- Flower: petals fused
- Some flowers with central ring
- Fiddlenecks often
- Plant often hairy



# Phlox Family Phlox



Long leaf phlox



**Flower**  
Long narrow tubes  
With perp. lobes.  
"Bull's-eye" ring

**Phlox Family  
Phloxes**

**Leaves**  
Linear

Spreading phlox  
*Phlox diffusa*

Showy phlox  
*Phlox speciosa*

Long leaf phlox  
*Phlox longifolia*

**Phlox Family  
Collomias**

**Flower**  
Long narrow tube  
with perpendicular lobes

**Leaves**  
Long & narrow

**General**  
To 3' tall

Large-flowered *Collomia* 3'

**Phlox Family  
Gillias (Ipomopsis)**

**Flower**  
Long narrow tube  
With perpendicular lobes

**General**  
To 3' high

**Leaves**  
3" - 4" & narrow

**Scarlet Gillia**  
*Gilia aggregata*

**Phlox Family  
Jacob's Ladders (Polemonium)**

**Flower**  
Showy. "Bull's-eye" ring

**Leaves**  
Like rungs on a ladder

**General**  
6" to 1.5' tall

Showy Jacob's Ladder - to 6"  
*Polemonium heterotinum*

Low Jacob's Ladder - to 20"  
*Polemonium caeruleum*

Elegant Jacob's Ladder - to 6"  
*Polemonium elegans*



## Heath Family

- Flower: Petals fused into bells or urns

## Primrose Family

- Flower: petals fused & sometimes reflexed
- Leaves: often basal



## Phlox Family



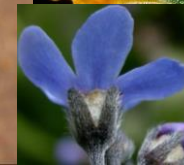
- Flower: petals fused forming a tube with nearly perpendicular lobes
- Leaves: often narrow or like ladder

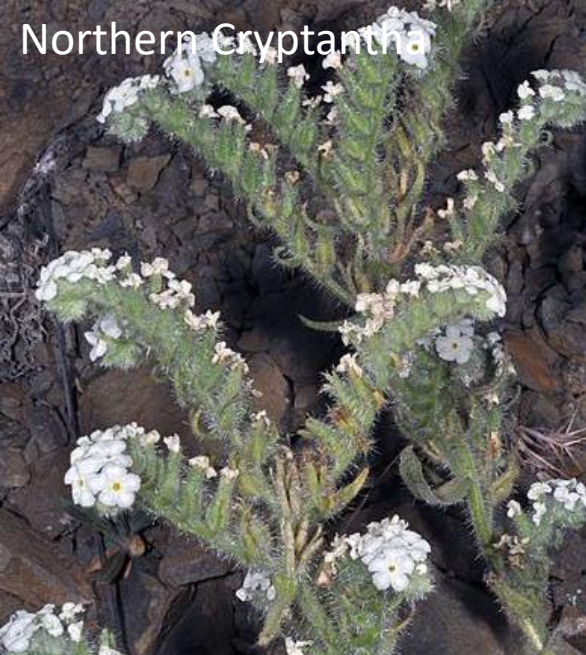
**5s Radial Not bunches**  
Normal flowers Petals fused

## Borage Family

(Includes Waterleaf now)

- Flower: petals fused
- Some flowers with central ring
- Fiddlenecks often
- Plant often hairy





Northern Cryptantha



## Borage Family



Bluebells



Fiddleneck

# Borage Family

**Borage Family  
Cryptanthas**

**Flower**  
Fiddleheads. Flaring tubes.  
White with yellow center

**General**  
Coarsely hairy.

**Common Cryptantha**  
*Cryptantha affinis*

**Northern Cryptantha** sp.  
*Cryptantha subacuta*

**Wilson's Cryptantha**  
*Cryptantha wilsonii*

**Borage Family  
Stickseeds (Hackelia)**

**Flower**  
Short flaring tube.  
Central colored ring.

**Blue stickseed** ?  
*Hackelia micrantha*

**Hairy**  
Stems & leaves.  
Not super obvious

**No fiddlehead**

**General**  
3 to 4' tall

**Borage Family  
Forget-Me-Nots (Myosotis)**

**General**  
To 1.5' tall. Slender & weak.  
Not noticeably hairy.

**Flower**  
Fiddleheads. Low or absent  
Yellow central ring.  
Short tube.

**Borage Family  
Fiddlenecks (Amsinckia)**

**Sticky hairy**  
Fiddleheads

**General**  
Branched stems.  
To 2.5'

**Flower**  
Narrow tube. Spreading lobes.  
No central ring.

**Borage Family  
Puccoon (Lithospermum)**

**General**  
Clusters of stems  
to 2' tall

**No fiddleheads**

**Hairy**  
Appressed hairy.  
Not super obvious.

**Leaves**  
Linear

**Flower**  
Few-flowered clusters.  
Short tubes, spreading lobes.  
No colored ring.

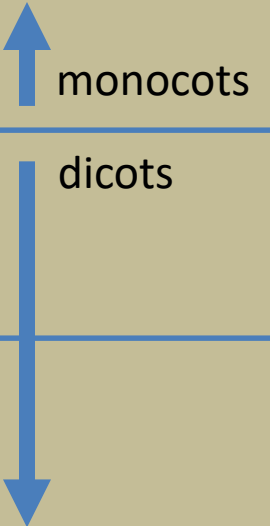
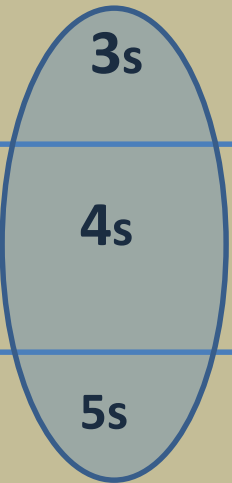
**Borage Family  
Bluebells (Nertensia)**

**Flower**  
Bell-shaped  
Drooping clusters

**No fiddleheads**  
Not hairy  
No colored central ring

**General**  
Low to medium sized herbs

**Family Key**



**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused



Petals free

# THE PATTERN





## Purslane Family

- Flowers: petals free, pink strips often, 2 sepals
- Leaves: often succulent



## Pink Family

- Flowers: petals free, often notched or divided
- Leaves: opposite, often narrow & borne on enlarged nodes

**5s Radial Not bunches**

**Normal Flowers Petals Free**

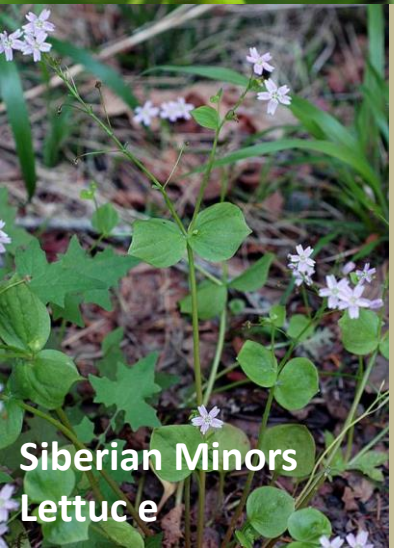
## Saxifrage Family

- Flower: petals free, stigmas 2 & often flaring apart
- Leaves: often basal





# Purslane Family



Siberian Minors  
Lettuce

Columbia Lewisia

Western Spring Beauty

# Purslane Family

**Purslane Family**  
**Claytonias**




**Flower**  
Often pink stripes,  
2 green sepals.

**General**  
More or less succulent,  
Smallish plants.

*Siberian Mosswort* *Lewisia*  
*Claytonia sibirica*

*Madison Spring Beauty*  
*Claytonia virginica*

**Purslane Family**  
**Lewisia & Lewisioopsis**



**Flower**  
Often pink stripes,  
2 green sepals.

**General**  
More or less succulent,  
Smallish plants.

*Madison Spring Beauty*  
*Lewisia rediviva*

*Tennessee Lewisia*  
*Lewisioopsis lewisii*

**Purslane Family**  
**Claytonias – more examples**



**Flower**  
Often pink stripes,  
2 green sepals.

**General**  
More or less succulent,  
Smallish plants.

*Miner's Lettuce*  
*Claytonia parviflora*

*Horn-leaf Springbeauty*  
*Claytonia cordifolia*

*Madison Springbeauty*  
*Claytonia virginica*

**Purslane Family**  
**Montias**



**Flower**  
Often pink stripes,  
2 green sepals.

**General**  
More or less succulent,  
Smallish plants.

*Madison Springbeauty*  
*Claytonia virginica*

*Small-leaved Montia*  
*Montia parviflora*

**Purslane Family**  
**Lewisia**



**Flower**  
Often pink stripes,  
2 green sepals.

**General**  
More or less succulent,  
Smallish plants.

*Alpine Lewisia*  
*Lewisia rediviva*

*California Lewisia*  
*Lewisia columbiana*



## Purslane Family

- Flowers: petals free, pink strips often, 2 sepals
- Leaves: often succulent



## Pink Family

- Flowers: petals free, often notched or divided
- Leaves: opposite, often narrow & borne on enlarged nodes

