

# A seasonal guide to the Flowering Plants of the Kamloops area



# Introduction

I had originally thought to call this photo album “*Wildflowers of the Kamloops area*”, but “wildflower” is a very elastic term, with no precise meaning: for some it is restricted to herbaceous plants; others would include woody shrubs; still others would also include flowering trees— if perhaps only the smaller ones. So I wanted a more inclusive name to cover all of these.

I settled on calling it “*Flowering Plants of the Kamloops area*”, although that too is problematic, because “*Flowering Plants*”, is a phrase corresponding to the technical term *Angiosperms*, which means all plants with true flowers— yet this album excludes many such plants: the sedges, grasses and rushes, as well as most broadleaf trees. In the end I realized there was no easy way around the naming problem, so understand that this is simply a collection of plants united only by having, in the main, eye-catching flowers.

**In the next pages** there is an overview of **what is included** in this guide— the number of species included, how many of them are native vs. alien, notes on their habitats & seasonal appearance, the geographical scope of the survey, and the numerical breakdown of the sample into their respective plant families— a sort of plant diversity profile.

**Then follows** a series of eight pages showing **comparisons** of several groups of easily-confused species, as an aid in distinguishing them.

**From p. 20 on**, is **the main part of this photo-guide**, with one page per species in order of their seasonal appearance. The entire list is broken into three blocks, as explained two pages below here. **Finally**, there are pages concerning **plant evolution and classification**

**404 species from 60 families** are recorded in this **2021** edition of the guide.

Those species deemed **native** to BC are named in **green** (295 spp.; 73%); **non-native** (a.k.a. *alien* or *exotic*) species are named in **orange** (109 spp.; 27%).








This status follows that given in e-Flora ([ibis.geog.ubc.ca/biodiversity/eflora/](http://ibis.geog.ubc.ca/biodiversity/eflora/)), but authorities occasionally differ on status (and on species names too— so beware!)

This album is far from complete. I expect to add further species in years to come. Some errors in previous editions are corrected; some species names have changed; some species have been allocated to other genera and / or families; new species are added.

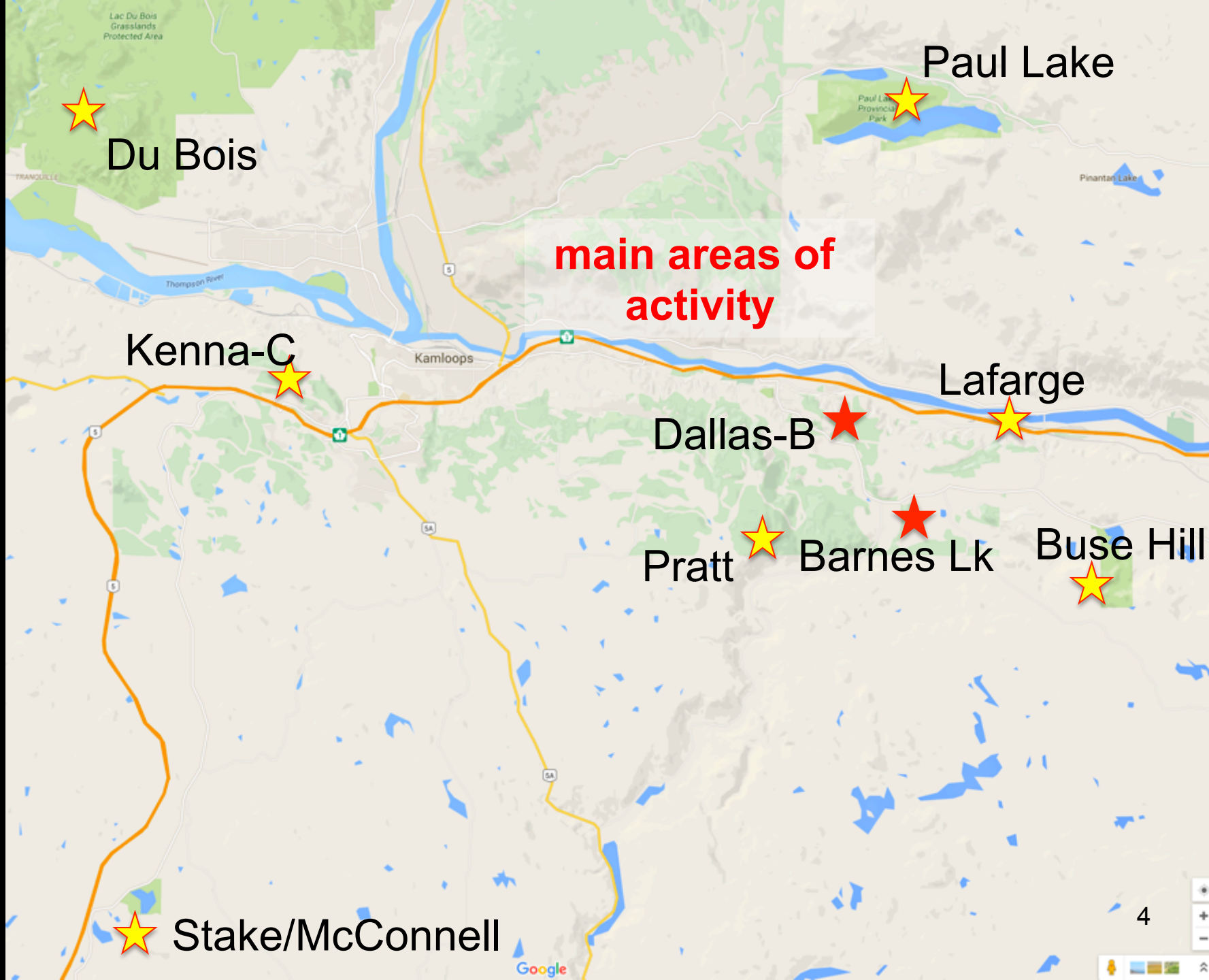


= Known to be present in the *Dallas-Barnhartvale Park* and/or *Blackwell* and/or *Barnes Lake Trails* areas – see map on the next page

On each species page, primary habitats are indicated by symbols, as follows:

-  shores, riverbanks, moist areas in other habitats e.g. seeps, springs, pools;
-  grasslands &/or scrublands &/or rocky slopes in other general habitats;
-  open dry parklands with grasses, shrubs and scattered trees;
-  open pine – douglas-fir mixed woodlands;
-  douglas-fir or mixed forest; can be dry to moist, open to closed;
-  disturbed areas, roadsides, pastures, farmlands, etc.
-  mountains, subalpine or alpine

**(NB: invasive exotics are often found scattered in many other habitats where the native vegetation has been disturbed)**



Paul Lake



Du Bois



main areas of activity

Kenna-C



Kamloops

Lafarge

Dallas-B



Pratt



Barnes Lk



Buse Hill



Stake/McConnell

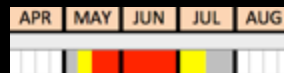
# a By-The-Season structure

As in previous editions, species are arranged according to the timing of their *local onset of flowering*, from early spring, when Sagebrush Buttercup appears, through to early fall, when Rabbit-brush blooms.

Species don't replace one another in strict linear sequence, of course; rather, there will often be substantial overlap among them: many begin flowering at more or less the same time; some will have short, but others prolonged, blooming periods; some species bloom more than once, sometimes repeatedly; and flowering always depends on the local conditions of individual plants and the rate of advance of a given year's temperatures. But bearing these complications in mind, species may still be arranged pretty reliably by their *probable flowering onset*, even if they might differ greatly in how long they linger thereafter.

Since 2018, I have felt able to draw up a chart showing where the flowering period of each species is located in the calendar. This chart appears in an accompanying document, *Flowering Season 2021*; it shows my estimate of each species' *local* flowering peak, plus an indication of when early individuals and late stragglers might be found. It also shows published species limits taken from sources, such as websites of the *Flora of North America*, the *Burke Museum* & the *Jepson Herbarium*.

Flowering calendar bars for individual species appear on each species' page, like this:



Based on this flowering season chart, I have broken up the total of ~400 species into three groups:

1. Species that start **BEFORE** the end of April;
2. Species that typically start **AFTER** the end of April;
- and 3. Species that usually start flowering **AFTER** the end of May. Inspection of each subgroup permits us to see how the composition of the flowering community might change through the year—in terms of family affiliations and exotic vs. native species. This is shown numerically and as bar-charts.

# species new to this 2021 edition

*Artemisia michauxiana*

*Caltha leptosepala*

*Cassiope mertensiana*

*Claytonia rubra*

*Crepis occidentalis*

*Fragaria vesca*

*Leptarrhena pyrofolia*

*Lithophragma glabrum*

*Luetkea pectinata*

*Monarda fistulosa*

*Peritoma serrulata*

*Phemeranthus sediformis*

*Phyllodoce glandulifolia*

*Phyllodoce empetrifolia*

*Pulsatilla occidentalis*

*Ranunculus eschscholtzia*

*Rhododendron albiflorum*

*Rosa canina*

*Saxifraga ferruginea*

*Sibbaldia procumbens*

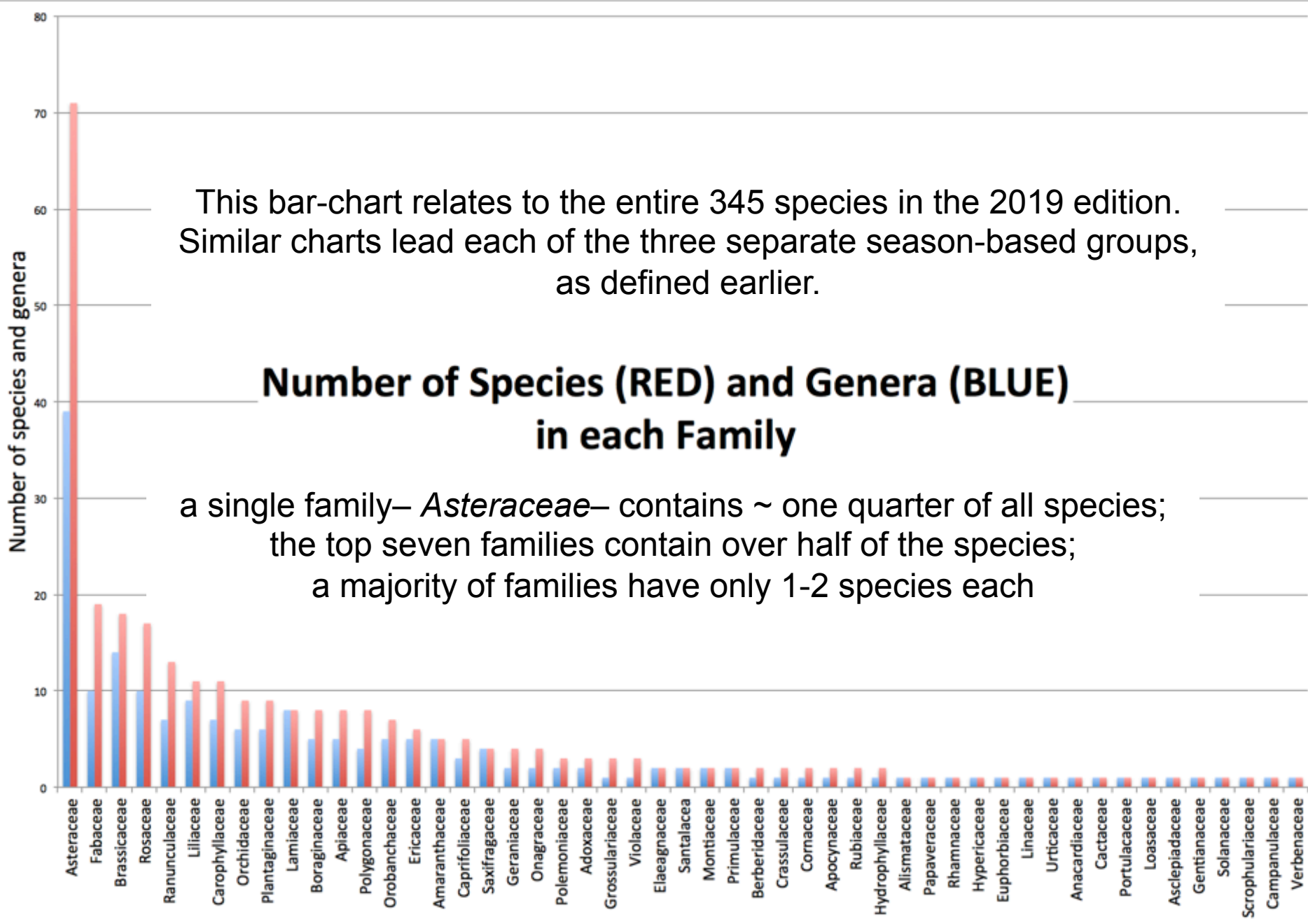
*Trollius taxus*

*Epilobium lactiflorum* (?)