**5s Radial Not bunches**

**Normal Flowers Petals Free**

## Saxifrage Family

- Flower: petals free, stigmas 2 & often flaring apart
- Leaves: often basal



# Pink Family



# Normal Flowers: Petals Fused

## Pink Family

**Pink Family**  
**Sandworts (4 separate genus – all Sandworts)**

**Leaves**  
 Opposite, often narrow.  
 Borne on enlarged nodes.

**Flower**  
 Petals not notched.  
 Obvious superior bulbous ovary.



Bigleaf Sandwort 6"  
*Muhlenbergia macrophylla*

Alpine Sandwort  
 or Arctic  
*Minuartia arctica*

Thread-leaved Sandwort 1"  
*Eremogone capillaris*

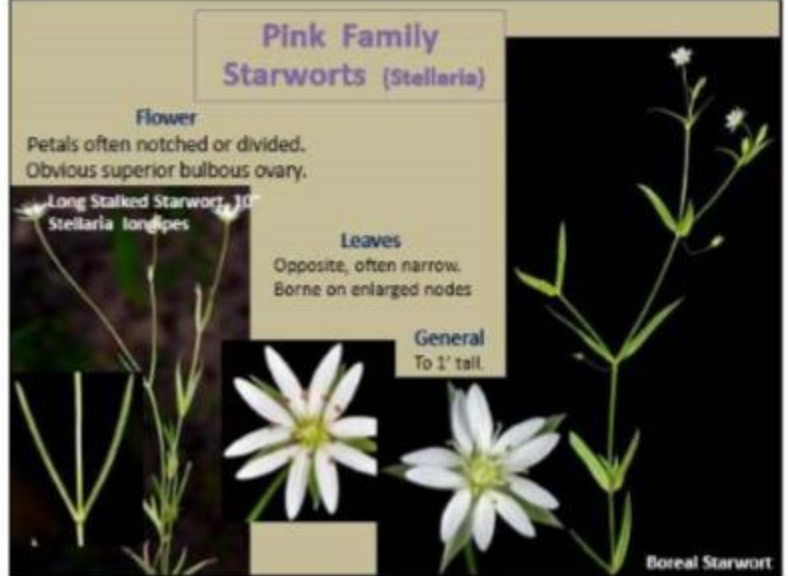
**Pink Family**  
**Starworts (Stellaria)**

**Flower**  
 Petals often notched or divided.  
 Obvious superior bulbous ovary.

Long Stalked Starwort, 10"  
*Stellaria longipes*

**Leaves**  
 Opposite, often narrow.  
 Borne on enlarged nodes

**General**  
 To 1' tall.



Boreal Starwort

**Pink Family**  
**Silenes**



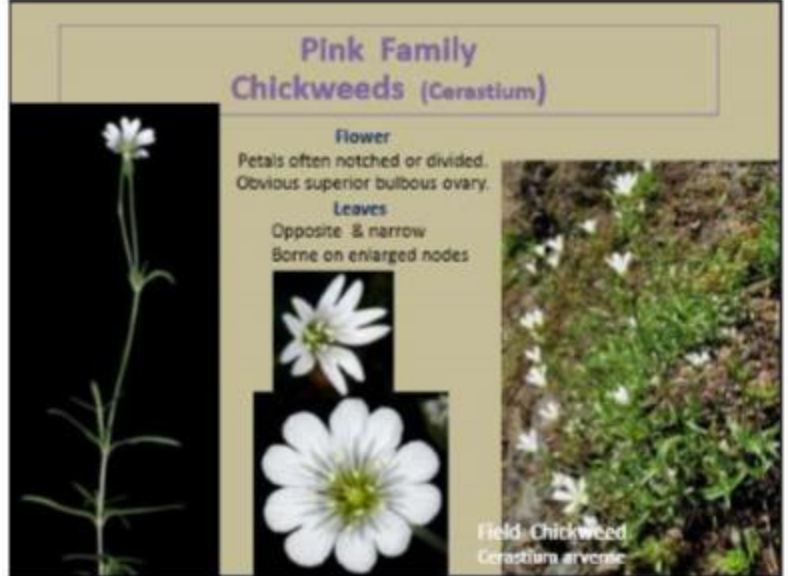
Bladder Campion

Parry's Silene 16"  
*Silene parryi*

**Pink Family**  
**Chickweeds (Cerastium)**

**Flower**  
 Petals often notched or divided.  
 Obvious superior bulbous ovary.

**Leaves**  
 Opposite & narrow  
 Borne on enlarged nodes



Field Chickweed  
*Cerastium arvense*



## Purslane Family

- Flowers: petals free, pink strips often, 2 sepals
- Leaves: often succulent



## Pink Family

- Flowers: petals free, often notched or divided
- Leaves: opposite, often narrow & borne on enlarged nodes

**5s Radial Not bunches**

**Normal Flowers Petals Free**

## Saxifrage Family

- Flower: petals free, stigmas 2 & often flaring apart
- Leaves: often basal



# Normal Flowers: Petals Free Saxifrage Family

## Saxifrage Family Leaves



**Saxifrages** (3 genera)  
Oval to basal with bare flower stems.  
Medium sized & broad shaped  
or tiny & linear

Leaves:  
Basal mostly.



**Lobed Group** (3 genera)  
Basal to and  
Semileafy - smaller upward  
Lobed/Margin leaf like

## Saxifrage Family Flowers



Most often in clusters, loose or tight



Small

White (usually)

Related to Rose Family, mainly 5 & lower hypandrium



or numerous  
along the stem.

## Saxifrage Family Saxifrages



Western Saxifrage



Leather Leaf Saxifrage

## Saxifrage Family Saxifrages



Spotted Saxifrage



## Saxifrage Family Lobed group



Foamflower

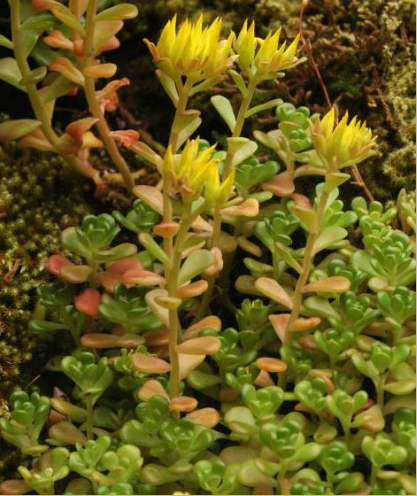


## Saxifrage Family Lobed group



Froggus





## Sedum Family

- Small very succulent plants with short fleshy leaves
- Flowers: petals free & yellow



## Appendix Unique plants & common

## Current Family

- Medium sized shrub to about 6'
- All have maple shaped leaves
- All have berries
- Flowers: petals fused





# Plant Lists

1. WNPS
2. Modified



The WNPS database contains **708** plant lists for Washington State, compiled by **300 individuals**



### Counties

Adams (2)	Franklin (5)	Lewis (15)	Snohomish (20)
Asotin (1)	Garfield (5)	Lincoln (5)	Spokane (9)
Benton (6)	Grant (15)	Mason (11)	Stevens (4)
Chelan (43)	Grays Harbor (9)	Okanogan (38)	Thurston (12)
Clallam (41)	Island (16)	Pacific (12)	Wahkiakum (2)
Clark (3)	Jefferson (33)	Pend Oreille (5)	Walla Walla (2)
Columbia (4)	King (64)	Pierce (42)	Whatcom (73)
Cowlitz (5)	Kitsap (3)	San Juan (10)	Whitman (4)
Douglas (10)	Kittitas (81)	Skagit (32)	Yakima (61)
Ferry (4)	Klickitat (21)	Skamania (21)	

## Plant Lists » Yakima County:

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### 61 plant lists

**Yakima County:** [PDF](#) | [Word Doc](#) | [More options...](#)

Plant list covering all of Yakima County.

1,484 species.

**Bear Creek Mountain:** [PDF](#) | [Word Doc](#) | [More options...](#)

Yakima County, WA. List covers plants found along Trail 1129, Trail 1120 & 1121.

143 species.

**Bear Gap:** [PDF](#) | [Word Doc](#) | [More options...](#)

Yakima County, WA. List covers plants found along Trail 967 to Bear Gap, Pass.

180 species.

**Big Crow Basin Backpack 2012:** [PDF](#) | [Word Doc](#) | [More options...](#)

WNPS Big Crow Basin Backpack 2012, Pierce and Yakima Counties, WA. List covers plants found in the Big Crow Basin, and around Norse Peak, Barnard Saddle and Scout Pass.

244 species.

**Bird Creek Meadows:** [PDF](#) | [Word Doc](#) | [More options...](#)

Yakima County, WA. List covers plants in the Bird Creek Meadows area, located near the mouth of the Yakima River.

162 species.

**Black Canyon:** [PDF](#) | [Word Doc](#) | [More options...](#)

Yakima County, WA. List covers plants found along the bottom and sides of Black Canyon, Wenas Valley, about two miles northwest of Wenas Lake.

231 species.

# Black Canyon Hike

Genus/species	Common Name	Family
<i>Abies lasiocarpa</i>	Sub-alpine fir	Pinaceae
<i>Agoseris glauca</i>	Mountain agoseris	Asteraceae
<i>Antennaria alpina</i>	Alpine pussy-toes	Asteraceae
<i>Antennaria lanata</i>	Woolly pussy-toes	Asteraceae
<i>Arabis lyallii</i>	Lyall's rockcress	Brassicaceae
<i>Arctostaphylos uva-ursi</i>	Bearberry	Ericaceae
<i>Arenaria nuttallii</i>	Nuttall's sandwort	Caryophyllaceae
<i>Arenaria obtusiloba</i>	Arctic sandwort	Caryophyllaceae
<i>Artemesia trifurcata</i>	Three-forked artemesia	Asteraceae
<i>Aster alpigenus</i>	Alpine aster	Asteraceae
<i>Carex spectabilis</i>	Showy sedge	Cyperaceae
<i>Castilleja parviflora oreopola</i>	Magenta paintbrush	Scrophulariaceae
<i>Castilleja rupicola</i>	Cliff paintbrush	Scrophulariaceae
<i>Collomia debilis</i>	Alpine collomia	Polemoniaceae
<i>Epilobium alpinum</i>	Alpine willow-herb	Onagraceae
<i>Erigeron aureus</i>	Golden fleabane	Asteraceae
<i>Eriogonum pyrolifolium</i>	Alpine buckwheat	Polygonaceae
<i>Hieracium gracile</i>	Slender hawkweed	Asteraceae
<i>Juncus</i> sp.	Rush	Juncaceae
<i>Juniperus communis</i>	Mountain juniper	Cupressaceae
<i>Luetkea pectinata</i>	Partridge foot	Rosaceae
<i>Lupinus lepidus</i>	Prairie lupine	Fabaceae
<i>Luzula hitchcockii</i>	Smooth woodrush	Juncaceae
<i>Pedicularis contorta</i>	Coiled lousewort	Scrophulariaceae
<i>Pedicularis ornithoryncha</i>	Bird's-beak lousewort	Scrophulariaceae
<i>Penstemon davidsonii</i>	Davidson's penstemon	Scrophulariaceae
<i>Penstemon procerus</i>	Small-flowered penstemon	Scrophulariaceae
<i>Phlox diffusa</i>	Spreading phlox	Polemoniaceae
<i>Phyllodoce empetriformis</i>	Red mountain heather	Ericaceae
<i>Phyllodoce glanduliflora</i>	Yellow heather	Ericaceae
<i>Pinus albicaulis</i>	White-bark pine	Pinaceae
<i>Poa</i> sp.	Bluegrass	Poaceae

# Black Canyon Hike

Genus/Species	Common Name	Family	Family Common name
<i>Mertensia paniculata</i>	Tall bluebells	Boraginaceae	Borage
<i>Eriogonum pyrolifolium</i>	Alpine buckwheat	Polygonaceae	Buckwheat
<i>Oxyria digyna</i>	Mountain sorrel	Polygonaceae	Buckwheat
<i>Polygonum bistortoides</i>	Mountain bistort	Polygonaceae	Buckwheat
<i>Polygonum newberryi</i>	Newberry's knotweed	Polygonaceae	Buckwheat
<i>Anemone drummondii</i>	Drummond's anemone	Ranunculaceae	Buttercup
<i>Anemone occidentalis</i>	Mountain pasqueflower	Ranunculaceae	Buttercup
<i>Caltha biflora</i>	White marshmarigold	Ranunculaceae	Buttercup
<i>Caltha leptosepala</i>	Elk slip	Ranunculaceae	Buttercup
<i>Ranunculus eschscholtzii</i>	Snow buttercup	Ranunculaceae	Buttercup
<i>Empetrum nigrum</i>	Crowberry	Empetraceae	Crowberry
<i>Ribes viscosissimum</i>	Sticky currant	Grossulariaceae	Currant
<i>Epilobium alpinum</i>	Alpine willow-herb	Onagraceae	Evening-Primrose
<i>Epilobium angustifolium</i>	Fireweed	Onagraceae	Evening-Primrose
<i>Athyrium distentifolium</i>	Alpine lady fern	Polypodiaceae	Fern
<i>Cheilanthes gracillima</i>	Lace fern	Polypodiaceae	Fern
<i>Cryptogramma crispera</i>	Parsley fern	Polypodiaceae	Fern
<i>Polystichum lonchitis</i>	Holly fern	Polypodiaceae	Fern
<i>Castilleja miniata</i>	Scarlet paintbrush	Scrophulariaceae	Figwort
<i>Castilleja parviflora oreopola</i>	Magenta paintbrush	Scrophulariaceae	Figwort
<i>Castilleja rupicola</i>	Cliff paintbrush	Scrophulariaceae	Figwort
<i>Pedicularis bracteosa</i>	Bracted lousewort	Scrophulariaceae	Figwort
<i>Pedicularis contorta</i>	Coiled lousewort	Scrophulariaceae	Figwort
<i>Pedicularis groenlandica</i>	Elephant's head	Scrophulariaceae	Figwort
<i>Pedicularis ornithoryncha</i>	Bird's-beak lousewort	Scrophulariaceae	Figwort
<i>Pedicularis racemosa</i>	Sickle-top lousewort	Scrophulariaceae	Figwort
<i>Pedicularis rainierensis</i>	Mt. Rainier lousewort	Scrophulariaceae	Figwort
<i>Penstemon davidsonii</i>	Davidson's penstemon	Scrophulariaceae	Figwort
<i>Penstemon fruticosus</i>	Shrubby penstemon	Scrophulariaceae	Figwort
<i>Penstemon procerus</i>	Small-flowered penstemon	Scrophulariaceae	Figwort
<i>Penstemon rupicola</i>	Cliff penstemon	Scrophulariaceae	Figwort
<i>Veronica cusickii</i>	Cusick's speedwell	Scrophulariaceae	Figwort