This bar-chart relates to the entire 345 species in the 2019 edition. Similar charts lead each of the three separate season-based groups, as defined earlier.

## Number of Species (RED) and Genera (BLUE) in each Family

a single family— *Asteraceae*— contains ~ one quarter of all species;  
 the top seven families contain over half of the species;  
 a majority of families have only 1-2 species each



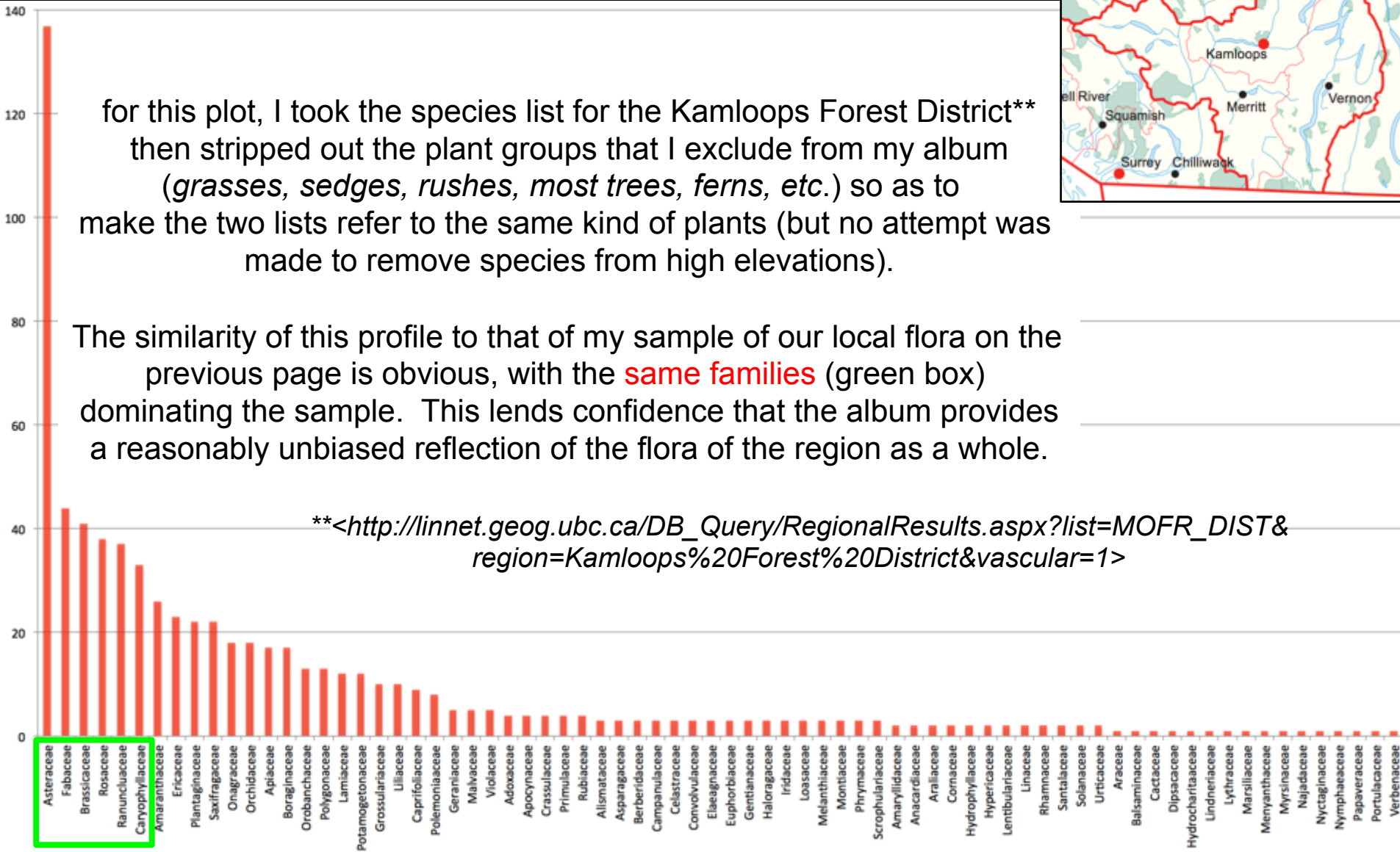
# Family affiliation of the 700+ species recorded in Kamloops Forest District



for this plot, I took the species list for the Kamloops Forest District\*\* then stripped out the plant groups that I exclude from my album (*grasses, sedges, rushes, most trees, ferns, etc.*) so as to make the two lists refer to the same kind of plants (but no attempt was made to remove species from high elevations).

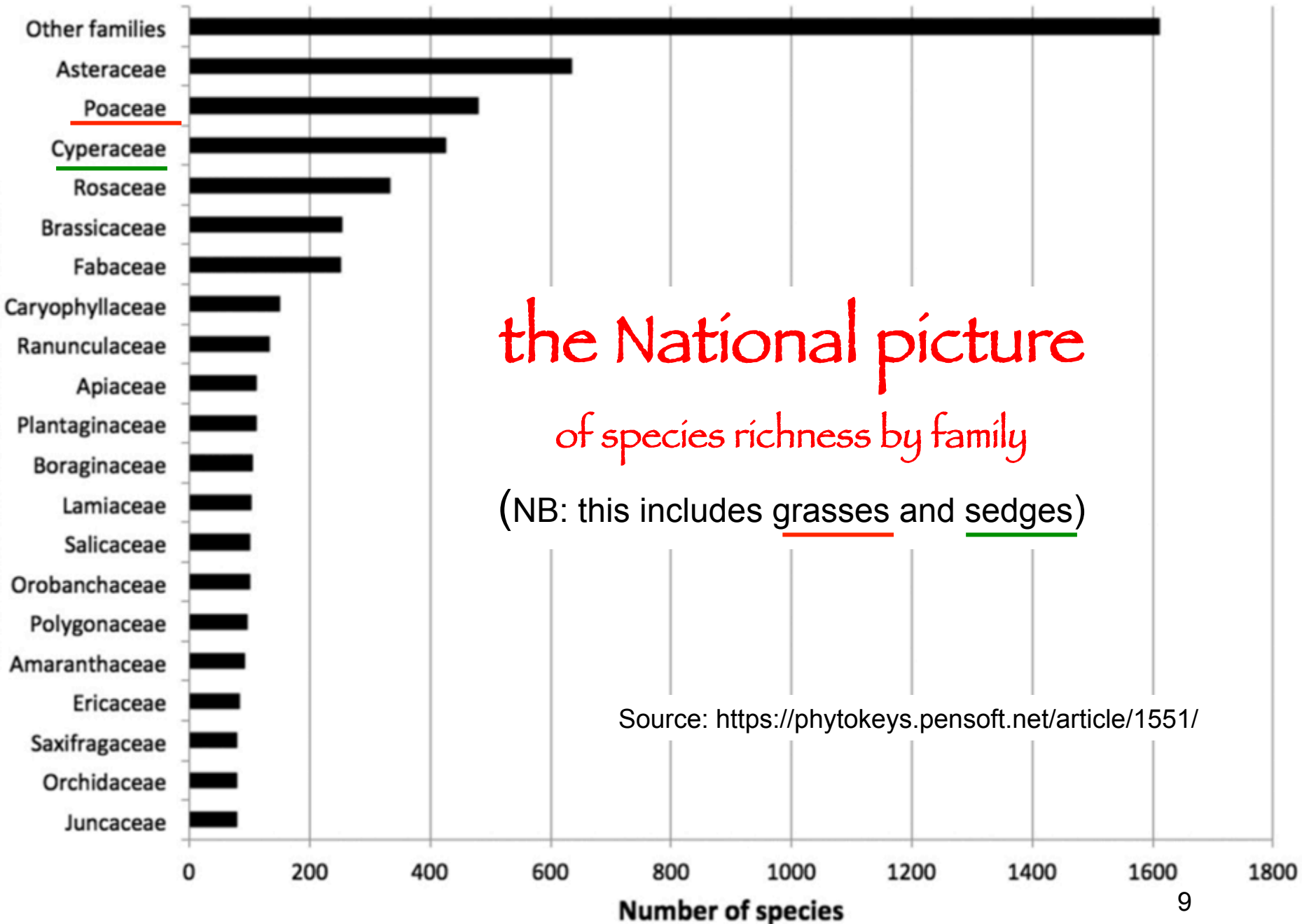
The similarity of this profile to that of my sample of our local flora on the previous page is obvious, with the **same families** (green box) dominating the sample. This lends confidence that the album provides a reasonably unbiased reflection of the flora of the region as a whole.

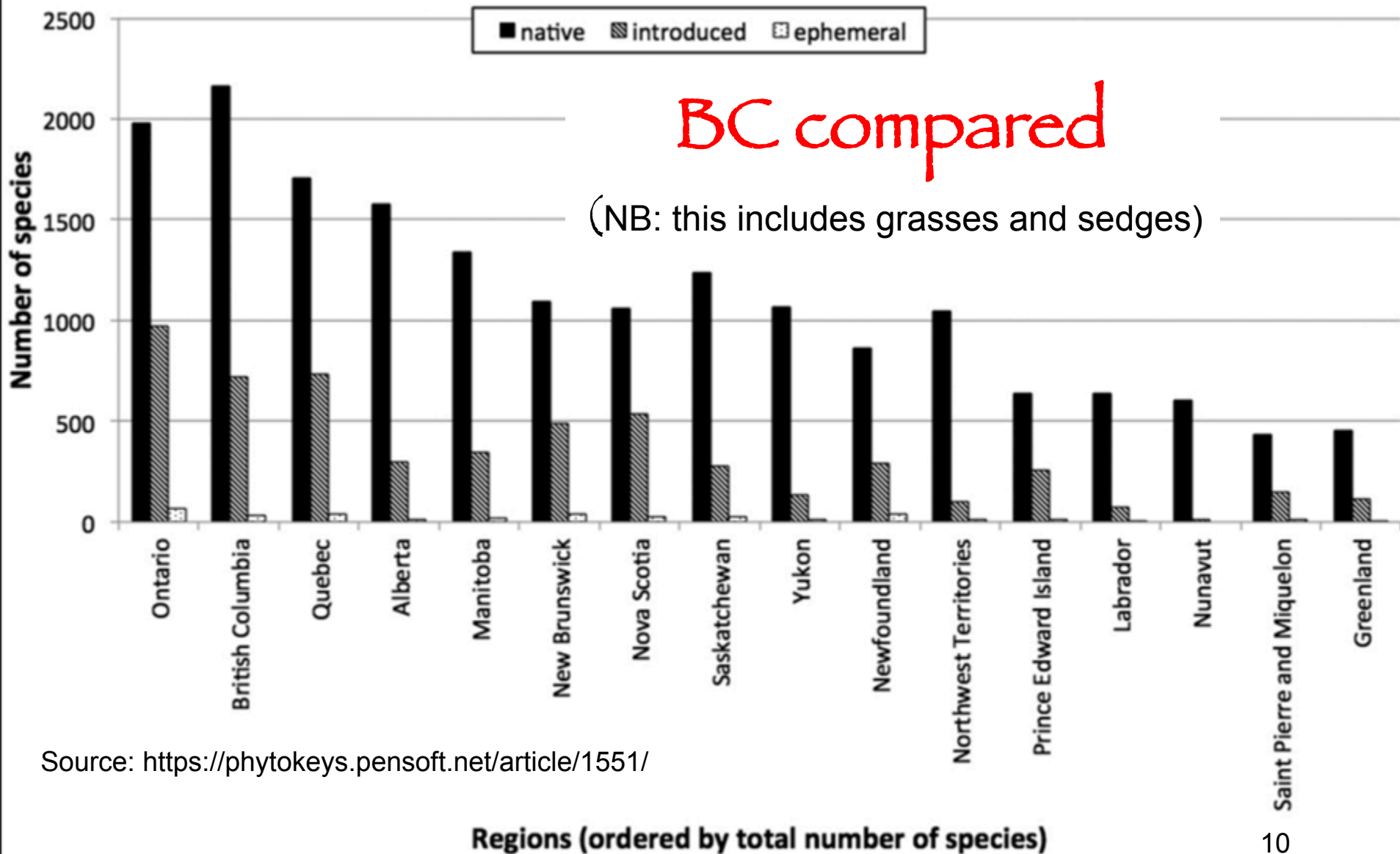
\*\*<[http://linnet.geog.ubc.ca/DB\\_Query/RegionalResults.aspx?list=MOFR\\_DIST&region=Kamloops%20Forest%20District&vascular=1](http://linnet.geog.ubc.ca/DB_Query/RegionalResults.aspx?list=MOFR_DIST&region=Kamloops%20Forest%20District&vascular=1)>