# Using the Chart



3s

4s

5s

**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

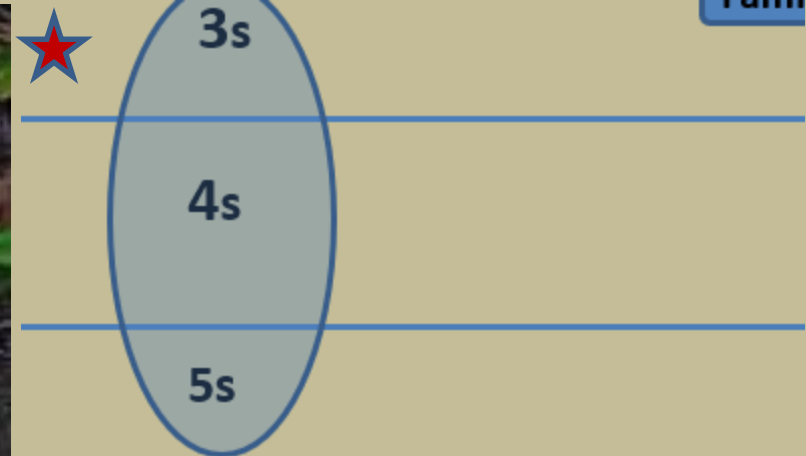
**Normal flowers**

Petals fused

Petals free



Queens Cup



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

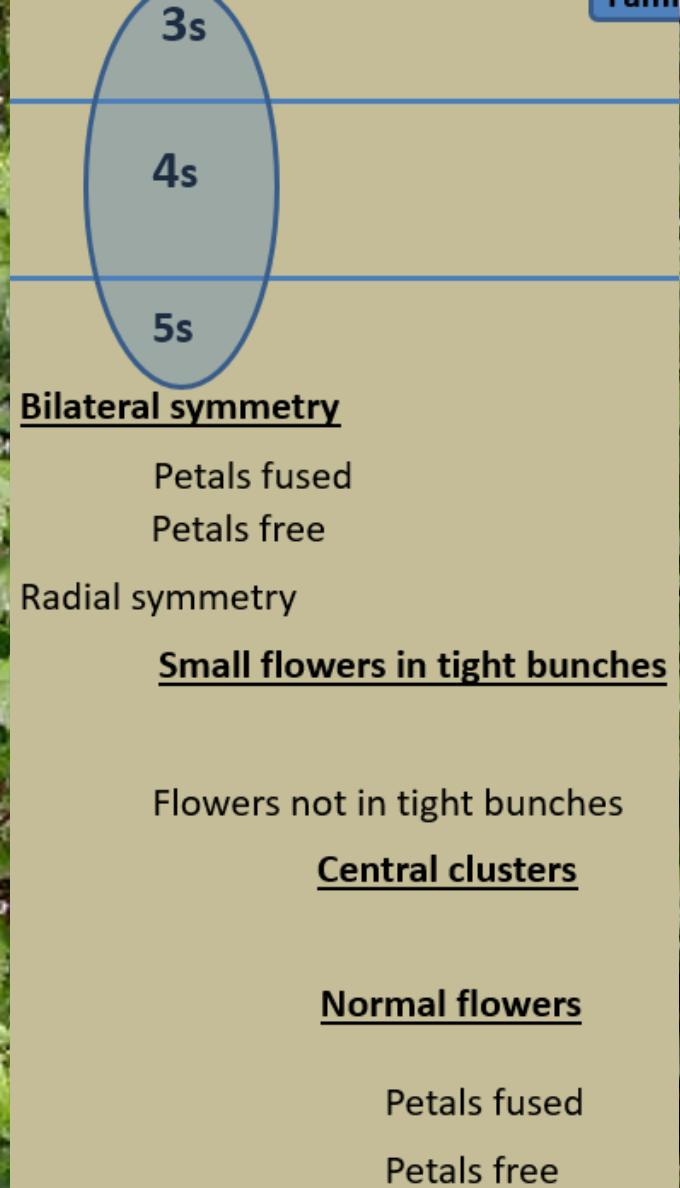
**Normal flowers**

Petals fused

Petals free

**Lily Family**





**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

Petals free

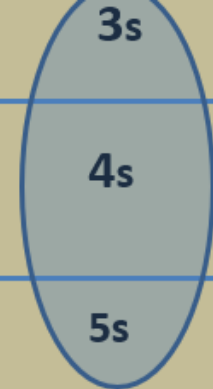




Salmonberry



# Rose Family



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches



**Central clusters**

**Normal flowers**

Petals fused

Petals free





**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

Petals free



Davidson Penstemon



**Bilateral symmetry**

Petals fused  
Petals free



Radial symmetry

**Small flowers in tight bunches**

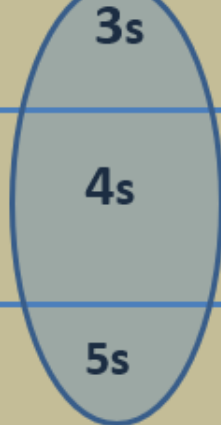
Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused  
Petals free

# Figwort Family



**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

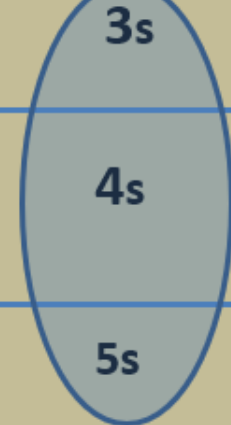
- Petals fused
- Petals free

# Parsley Family

Desert Parsleys



Barestem Desert Parsley



## Bilateral symmetry

- Petals fused
- Petals free

## Radial symmetry



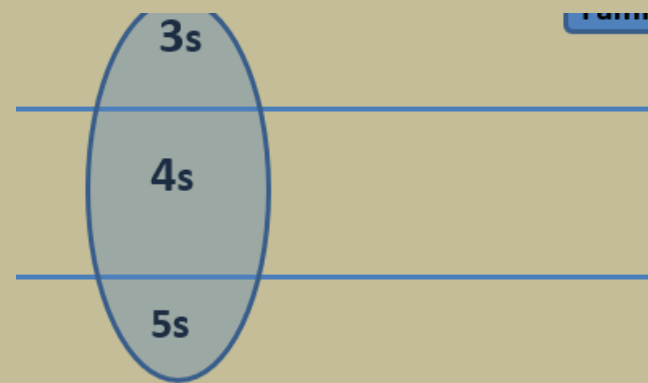
## Small flowers in tight bunches

Flowers not in tight bunches

## Central clusters

## Normal flowers

- Petals fused
- Petals free



**Bilateral symmetry**

Petals fused

Petals free

**Radial symmetry**

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

Petals free

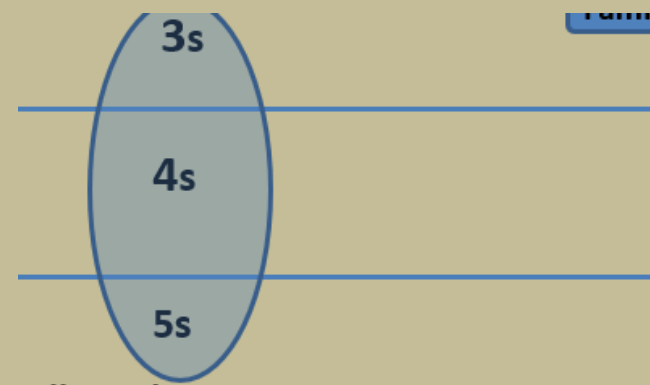


# Mustard Family

Dagger-pod



Dagger Pod



Bilateral symmetry

Petals fused

Petals free

Radial symmetry

Small flowers in tight bunches

Flowers not in tight bunches

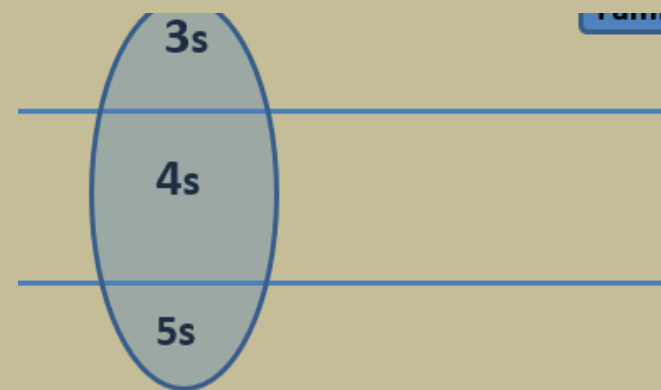
Central clusters

Normal flowers

Petals fused

Petals free





**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

Petals free

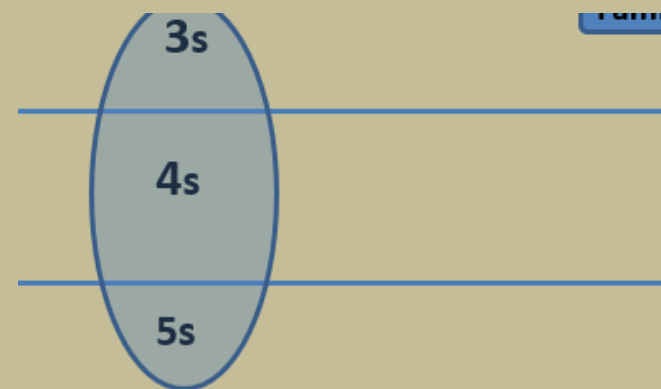




# Saxifrage Family

Saxifrage

Western Saxifrage



Bilateral symmetry

Petals fused

Petals free

Radial symmetry

Small flowers in tight bunches

Flowers not in tight bunches

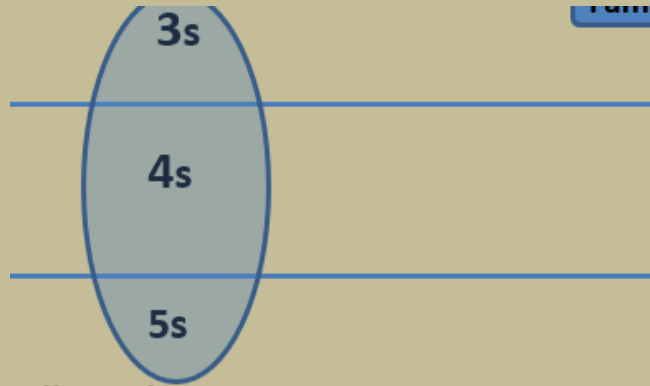
Central clusters

Normal flowers

Petals fused



Petals free



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

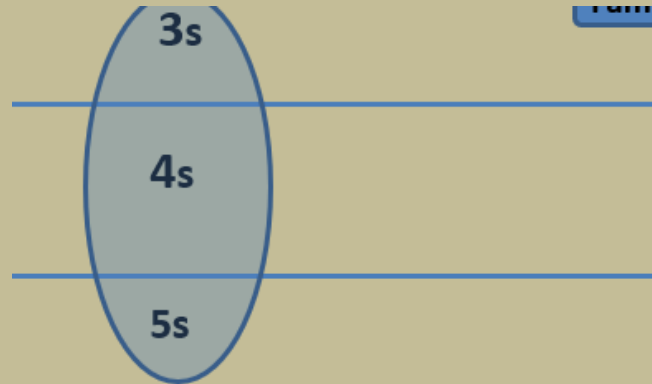
**Normal flowers**

Petals fused

Petals free



# Heath Family



Bilateral symmetry

Petals fused

Petals free

Radial symmetry

Small flowers in tight bunches

Flowers not in tight bunches

Central clusters

Normal flowers



Petals fused

Petals free



Indian Pipe

Pine Drops



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

Petals free

# Violet Family

Violets



Stream violet



## Bilateral symmetry

Petals fused



Petals free

Radial symmetry

## Small flowers in tight bunches

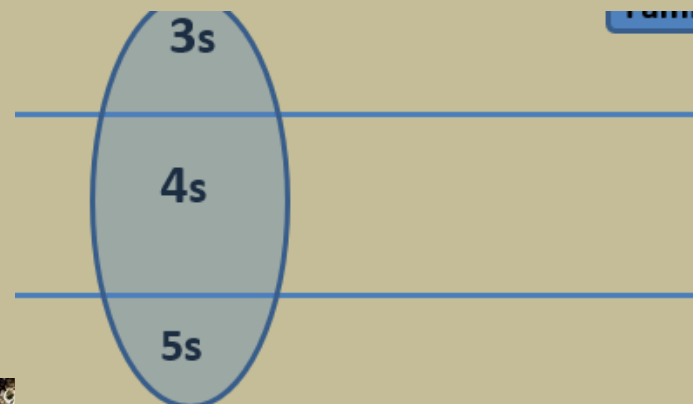
Flowers not in tight bunches

## Central clusters

## Normal flowers

Petals fused

Petals free



**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

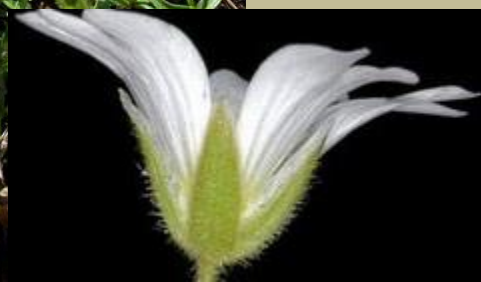
**Small flowers in tight bunches**

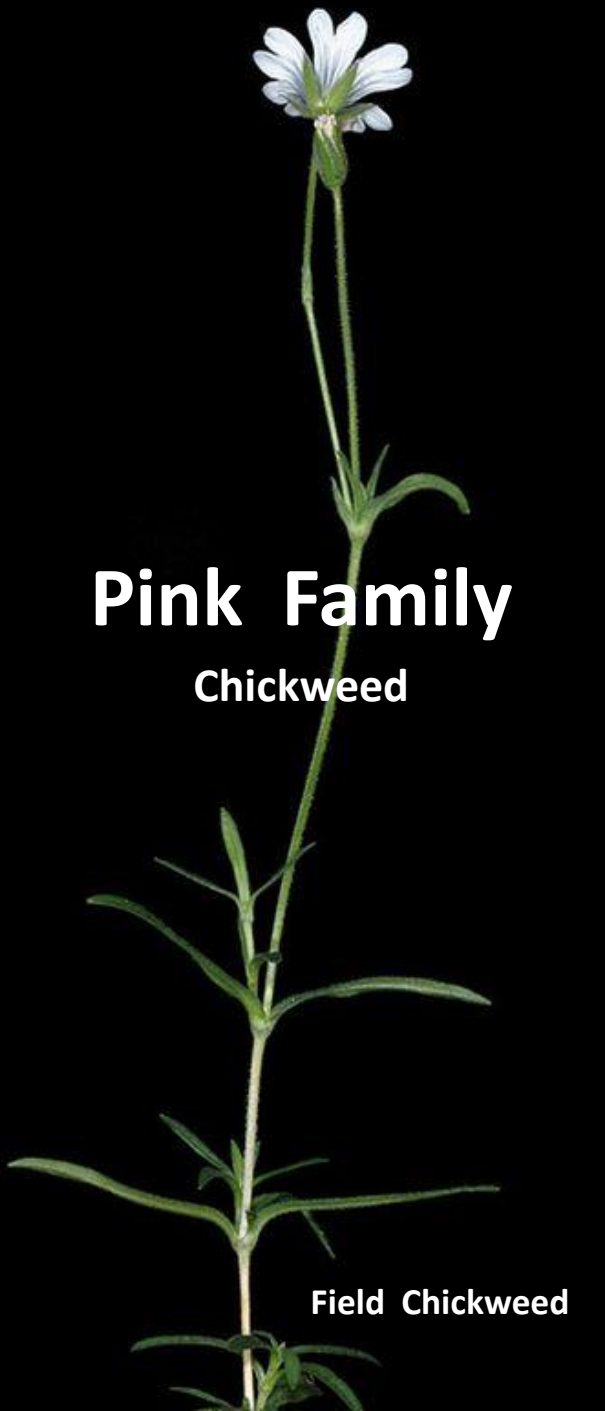
Flowers not in tight bunches

**Central clusters**

**Normal flowers**

- Petals fused
- Petals free

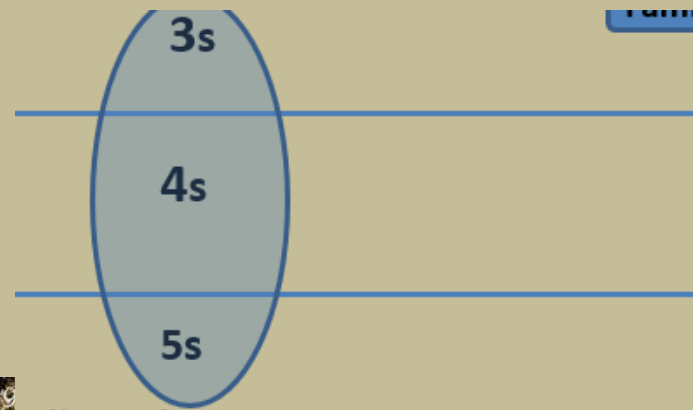
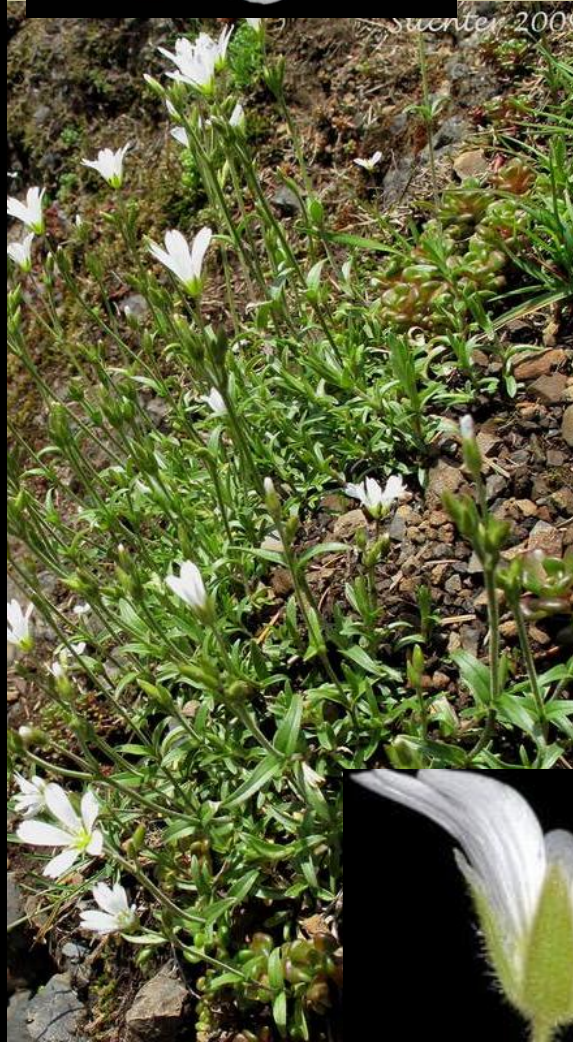