Families (ordered by number of species)





Source: <https://phytokeys.pensoft.net/article/1551/>

# Comparison of mat-forming *Antennaria* species



## *dimorpha*

very compact discs, arcs or rings, **tight to the ground**; tiny narrow leaves; flower heads single per stem, not in clusters



## *rosea*

open irregular mats, **on or close to the ground**; leafy stolons; spoon-shaped greenish-grey leaves; several to many flower heads per stem, usually **pink**, in round clusters



## *umbrinella*

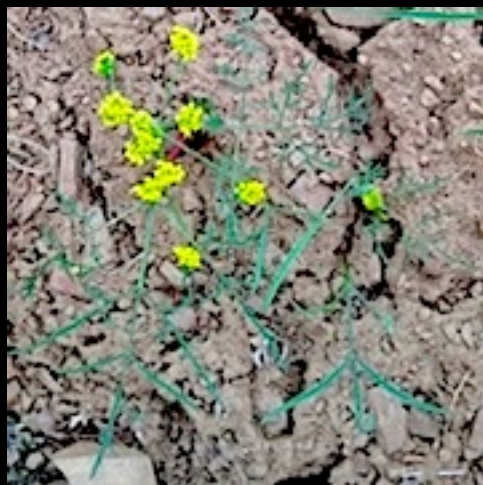
loose groups; dark woody stems often visible; clusters of silver-grey wedge-shaped leaves **usually raised 1" or so off the ground**; few to several flower heads per stem in compact brown-edged clusters

*rosea* leaves usually distinctly **broader** than in *umbrinella*

# Comparison of *Lomatium* Desert Parsley species

*ambiguum* ●

usually branched, erect smooth stems; open umbels usually yellow, occ. white or purplish, no involucels; leaves usually basal, divided 2-3 times into narrow linear leaflets; fruits narrow, linear, w/ narrow or absent wings



*geyeri* ● ● ●

simple erect stems; small compact umbels white or occ. purplish; all leaves basal, dark green, dissected & fern-like; fruits oblong-elliptical w/ rather wide wings



*triternatum* ●

single erect hairy stems; open yellow umbels, involucels present; leaves mostly basal, perhaps also on stems, divided 2-3 times into narrow linear leaflets; fruits oblong – broad elliptical, wings narrow to broad



*macrocarpum* ●

stems branched near base, spreading or erect; large compact umbels, creamy white, occ. purplish; all leaves basal, greyish-green, dissected fern-like; fruits oblong-elliptical w/ narrow wings



# Comparison of small *Erigeron* daisies : 1

*compositus* ● ●

simple erect flower-heads, 3-25 cm tall; 20-60 ray florets, usually white (can be pink or blue); leaves divided 1-4 x into 3s

[Apr - Aug]



*linearis* ●

erect flower-heads, usually simple, 5-30 cm tall; 20-45 ray florets, **bright or pale yellow**; leaves linear

[May - July]



*pumilus* ●

simple to much-branched erect flower-heads, 5-30 cm tall; 50-100+ ray florets, usually white, (can be pale pink or blue); leaves lanceolate; **whole plant v. hairy**

[May - July]



*flagellaris* ●

erect flower-heads, usually simple, 3-15 cm tall; 40-125 ray florets, white; leaves broad-lanceolate; **trailing leafy stolons**

[May - Aug]



# Comparison of small *Erigeron* daisies : 2



## *corymbosus*

simple or branched  
erect flower-stems,  
10-50 cm tall; 35-65  
ray florets, usually  
deep blue, or perhaps  
pink; leaves long,  
linear and tapering,  
mostly basal

[May - July]

## *filifolius*

simple or branched  
erect flower-heads,  
10-50 cm tall; 15-50  
ray florets, usually blue  
to purplish, can be pink  
or white; leaves  
linear to thread-like

[May - July]



## *divergens*

simple or multiple from  
base, erect to  
spreading hairy flower-  
stems, 10-40 cm tall;  
75-150 ray florets,  
white to lilac, buds  
nodding; leaves hairy,  
spatulate

[May - July]

## *speciosus*

simple or branched erect  
flower-heads, 15-80 cm  
tall; 75-150 ray florets,  
blue to purple, rarely  
whitish; basal leaves  
lanceolate to spoon-  
shaped, stem leaves  
often broader but with  
pointed tip

[June - Aug]



# Tricky *Crepis* and *Hieracium* species



## *C. atribarba*



erect stems, 15-70 cm, branched distally; flower heads have ~8-12 separated bright yellow ray florets; lvs. linear, deeply cut into narrow segments

[May - July]

## *C. tectorum*



erect stems, 30-100 cm, branched distally; flower heads have many bright yellow ray florets; basal lvs. in short-lived flat rosette, stem lvs. linear, entire, clasping stem

[June - July]



## *H. cynoglossoides*



erect stems, 30-100 cm, branched distally; flower heads have few to many bright yellow ray florets; lvs. lanceolate, stalked, grey-green usually densely hairy, basal lvs. persistent

[June - Aug]

## *H. umbellatum*



erect stems, 30-100 cm, branched distally; flower heads have many bright yellow ray florets; basal lvs. soon wither, persistent stem lvs. lanceolate, entire or toothed, unstalked, often clasping

[July - Sept]

# Comparison of chickweeds, sandworts, and others: 1

*Holosteum umbellatum* ●



*Stellaria media*

simple erect flower-stems, 5-35 cm tall; 2-16 flowers in terminal cluster; flowers white, 5-7mm, raggedly frilled edge; 1-2 cm oblong-lanceolate leaves mainly in basal rosette



[Apr-May]



stems often prostrate, usually branched, forming mats, 7-50 cm long; white flowers single or in terminal clusters, petals deeply cleft, 2-3mm; leaves ovate to elliptical, 5-45mm long, hairy [Feb-Oct]

*Stellaria nitens* ● ●



*Cerastium arvense*

simple to few-branched erect flower-stems, 3-25cm tall; white flowers in small clusters, petals deeply cleft, shorter than narrow sharp sepals; leaves linear to lanceolate



[Apr-June]



often forms mats or clumps; erect to prostrate flower-stems, usually branched, 5-40 cm long; white flowers in small open clusters, petals 8-12mm, strongly cleft; leaves linear to lanceolate

[Apr- Aug]



# Comparison of chickweeds, sandworts, and others: 2

*Moehringia lateriflora* ●●●

much-branched flower-stems, 4-20cm tall; white flowers in small clusters, petals egg-shaped, 4-8mm; leaves elliptical to oblong, 3-30mm long



[May - Aug]

●●●● *Stellaria longipes*

flower-stems branched, 3-30 cm tall; single to few white flowers in open cluster, petals deeply cleft, 3-8mm long; leaves pointed, linear to lanceolate, rather stiff & shiny



[May - Aug]

*Arenaria serpyllifolia* ●

usually much-branched flower-stems, erect to prostrate; flowers white, petals narrow, ovate, ~2mm; leaves opposite, ovate to lanceolate, sharp-pointed



[May - July]

●●● *Silene menziesii*

flower-stems curving up or down, branched, 5-70 cm long; flowers white, 2-3mm, cleft halfway or more, in open clusters; leaves lanceolate with long points, 2-20cm long



[March - Sept]

# Comparison of the smaller upland *Artemisia* species

*dracunculus*



plant slightly to *strongly* aromatic; stems simple, erect, *brown*, 50-150 cm; *many greenish flower heads in long open- branched inflorescence*; *leaves green*; *early basal leaves strap-like, often 3-divided, soon lost*; *stem leaves green, abundant, linear to oblong*

*campestris*



plant slightly to non-aromatic; stems simple, erect, *grey-green* turning red-brown, 10-100 cm; *many yellow-green flower heads in narrowly branched inflorescence*; *leaves greyish green, largely basal, fairly long, 2-3 times cut into fine segments*

*frigida*



plant *strongly* aromatic; stems simple erect, usually *white-grey*, 10-40 cm; *several to many whitish flower heads with bright yellow florets*; *basal leaves soon lost*; *stem leaves silvery greyish green divided 2-3 times into short, very fine linear to thread-like segments*

# comparison of *Astragalus* species: leaf-length; leaflet number, size, & form



*agrestis*

4-10 cm; 11-23; 5-20 mm.; elliptic



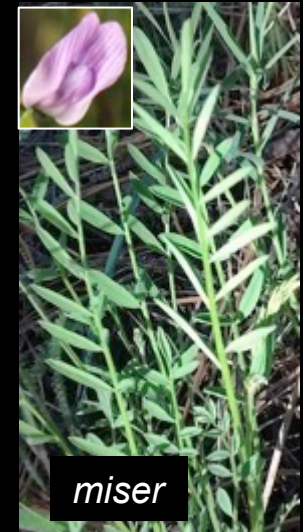
*beckwithii*

5-15 cm; 11-25; 10-20 mm.; rounded



*collinus*

3-9 cm; 11-21;  
10-20 mm.; oblong;  
red-brown stems



*miser*

3-15 cm; 7-21;  
5-30 mm.; linear



*purshii*

2-15 cm; 5-19; 5-20 mm.;  
lanceolate, pointed, white-woolly



*robbinsii*

5-12 cm; 7-19; 10-30 mm.; narrow-oblong



*tenellus*

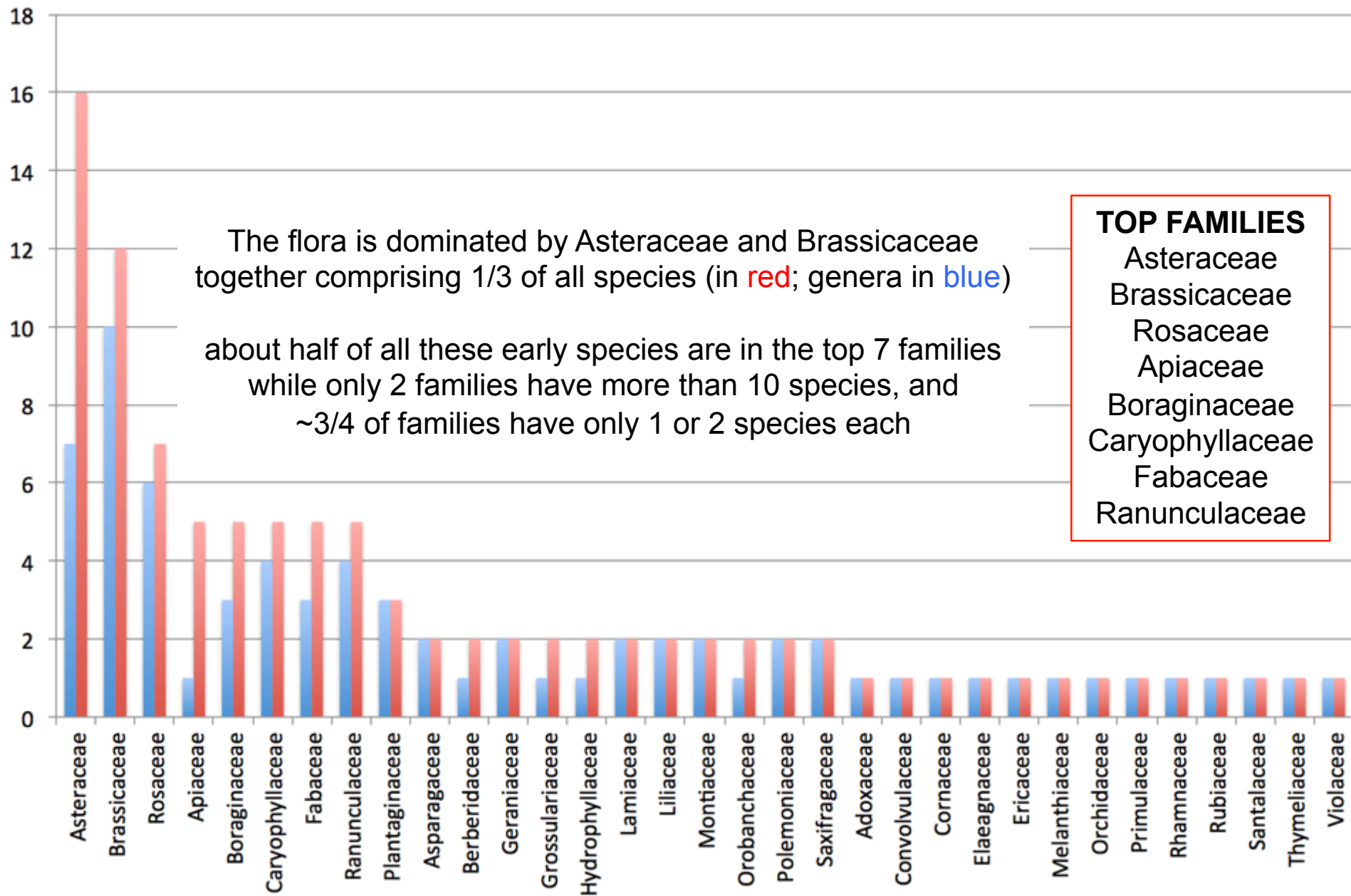
3-8cm; 9-25; 8-25 mm.; narrow-lanceolate;  
red-brown stems

**Group 1** species **begin** flowering **before** end-April

Of these 111 species, **89 are native (79%)**, and **23 are alien (21%)**

Some species begin flowering from as early as **mid-February**,  
though **most flower strongly in April & May**,  
with some reaching well into June, and a few as far as July,  
with some stragglers lingering into fall.

# Family Breakdown of Early Spring Species



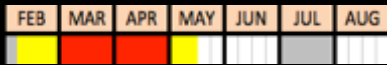
# Sagebrush Buttercup

*Ranunculus glaberrimus*

Group 1  
(in 2016 first seen 8 Feb!)



Ranunculaceae  
Buttercup family



# Geyer's Desert Parsley

*Lomatium geyeri* [March – May]

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| FEB | MAR | APR | MAY | JUN | JUL |
|     | ■   | ■   | ■   |     |     |



See page at the end of Introduction for a comparison of similar *Lomatium* species



Apiaceae  
Carrot family

Group 1



Yellowbell

*Fritillaria pudica*



Group 1 ★

Liliaceae  
Lily family



once pollinated,  
flowers turn orange



a month after flowering  
the stalk straightens,  
raising the fruit upright



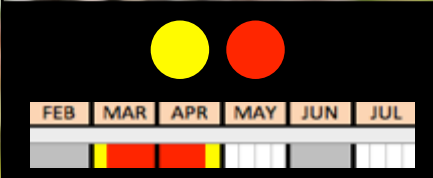
six weeks after flowering  
the fruit dries and opens



Spring Draba  
*Draba verna*  
Brassicaceae  
Mustard family



★ Group 1



# Collins' Sun-cress

## *Boechea collinsii*

Brassicaceae

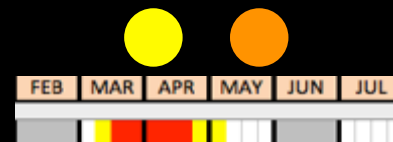
Mustard family

Group 1

*Boechea* species used to be placed in *Arabis*. These taxa are much given to hybridization and thus very difficult to identify with certainty



this small, early-flowering sun-cress often has multiple flowering stems with loose terminal raceme of a few white to lilac flowers on longish pedicels



# Daphne Group 1

*Daphne mezereum*

Thymelaeaceae

Mezereum family



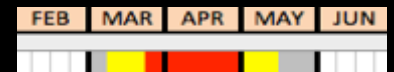
Hornseed Buttercup  
*Ranunculus testiculatus*

Ranunculaceae ●

Buttercup family ●



Group 1



Littlebells *Polemonium*




*Polemonium micranthum*

Polemoniaceae

Phlox family 



Group 1 

| FEB | MAR                                                                                 | APR                                                                                 | MAY                                                                                 | JUN |
|-----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|
|     |  |  |  |     |



# Small-flowered Blue-eyed Mary

*Collinsia parviflora*

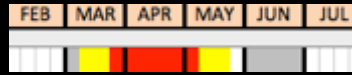
Plantaginaceae

Plantain family

recently moved from Orobanchaceae



Group 1



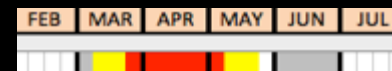
Dwarf Montia

*Montia dichotoma*

Montiaceae - Purslane family



Group 1

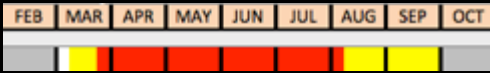


# Common Chickweed

*Stellaria media* ●●

Caryophyllaceae

Pink family Group 1



See page at the end of Introduction for a comparison of similar species

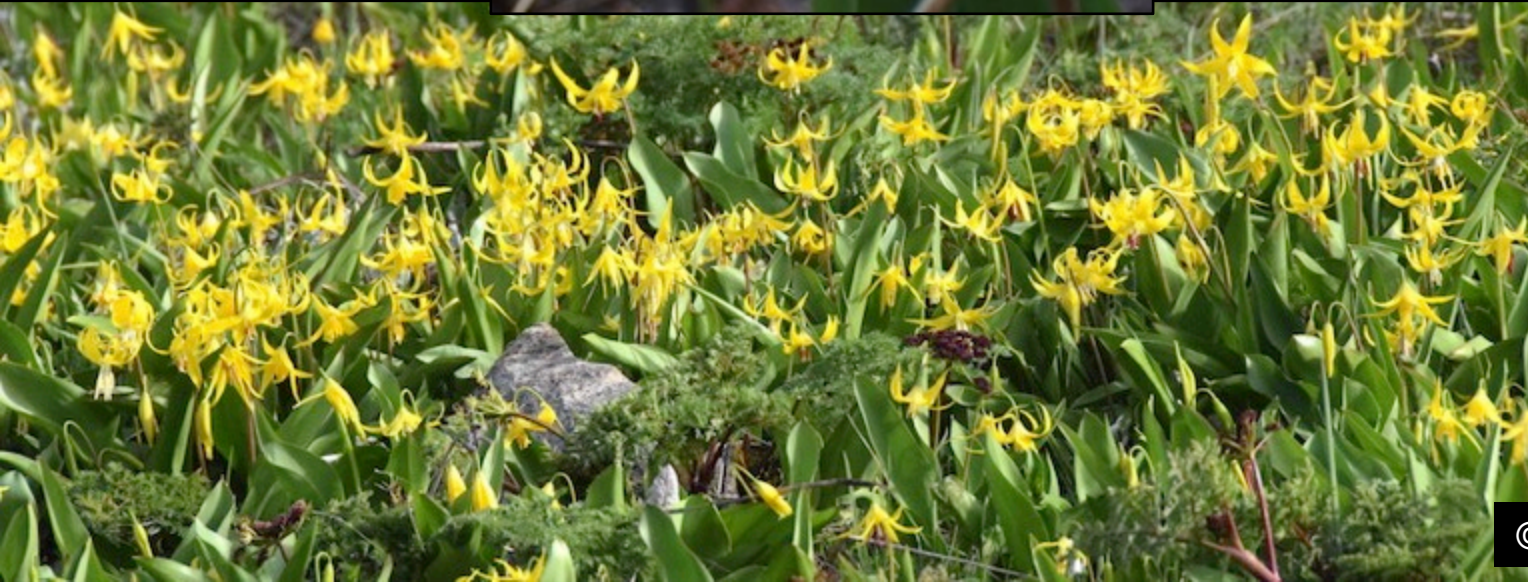
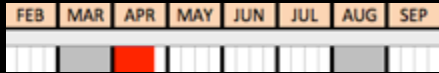


Avalanche Lily

*Erythronium grandiflorum*

Liliaceae

Lily family



Group 1

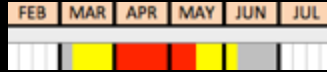


Blue Mustard

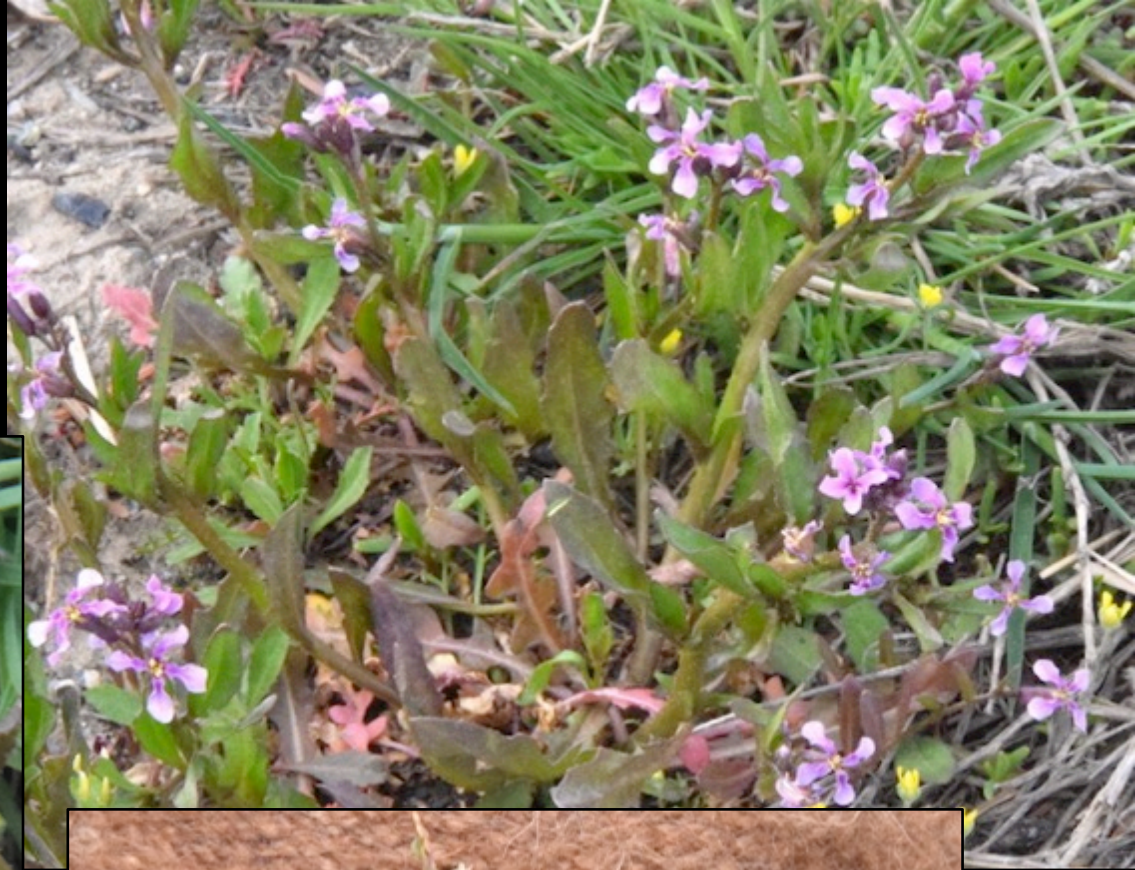


*Chorispورا tenella*

Brassicaceae



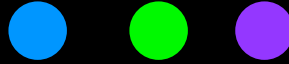
Mustard family



Group 1

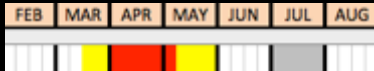
# Western Spring Beauty *Claytonia lanceolata*

Group 1



Montiaceae

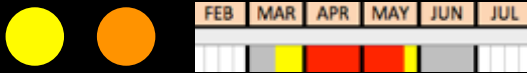
Purslane family



# Meadow or Peak Saxifrage

## *Saxifraga (Micranthes) nidifica*

fruits appear ~3 weeks  
after flowering



Saxifragaceae  
Saxifrage family  
Group 1

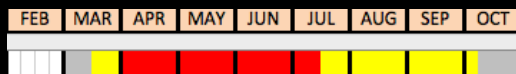
Dandelion ●●●

*Taraxacum officinale*

Group 1

Asteraceae

Sunflower family



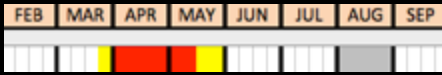
# Old Man's Whiskers

*Geum triflorum*

Rosaceae

Group 1

Rose family



# Clasping Pepperweed

*Lepidium perfoliatum*

Brassicaceae ~ Mustard family

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| FEB | MAR | APR | MAY | JUN | JUL |
|     |     |     |     |     |     |
|     |     |     |     |     |     |



this plant is notable in the dramatic difference in shape between its early vegetative leaves (below) and those on the later flowering stems



Group 1

Pink Twink, Slender Phlox

*Microsteris (Phlox) gracilis*

Polemoniaceae

Group 1

Phlox family

[March – June]



| FEB | MAR | APR | MAY | JUN | JUL |  |
|-----|-----|-----|-----|-----|-----|--|
|     |     | ■   | ■   | ■   | ■   |  |