# Pink Family

Chickweed

Field Chickweed



## Bilateral symmetry

Petals fused

Petals free

Radial symmetry

## Small flowers in tight bunches

Flowers not in tight bunches

## Central clusters

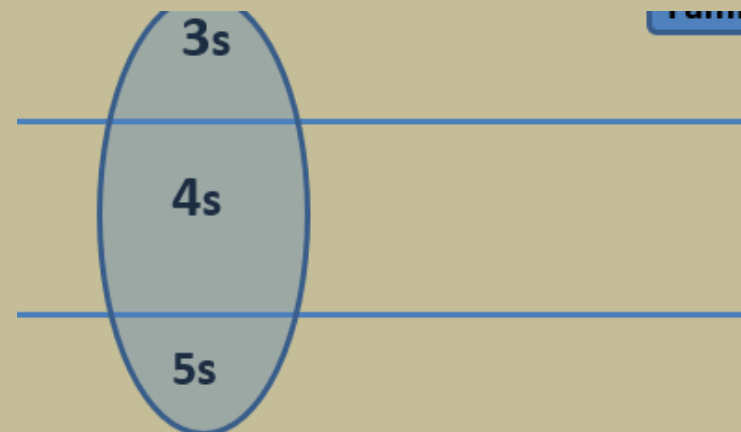
## Normal flowers

Petals fused



Petals free





**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

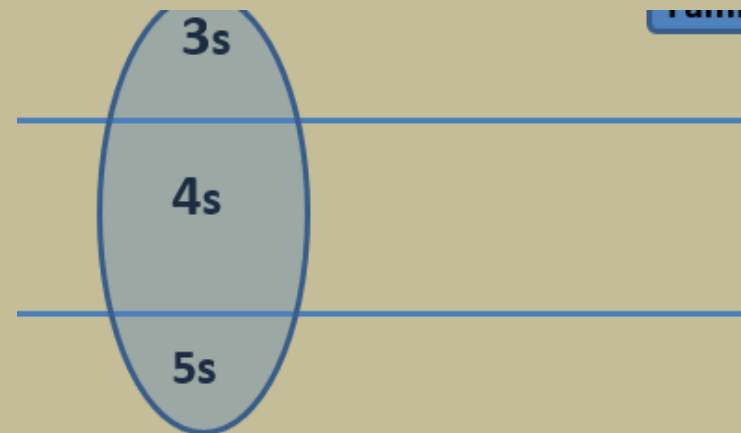
- Petals fused
- Petals free



# Sunflower Family

Asters

Cascade Aster



## Bilateral symmetry

Petals fused

Petals free

Radial symmetry

## Small flowers in tight bunches

Flowers not in tight bunches

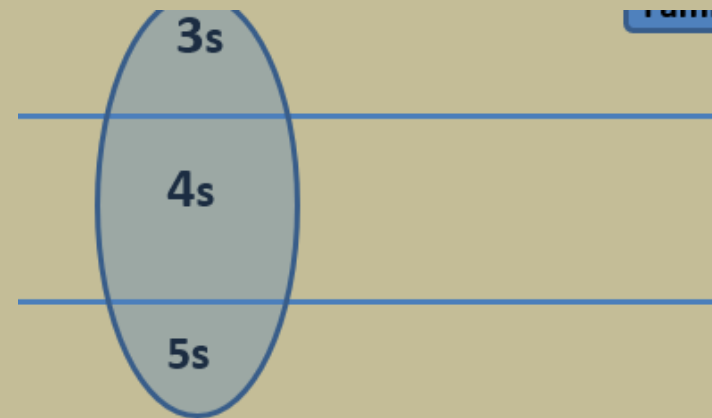
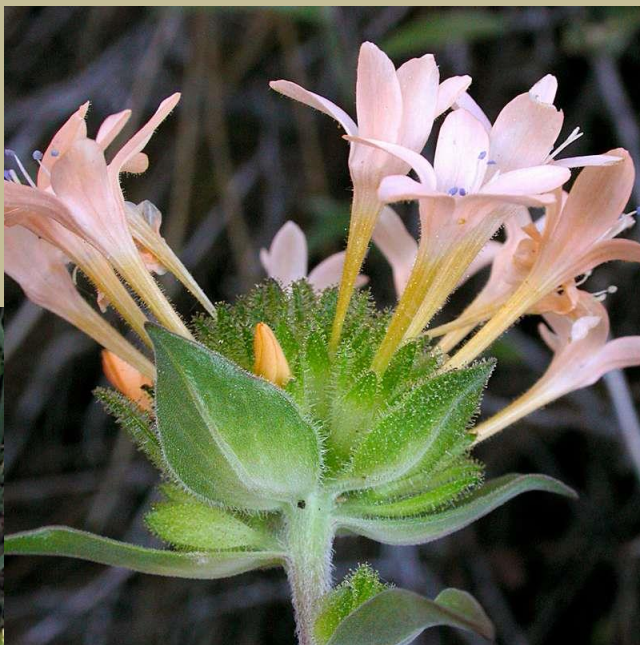


## Central clusters

## Normal flowers

Petals fused

Petals free



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

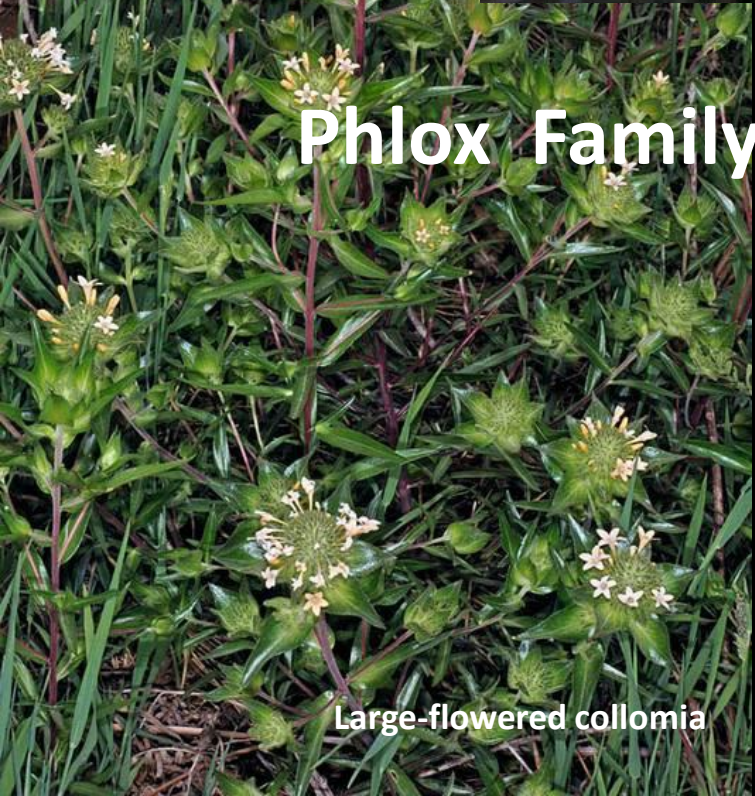
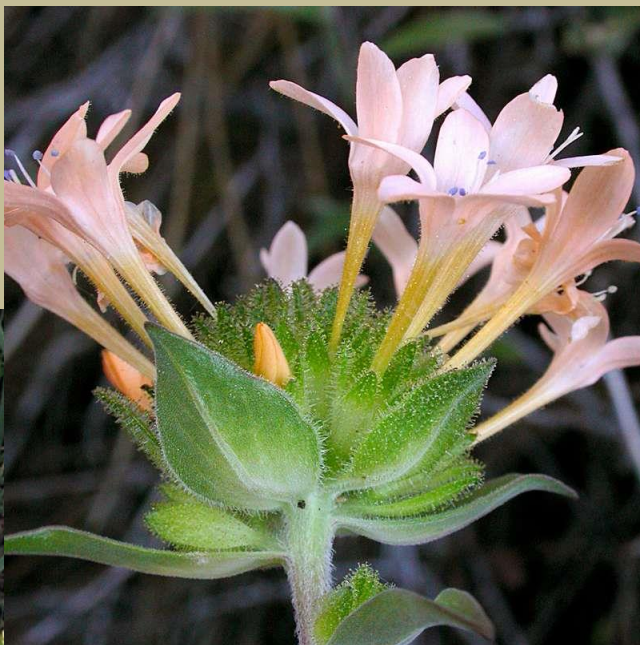
Flowers not in tight bunches