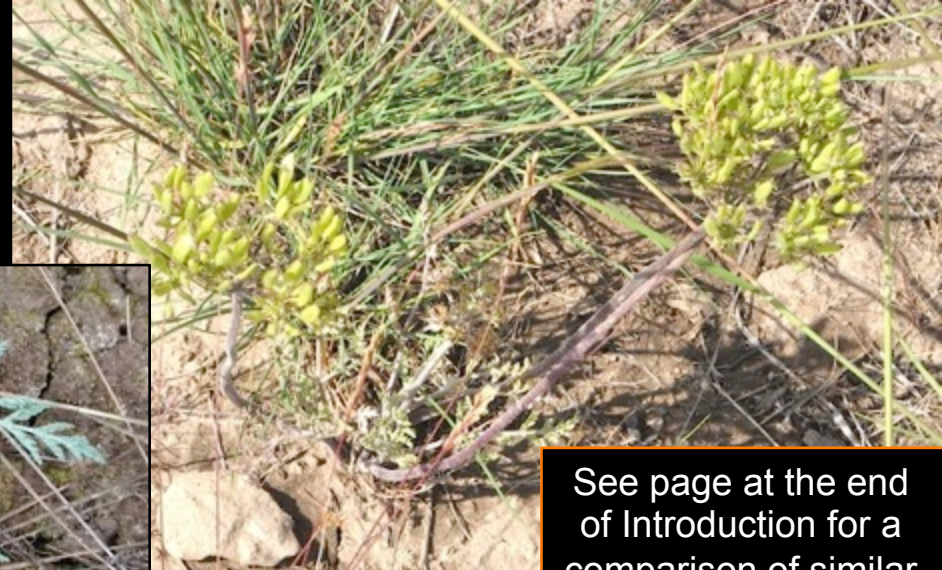
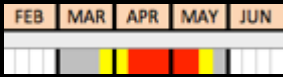
# Large-fruited Desert Parsley

*Lomatium macrocarpum*



Apiaceae

Carrot family



See page at the end of Introduction for a comparison of similar *Lomatium* species



Group 1



41

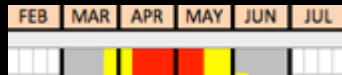
© Paul Handford, 2016

# Small-flowered Woodland Star

*Lithophragma parviflorum*

Saxifragaceae

Saxifrage family



very similar to *Lithophragma glabrum* which has more deeply-cleft, sharply-tipped petals & barrel-shaped calyx

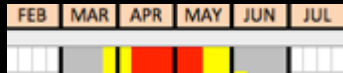
Group 1

# Smooth Woodland Star *Lithophragma glabrum*

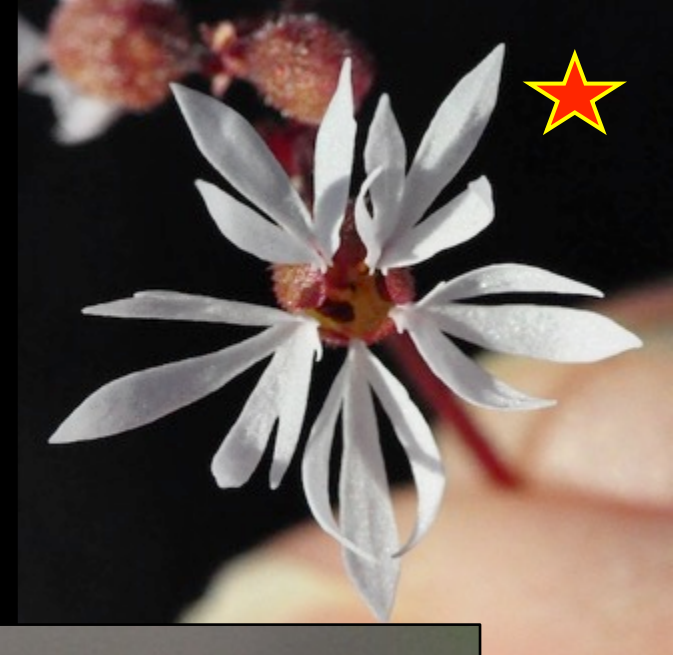
Group 1

Saxifragaceae

Saxifrage family



very similar to *Lithophragma parviflorum*; which has less deeply-cleft, blunt-tipped petals & goblet-shaped calyx

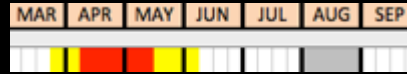


# Umbel Pussytoes

*Antennaria umbrinella*



Asteraceae



Sunflower family

Group 1



See page at the end of Introduction for a comparison of similar *Antennaria* species



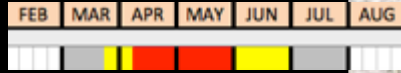
loose open mats w/dark woody stems; silver-grey wedge-shaped leaves often raised 1+” off the ground; several round brown-edged flower heads in compact cluster

Shepherd's Purse



*Capsella bursa-pastoris*

Brassicaceae



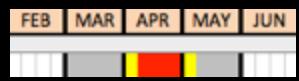
Mustard family



Group 1



Berberidaceae  
 Barberry family  
 Tall Oregon Grape  
*Mahonia aquifolium*



Group 1



# Low Pussytoes

Group 1

*Antennaria dimorpha*

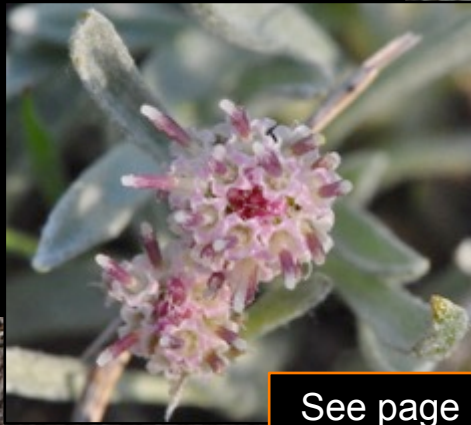


| MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|-----|-----|
| ■   | ■   | ■   | ■   | ■   | ■   | ■   |

Asteraceae

Sunflower family

compact mats, arcs, or rings,  
close to the ground; tiny narrow  
leaves; flower heads single



See page at the end of Introduction for a comparison of similar *Antennaria* species

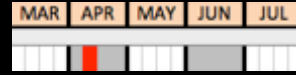


Long-flowered Bluebell

*Mertensia longiflora*

Boraginaceae

Borage family



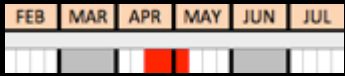
Group 1



Woodland Draba  
*Draba nemorosa*

Brassicaceae  
Mustard family

Group 1



# Rosy Pussytoes



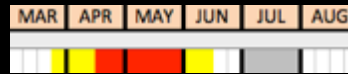
*Antennaria rosea*

Group 1

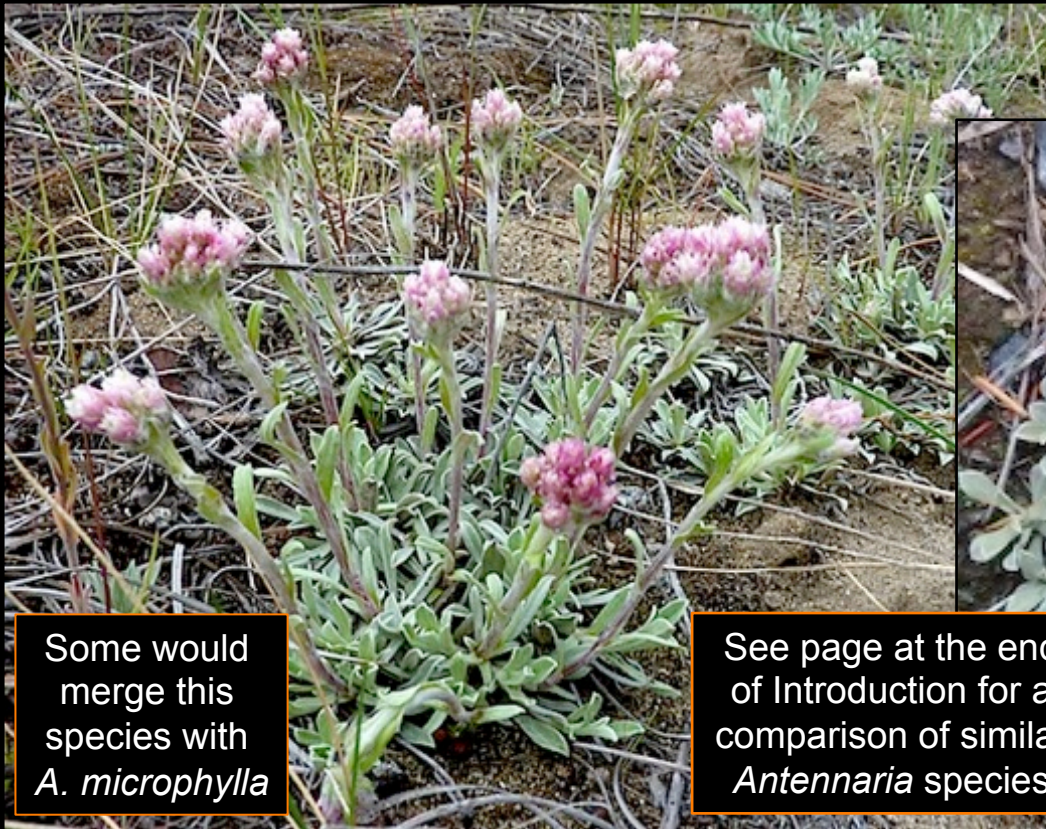
Asteraceae



Sunflower family



open mats, on or close to the ground; spoon- or wedge-shaped greenish leaves; several to many ellipsoidal silvery-white or pink flower heads in compact clusters



Some would merge this species with *A. microphylla*

See page at the end of Introduction for a comparison of similar *Antennaria* species

# Cut-leaf Daisy



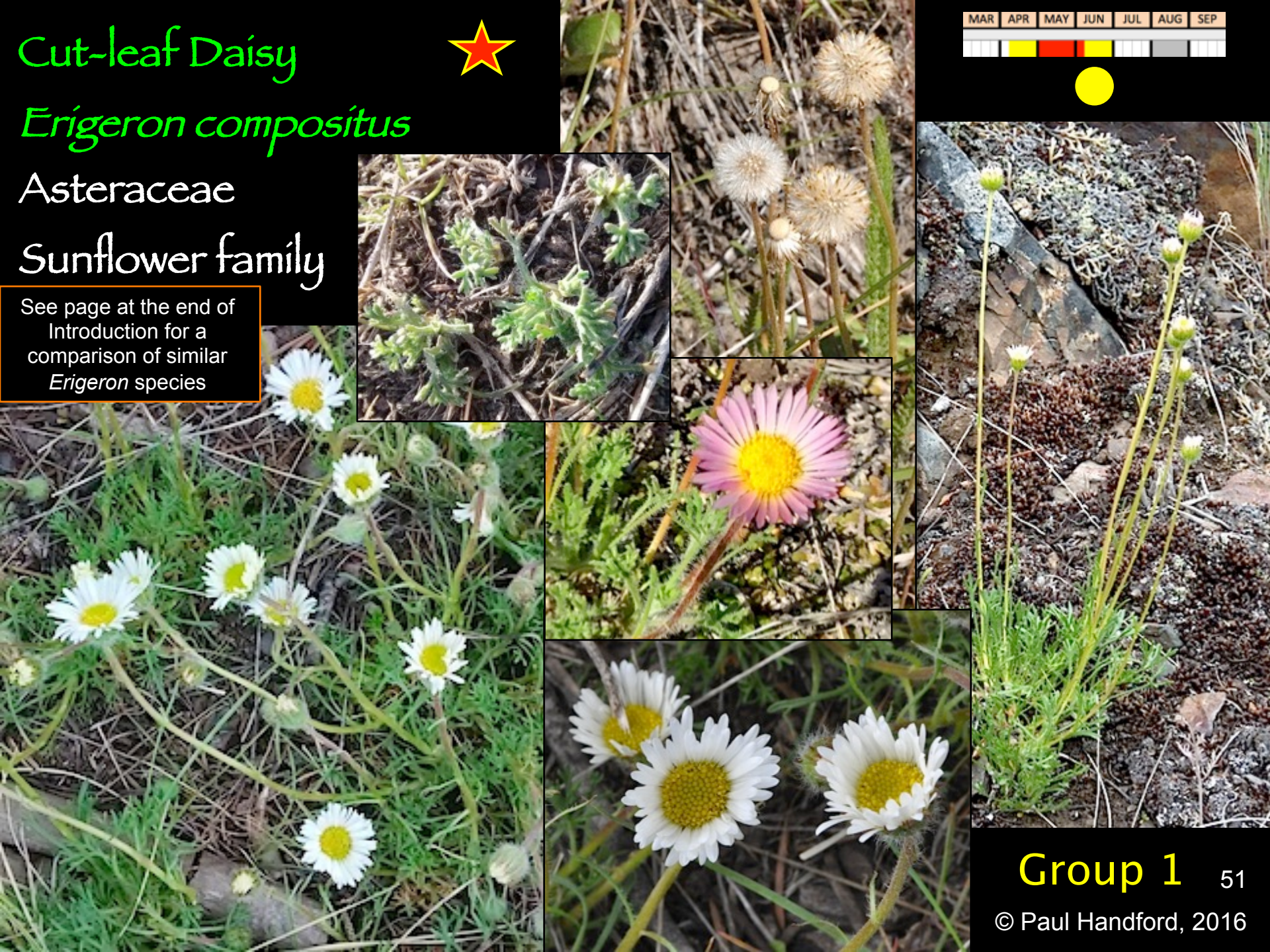
*Erigeron compositus*

Asteraceae

Sunflower family

See page at the end of Introduction for a comparison of similar *Erigeron* species

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| MAR | APR | MAY | JUN | JUL | AUG | SEP |
|     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |



Group 1 51

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# Dangling Sun-cress

## *Boechea retrofracta*

Brassicaceae

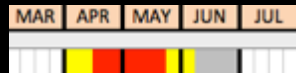
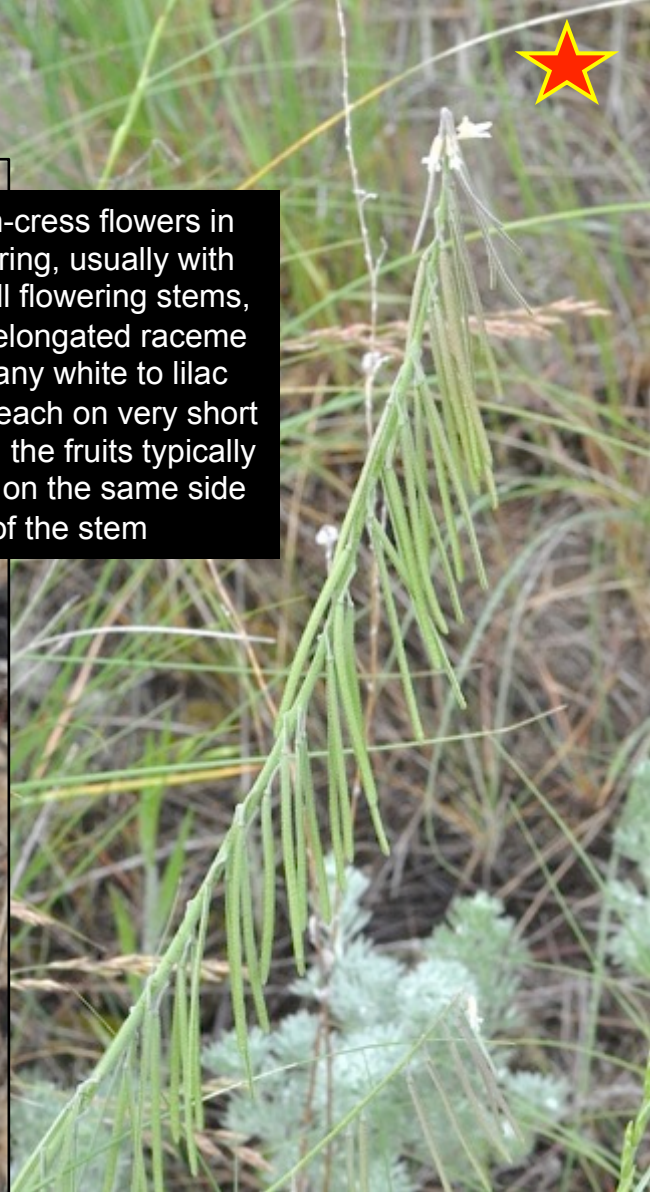
Mustard family



*Boechea* species used to be placed in *Arabis*. These taxa are much given to hybridization and thus difficult to identify with certainty



this sun-cress flowers in later spring, usually with single tall flowering stems, with an elongated raceme with many white to lilac flowers, each on very short pedicels; the fruits typically all hang on the same side of the stem



Group 1

# Dangling Sunscress

*Boechera retrofracta*

Brassicaceae

Mustard family

[April – June]



*Boechera* can become infected with the rust fungus *Puccinia monoica*, which sterilizes the plant, so it can produce no flowers. It also causes the host plant to turn its leaves into bright yellow pseudo-flowers, which also reflect UV light, visible to bees.

These pseudo-flowers secrete nectar that attracts insects, which distribute fungal reproductive structures among receptive plants, advancing the fungal life-cycle, next leading to the infection of *Stipa* grasses, the alternate host plant species, where the rust eventually produces spores that once again infect *Boechera* individuals, completing the rust life cycle.

this species usually produces its own genuine flowers in April, but these **yellow pseudo-flowers** often appear early in March, along with sagebrush buttercups & yellowbells



# Red Elderberry - *Sambucus racemosa*

Adoxaceae

Viburnum family



Group 1



Golden Currant

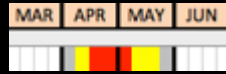
*Ribes aureum*

Grossulariaceae

Currant family



Group 1



Shiny Starwort

*Stellaria nitens*

Caryophyllaceae

Pink family



Group 1



See page at the end of Introduction for a comparison of similar species



# Plains Mustard

*Schoenocrambe linifolia*

Brassicaceae Mustard family

| MAR | APR | MAY | JUN | JUL |
|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   |     |



Group 1



# Saskatoon

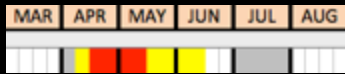
## *Amelanchier cusickii*

## and *A. alnifolia*

Rosaceae

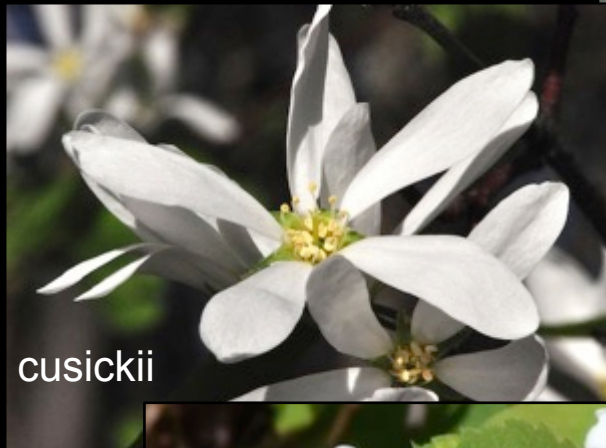
Rose family

### Group 1



these two species are very similar, recently recognized as distinct

*A. cusickii* is mainly found in lower, warmer, drier parts, has longer, narrower petals, and flowers ~2-3 weeks earlier



cusickii



alnifolia



*cusickii* buds are lightly hairy (upper)  
*alnifolia* buds are downy-woolly



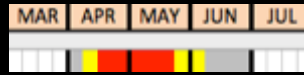
Blue Forget-me-not

*Myosotis stricta*

Boraginaceae

Borage family

Group 1



Cleavers, Stickywilly

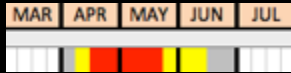
*Galium aparine*



Group 1

Rubiaceae

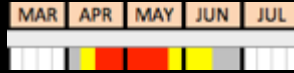
Madder family



Woollypod Milk-vetch ●  
*Astragalus purshii* Group 1

Fabaceae

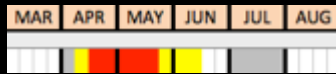
Bean family



Arrow-leaved Balsamroot  
*Balsamorhiza sagittata*



Asteraceae  
Sunflower family



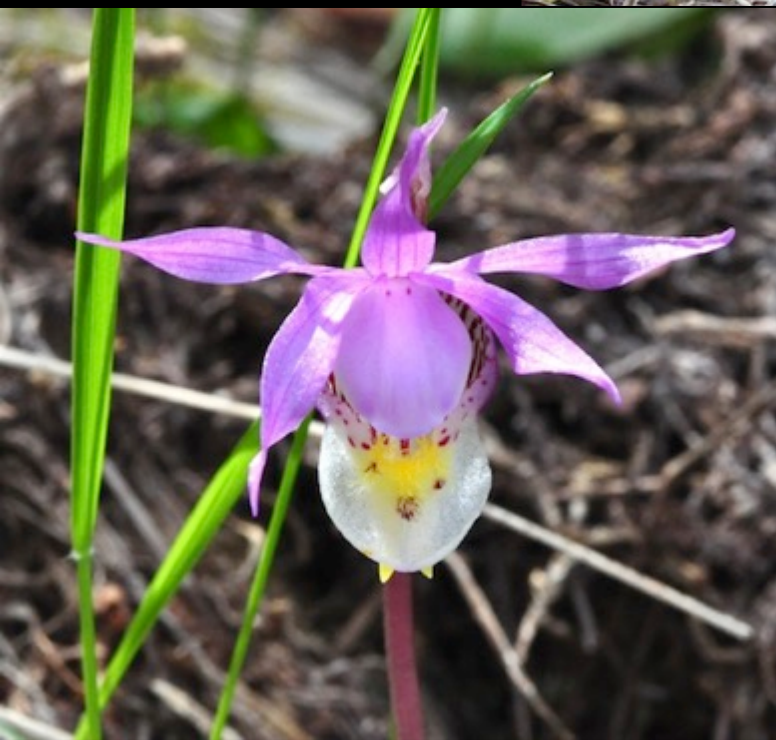
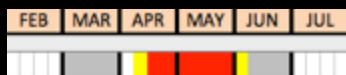
Group 1



Fairyslipper *Calypso bulbosa*

Orchidaceae

Orchid family



Group 1

Lesser Gromwell

*Lithospermum incisum*

Boraginaceae ~ Borage family

Group 1



before flowering, this plant resembles golden-aster, *Heterotheca villosa*, but differs in its smooth pale green stems

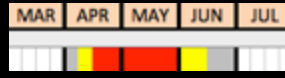


# Beckwith's Milk-vetch

*Astragalus beckwithii*



Group 1

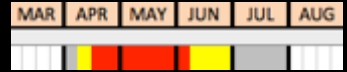


Fabaceae  
Bean family



Primulaceae  
Primrose family

Group 1



rare white-flowered specimen



Few-flowered  
Shooting Star  
*Dodecatheon pulchellum*

Corn Gromwell

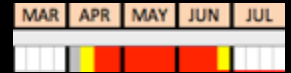
*Lithospermum arvense*

Boraginaceae

Borage family



Group 1

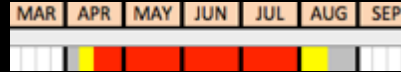


# Philadelphia Fleabane

*Erigeron philadelphicus*

Asteraceae - Sunflower family

## Group 1



Flixweed

*Descurainia sophia*

Brassicaceae

Mustard family



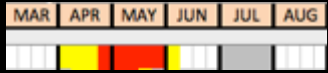
Group 1



Brassicaceae  
Mustard family



Group 1



Pale Alyssum

*Alyssum alyssoides*

# Jagged Chickweed

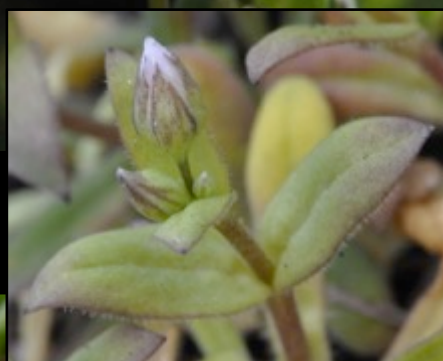
*Holosteum umbellatum*

Caryophyllaceae  
Pink family



Group 1

|     |     |     |     |
|-----|-----|-----|-----|
| MAR | APR | MAY | JUN |
| █   | █   | █   | █   |



See page at the end of Introduction for a comparison of similar species

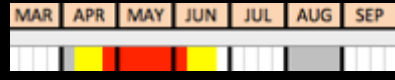
Pale Comandra

*Comandra umbellata*

Santalaceae

Sandalwood family

Group 1



this plant is parasitic on the roots of *Festuca* and *Stipa* grasses





Lemonweed

| MAR | APR | MAY | JUN | JUL |
|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   |     |