**Central clusters**

**Normal flowers**

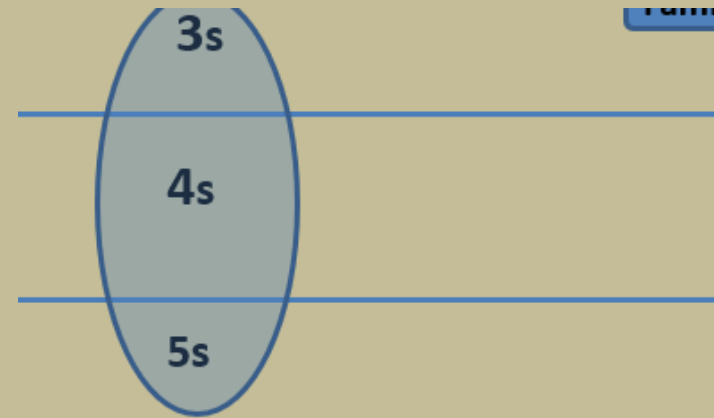
Petals fused

Petals free



# Phlox Family

Large-flowered collomia



## Bilateral symmetry

Petals fused

Petals free

Radial symmetry

## Small flowers in tight bunches

Flowers not in tight bunches

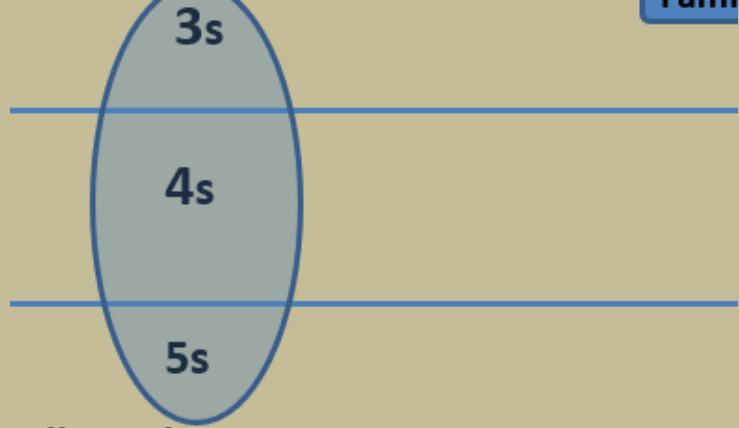
## Central clusters

## Normal flowers



Petals fused

Petals free



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

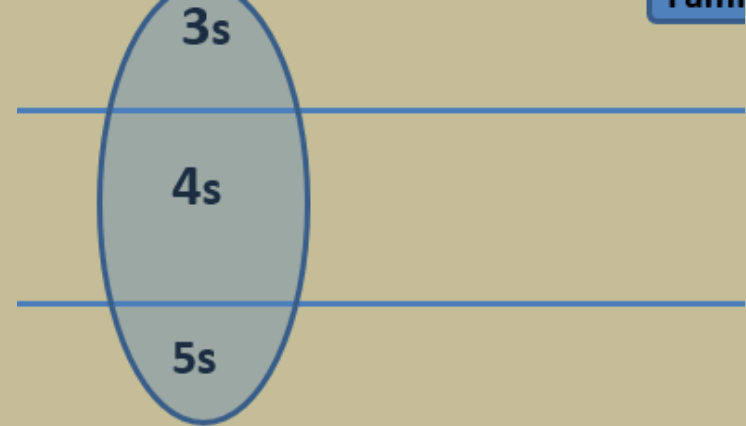
Petals free

# Buttercup Family

Buttercup



Subalpine Buttercup



## Bilateral symmetry

Petals fused

Petals free

Radial symmetry

## Small flowers in tight bunches

Flowers not in tight bunches

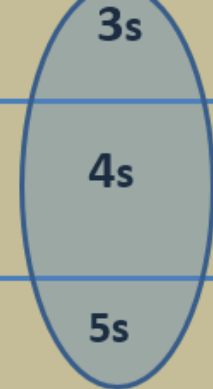


## Central clusters

## Normal flowers

Petals fused

Petals free



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

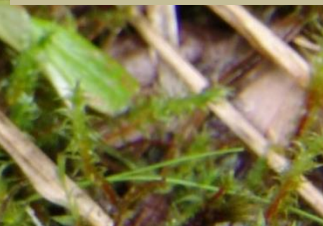
Flowers not in tight bunches

**Central clusters**

**Normal flowers**

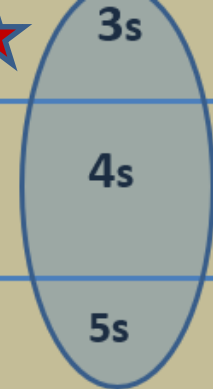
Petals fused

Petals free





White Bog Orchid



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

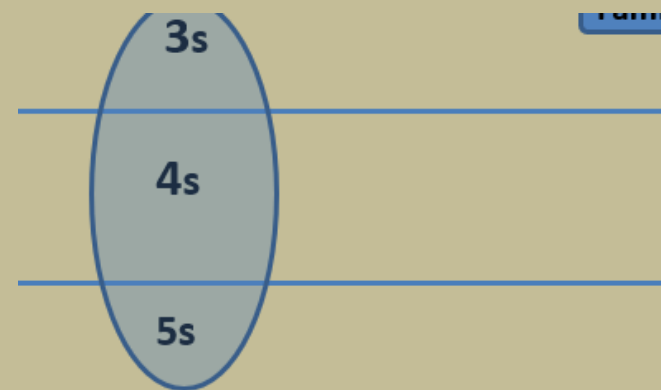
Petals fused

Petals free

# Orchid Family







**Bilateral symmetry**

Petals fused

Petals free

**Radial symmetry**

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

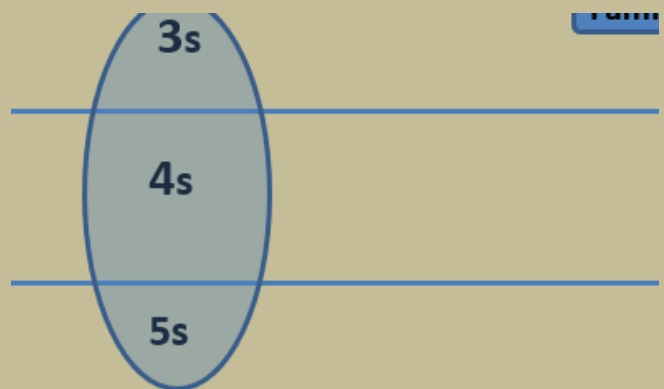
Petals free





# Borage Family

Cryptantha