*Lithospermum ruderale*

Boraginaceae ● ●

Borage family Group 1



emerging shoots resemble those of *Castilleja thompsoni*, except in being smooth & pale green



fruits develop two months or so after the flowers appear

Grape Hyacinth

*Muscari botryoides*

Asparagaceae

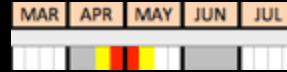
Asparagus family

Group 1



# Creeping Oregon Grape

*Mahonia repens*



Berberidaceae  
Barberry family

Group 1



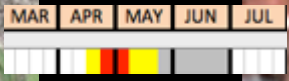
# Fern-leaved Desert Parsley

*Lomatium dissectum*

Apiaceae Carrot family



Group 1



# Nine-leaved Desert Parsley

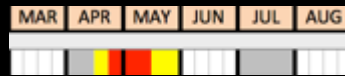
*Lomatium triternatum*

Apiaceae

Carrot family



Group 1



See page at the end of Introduction for a comparison of similar *Lomatium* species

Kinnikinnik

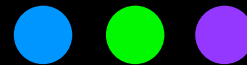
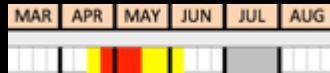


*Arctostaphylos uva-ursi*

Ericaceae

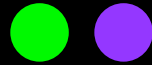
Group 1

Heath family



# Hooker's & Rough-fruited Fairybells, *Prosartes hookeri*

two very similar species;  
*P.h.* found in moist forests;  
*P.t.* in drier forests, edges, clearings



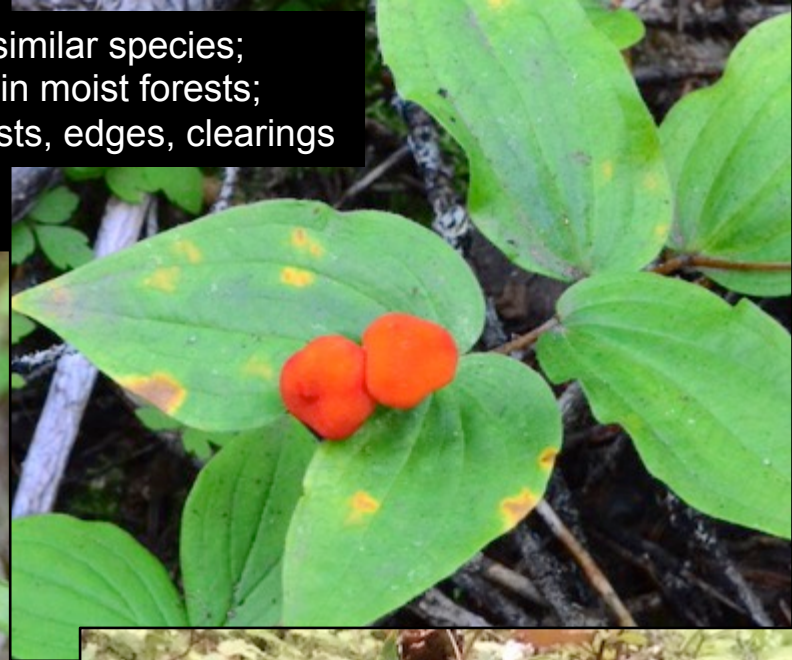
*P. trachycarpum*

Liliaceae

Lily family

Group 1

|             |     |     |     |     |     |     |
|-------------|-----|-----|-----|-----|-----|-----|
| <i>P.h.</i> | MAR | APR | MAY | JUN | JUL | AUG |
|             |     |     | ■   | ■   | ■   |     |
| <i>P.t.</i> | APR | MAY | JUN | JUL | AUG |     |
|             |     | ■   |     |     |     |     |



best distinguished w/ hand lens—  
*P.h.* leaf hairs point forwards,  
*P.t.* leaf hairs point outwards.  
*P.t.* fruits rough, *P.h.* fruits smooth

Early Blue Violet

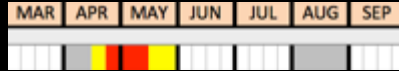


*Viola adunca*

Group 1

Violaceae

Violet family



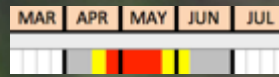


Mountain, or Sticky

Tansy-mustard

*Descurainia incisa*

Brassicaceae - Mustard family



Group 1



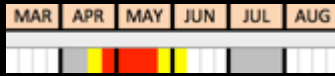


Soopalallie

*Shepherdia canadensis*

Elaeagnaceae

Oleaster family



Group 1

male & female flowers are found on separate plants



male flowers



female flowers

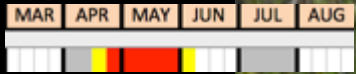


# Meadow Death Camas

*Zigadenus venenosus*

Melanthiaceae

Trillium family



● ● ●  
Group 1

# Swale Desert Parsley

*Lomatium ambiguum*

Apiaceae

Carrot family

See page at the end  
of Introduction for a  
comparison of similar  
*Lomatium* species



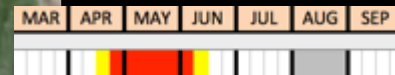
Group 1



Silverleaf Phacelia  
*Phacelia hastata*  
Hydrophyllaceae  
Waterleaf family



Group 1



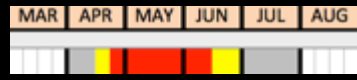
# False Solomon's Seal Group 1

*Maianthemum*

*racemosum*

Asparagaceae

Asparagus family

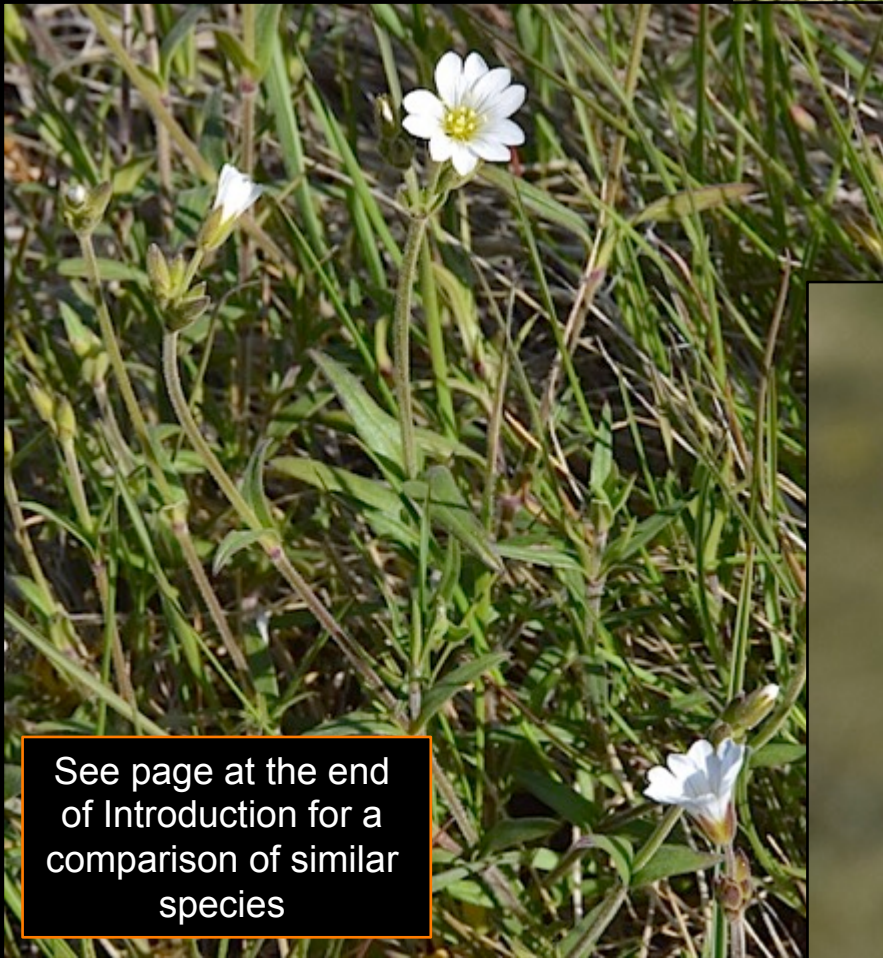


# Field Chickweed

*Cerastium arvense*

Caryophyllaceae

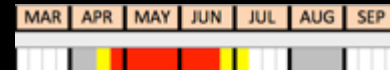
Pink family



See page at the end of Introduction for a comparison of similar species



Group 1





# Harsh Red Paintbrush

*Castilleja hispida* ★

Orobanchaceae

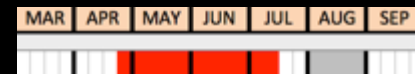
Broomrape family



fruits develop two months or so after the flowers appear



Group 1



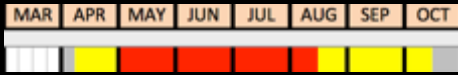
Common Yarrow

*Achillea millefolium*

Asteraceae

Sunflower family

Group 1



★  
 yarrow flower-heads  
 are usually brilliant  
 white, but occasionally  
 they can be pale to  
 deep pink or cream



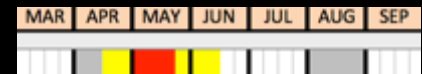
Field Pennycress  
*Thlaspi arvense*

●  
Group 1



Brassicaceae

Mustard family

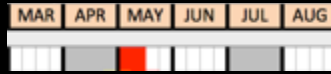


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# Red-stem Spring Beauty

*Claytonia rubra*



Montiaceae

Purslane family

Group 1



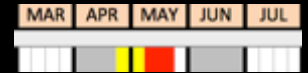
Fuzzy Sun-cress  
*Boechera pauciflora*

Brassicaceae  
Mustard family



*Flora of N. Am.* suggests this is an apomictic species derived from hybridization between *B. retrofracta* and *B. sparsiflora*. It has fewer flowers, longer & less strongly decurved pedicels than *B. retrofracta*, and the pedicels and sepals are notably hairy.

Group 1

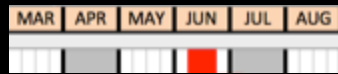


# Black Raspberry

*Rubus leucodermis*

Rosaceae - Rose family

## Group 3

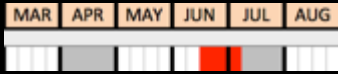


# Common Speedwell

*Veronica officinalis*

Plantaginaceae

Plantain family



Group 3



# Mountain Sweet-cicely

*Osmorhiza berteroi*

Apiaceae - Carrot family

● ● ● Group 3

| MAR | APR | MAY | JUN | JUL | AUG |
|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |

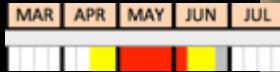




Hillside Milk-vetch

*Astragalus collinus*

Fabaceae



Bean family

Group 1

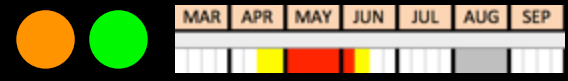


White Currant

*Ribes cereum*

Grossulariaceae

Currant family



Group 1

98

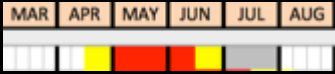
© Paul Handford, 2016

# Western Stickseed

*Lappula occidentalis* (*L. redowskii*)

Boraginaceae

Borage family



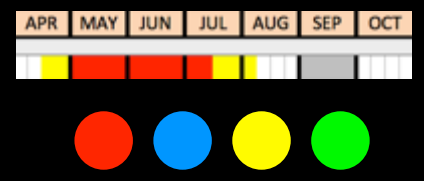
Group 1

# Common Red Paintbrush

*Castilleja miniata*

Orobanchaceae **Group 1**

Broomrape family



Robert's Geranium,  
or Herb Robert  
*Geranium robertianum*



Group 1

| FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |     |     |

Geraniaceae  
Geranium family

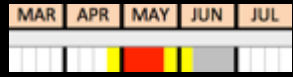
101

# Black Hawthorn

*Crataegus douglasii*

Rosaceae

Rose family

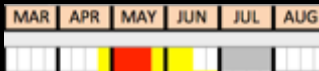


Group 1



# Racemose Pussytoes

*Antennaria racemosa*



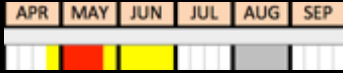
Asteraceae  
Sunflower family



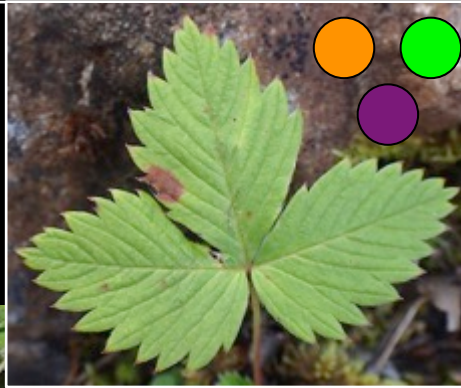
Group 1

# Wild Strawberry

*Fragaria virginiana*



*F. vesca*, wood strawberry, is very similar, distinguishable by its projecting terminal leaf-tooth