**Bilateral symmetry**

- Petals fused
- Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**



- Petals fused
- Petals free



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused

Petals free



# Purslane Family

Columbia Lewisia



## Bilateral symmetry

Petals fused

Petals free

Radial symmetry

## Small flowers in tight bunches

Flowers not in tight bunches

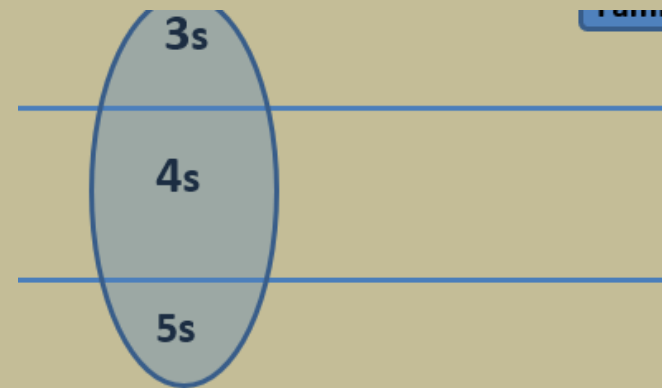
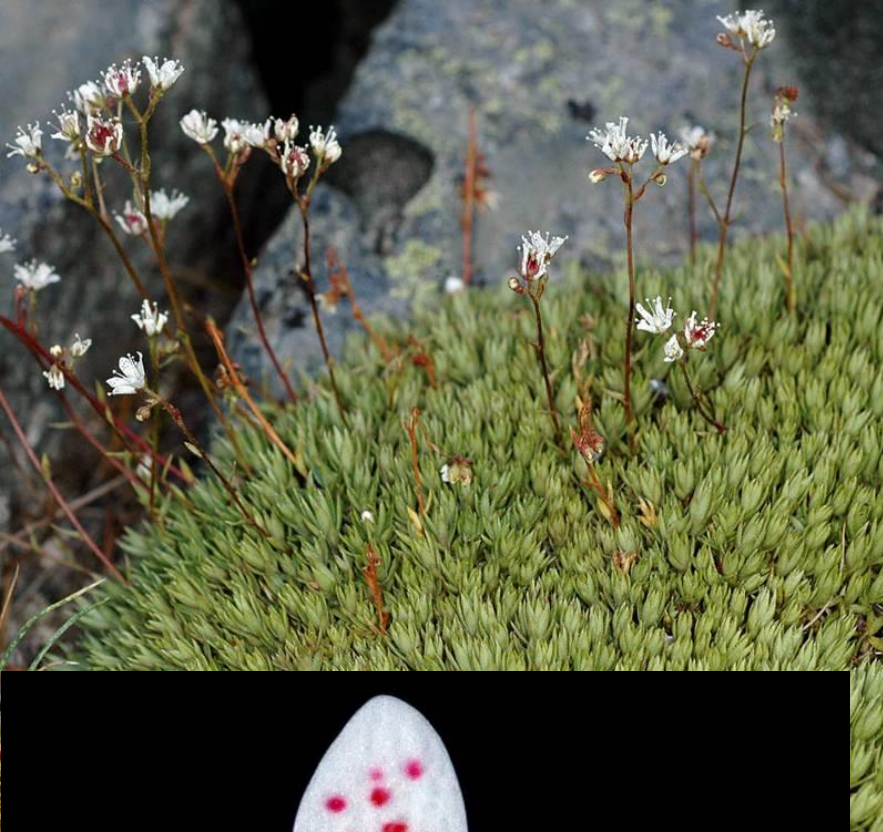
## Central clusters

## Normal flowers

Petals fused



Petals free



**Bilateral symmetry**

Petals fused

Petals free

Radial symmetry

**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

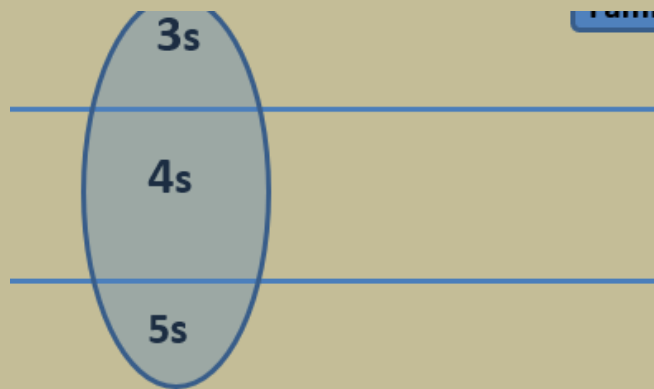
Petals fused

Petals free





# Saxifrage Family



## Bilateral symmetry

- Petals fused
- Petals free

Radial symmetry

## Small flowers in tight bunches

Flowers not in tight bunches

## Central clusters

## Normal flowers

Petals fused

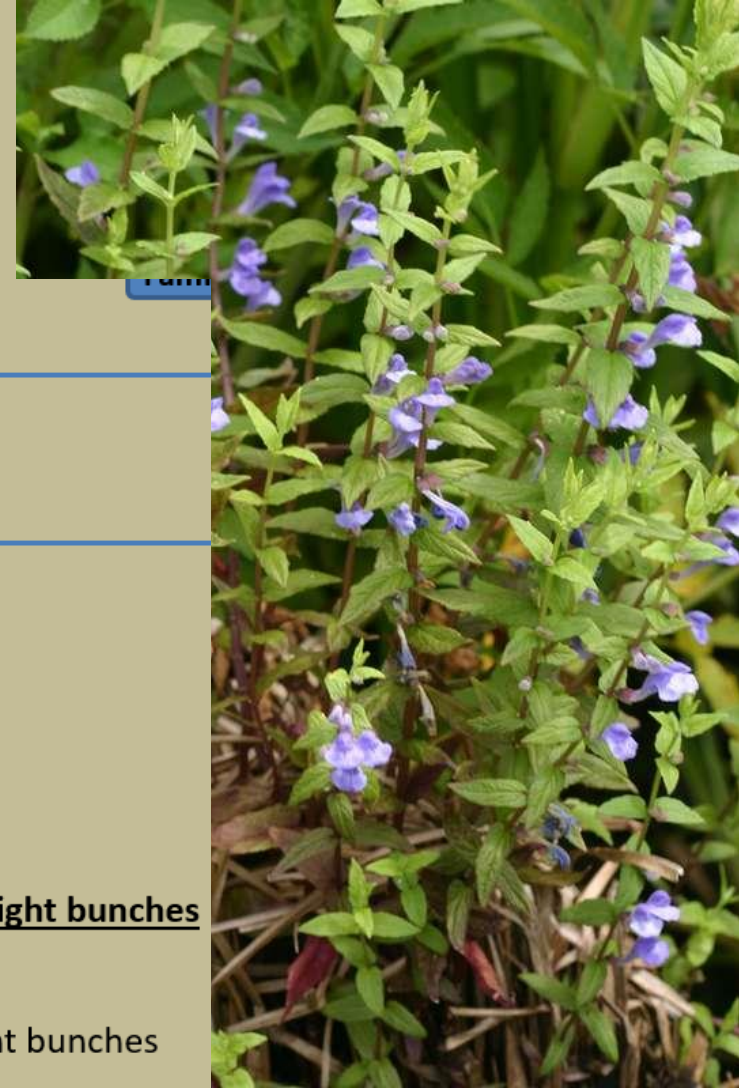


Petals free



Spotted Saxifrage





**Bilateral symmetry**

Petals fused  
Petals free

Radial symmetry

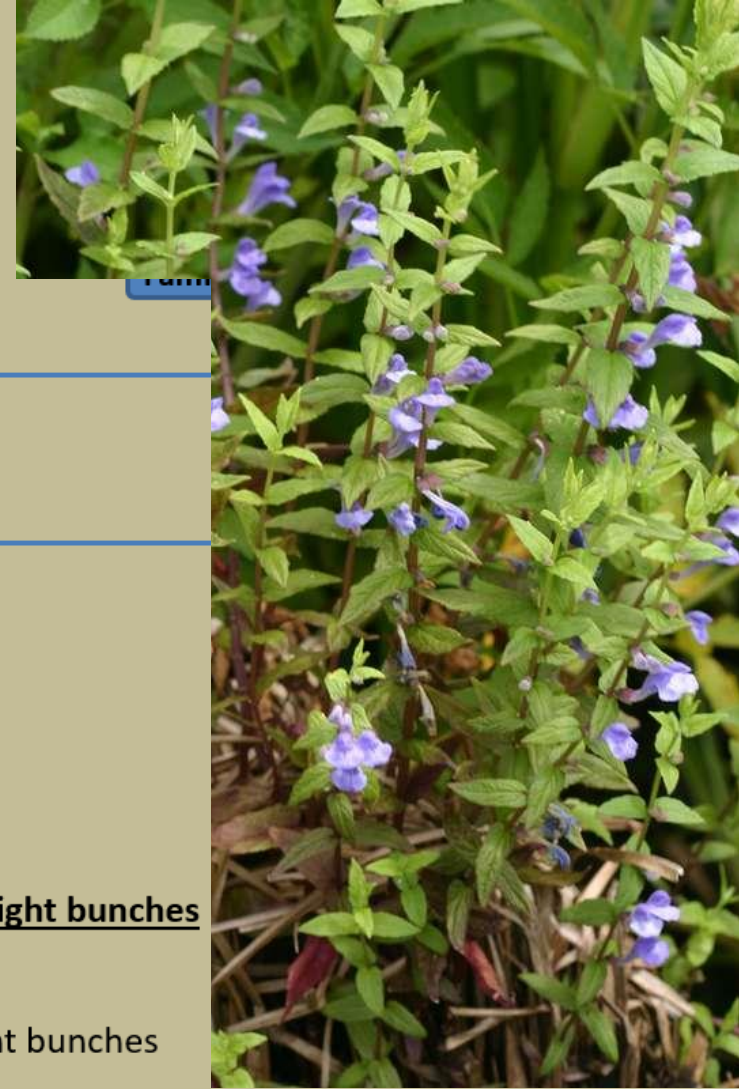
**Small flowers in tight bunches**

Flowers not in tight bunches

**Central clusters**

**Normal flowers**

Petals fused  
Petals free



Bilateral symmetry



Petals fused  
Petals free

Radial symmetry

Small flowers in tight bunches

Flowers not in tight bunches

Central clusters

Normal flowers

Petals fused

Petals free

# Mint Family