Group 1



Rosaceae

Rose family



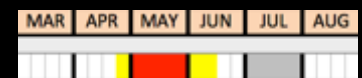
Field Loco-weed

*Oxytropis  
campestris*

Fabaceae  
Bean family



Group 1



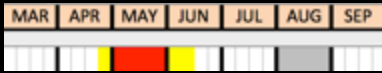
105

© Paul Handford, 2016

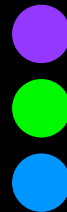
Western Meadow-rue  
*Thalictrum occidentale*

Ranunculaceae

Buttercup family



Group 1



# Rosaceae - Rose family

| APR | MAY | JUN | JUL | AUG |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |
|     |     |     |     |     |
|     |     |     |     |     |
|     |     |     |     |     |

Choke Cherry

*Prunus virginiana*

● ● ● Group 1



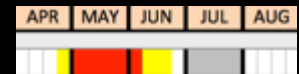
Shaggy Daisy  
*Erigeron pumilus*



See page at the end of Introduction for a comparison of similar *Erigeron* species

Asteraceae  
Sunflower family

Group 1



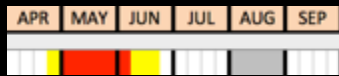
# Shrubby Penstemon

*Penstemon fruticosus*

Plantaginaceae

Plantain family

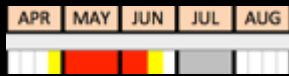
recently removed from Orobanchaceae



Group 1



Howell's  
Pussytoes  
*Antennaria  
howelli*



Group 1

Asteraceae  
Sunflower family

Fine-leaved Daisy

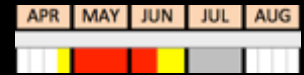
*Erigeron linearis*

Asteraceae

Sunflower family



See page at the end of Introduction for a comparison of similar *Erigeron* species



Group 1



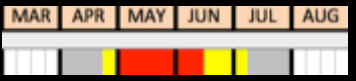
# Nodding Microseris

*Microseris nutans*

Asteraceae - Sunflower family



## Group 1





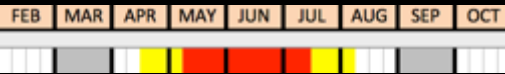


# Menzies' Campion

*Silene menziesii*



Group 1



Caryophyllaceae  
Pink family

See page at the end of Introduction for a comparison of similar species

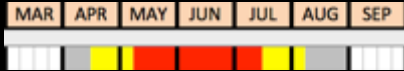
# Common Plantain



*Plantago major*

Plantaginaceae

Plantain family



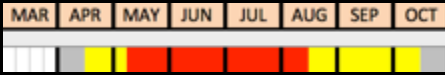
Group 1

# Field Bindweed

*Convolvulus arvensis*

Convolvulaceae

Bindweed family



●● Group 1



# Nuttall's Pussytoes

*Antennaria parvifolia*

Asteraceae

Sunflower family



distinguished from similar species by 'cigar-shaped' flower heads

## Group 1

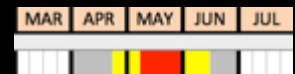


Common Bugle

*Ajuga reptans*

Lamiaceae

Mint family



Group 1

# Thread-leaved Phacelia

*Phacelia linearis*



Hydrophyllaceae

Waterleaf family



| MAR | APR | MAY | JUN | JUL |
|-----|-----|-----|-----|-----|
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Group 1

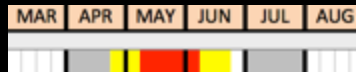
Stork's-bill



*Erodium cicutarium*

Geraniaceae Group 1

Geranium family





Heart-leaved Arnica

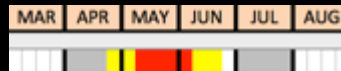
*Arnica cordifolia*

Asteraceae

Sunflower family



Group 1



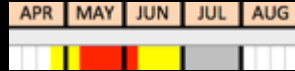
Red-osier Dogwood ● ●

*Cornus (sericia) stolonifera*

Cornaceae

Group 1

Dogwood family



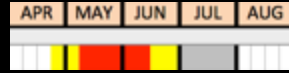
Purple Virgin's-bower

*Clematis occidentalis*

Ranunculaceae

Group 1

Buttercup family



Hoary Cress

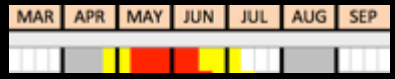
*Cardaria (Lepidium) draba*

Brassicaceae

Mustard family

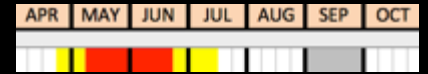


Group 1



Snowbrush  
*Ceanothus velutinus*

Rhamnaceae  
Buckthorn family



Group 1



Silky Lupine

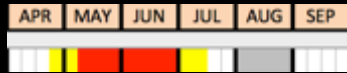
*Lupinus sericeus*

Group 1



Fabaceae

Bean family



flowers range from purple to white

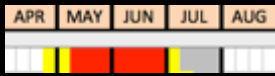


# Showy Pussytoes

*Antennaria*

*anaphaloïdes*

Group 1



This species used to be regarded as a subspecies of *A. pulcherrima*

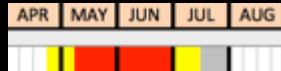
Asteraceae ~ Sunflower family

Silver Cinquefoil



*Potentilla argentea* Group 1

Rosaceae - Rose family



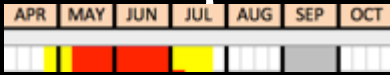


# Thompson's Paintbrush

*Castilleja thompsoni*

Orobanchaceae

Broomrape family



emerging shoots resemble those of *Lithospermum ruderae*, except in being hairy & often reddish (above)



Group 1

© Paul Handford, 2016

# Slender Mountain Sandwort

*Eremogone capillaris*

Caryophyllaceae

Pink family ●●●



Group 2



# Thread-leaved Daisy

*Erigeron filifolius*

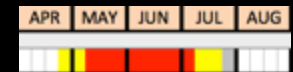
Asteraceae



Sunflower family



in winter/early spring,  
they resemble  
*Antennaria umbrinella*



## Group 1

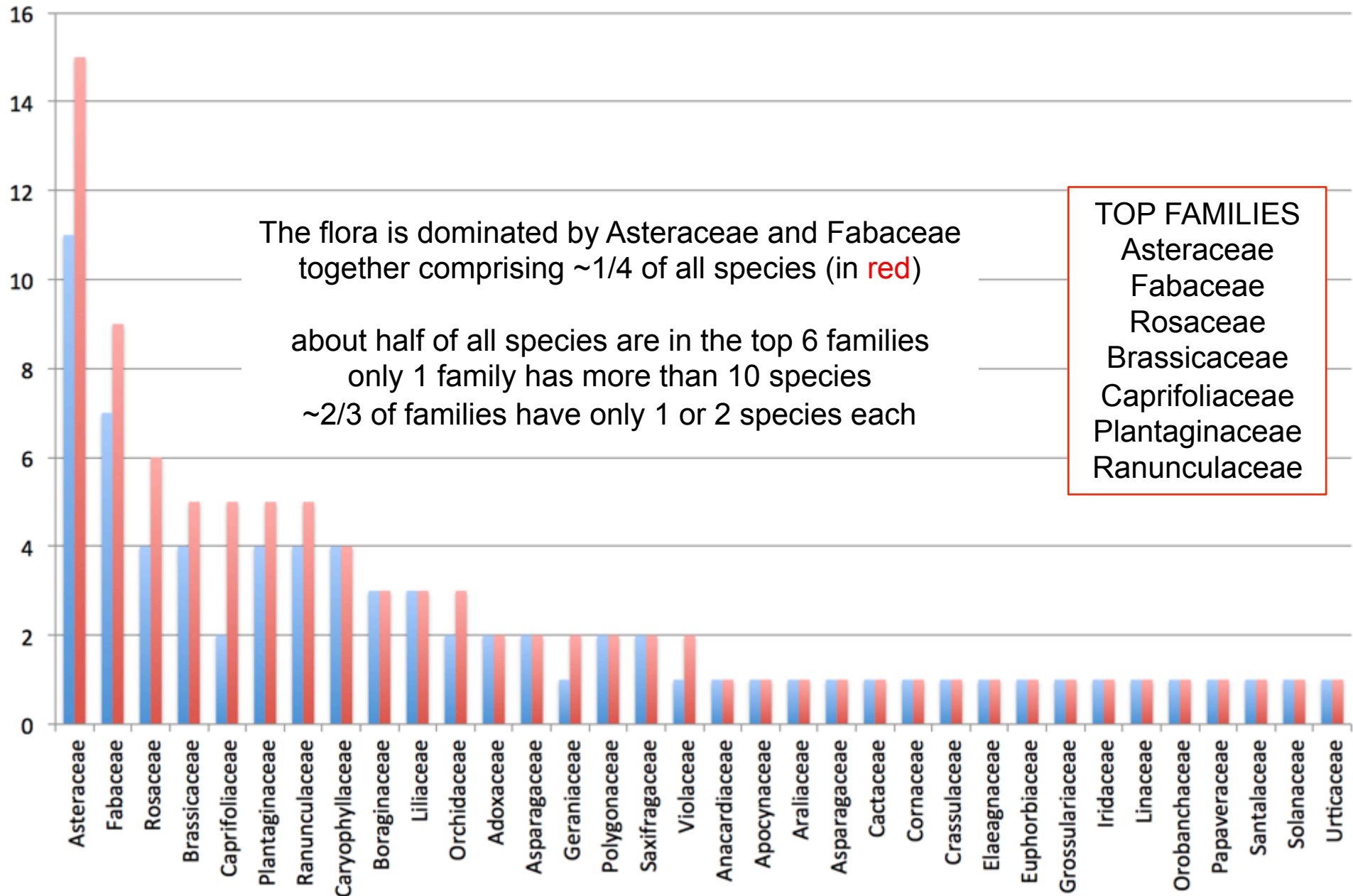
See page at the end  
of Introduction for a  
comparison of similar  
*Erigeron* species

Group 2 species **begin** flowering **after** end-April

Of these 106 species, **73 are native (69%)**, and **33 are alien (31%)**

These species are rarely seen in flower before the beginning of May;  
they **flower primarily in May and June**,  
but several extend into July, and a few into August

# Family Breakdown of Spring to Early Summer Species



# Siberian Honeysuckle

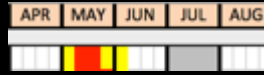
*Lonicera tatarica*

Caprifoliaceae

Honeysuckle family



Group 2



Baneberry ●●

*Actaea rubra*

Ranunculaceae

Buttercup family



the berries show two colour forms



all parts of this plant are highly poisonous

Group 2

# Tall Tumble Mustard

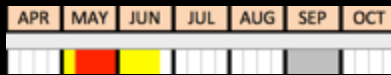
*Sisymbrium altissimum*

Brassicaceae

Mustard family



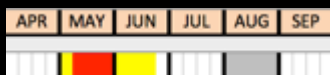
Group 2





# Golden Corydalis

## *Corydalis aurea*



Papaveraceae

Group 2

Poppy-Fumitory family



False Toadflax

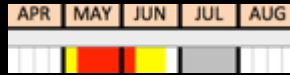
*Geocaulon lividum*

Group 2

Santalaceae

Sandalwood family

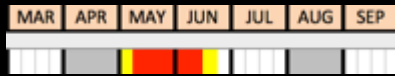
this plant is parasitic on the roots  
of several species of forest tree



yellow streaking on the leaves  
is caused by the lodgepole  
pine's Comandra blister rust

Round-leaved  
Alumroot  
*Heuchera cylindrica*

Saxifragaceae  
Saxifrage family



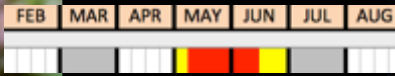
Group 2

Sweet Coltsfoot

*Petasites frigidus*

Asteraceae

Sunflower family



Group 2 ● ● ●

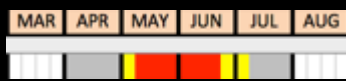
# Long-leaved Daisy ★

*Erigeron corymbosus*

Asteraceae Group 2

Sunflower family ●●●

See page at the end of Introduction for a comparison of similar *Erigeron* species



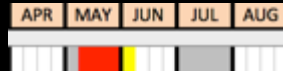
# European Mountain Ash

*Sorbus aucuparia*

Rosaceae

Rose family

Group 2

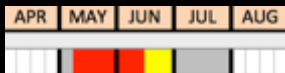


# Modoc Hawksbeard

*Crepis modocensis*

Asteraceae

Sunflower family



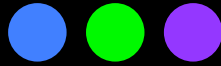
Group 2



# Dwarf Blueberry

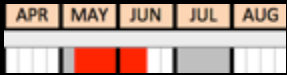
*Vaccinium caespitosum*

Group 2



Ericaceae

Heath family



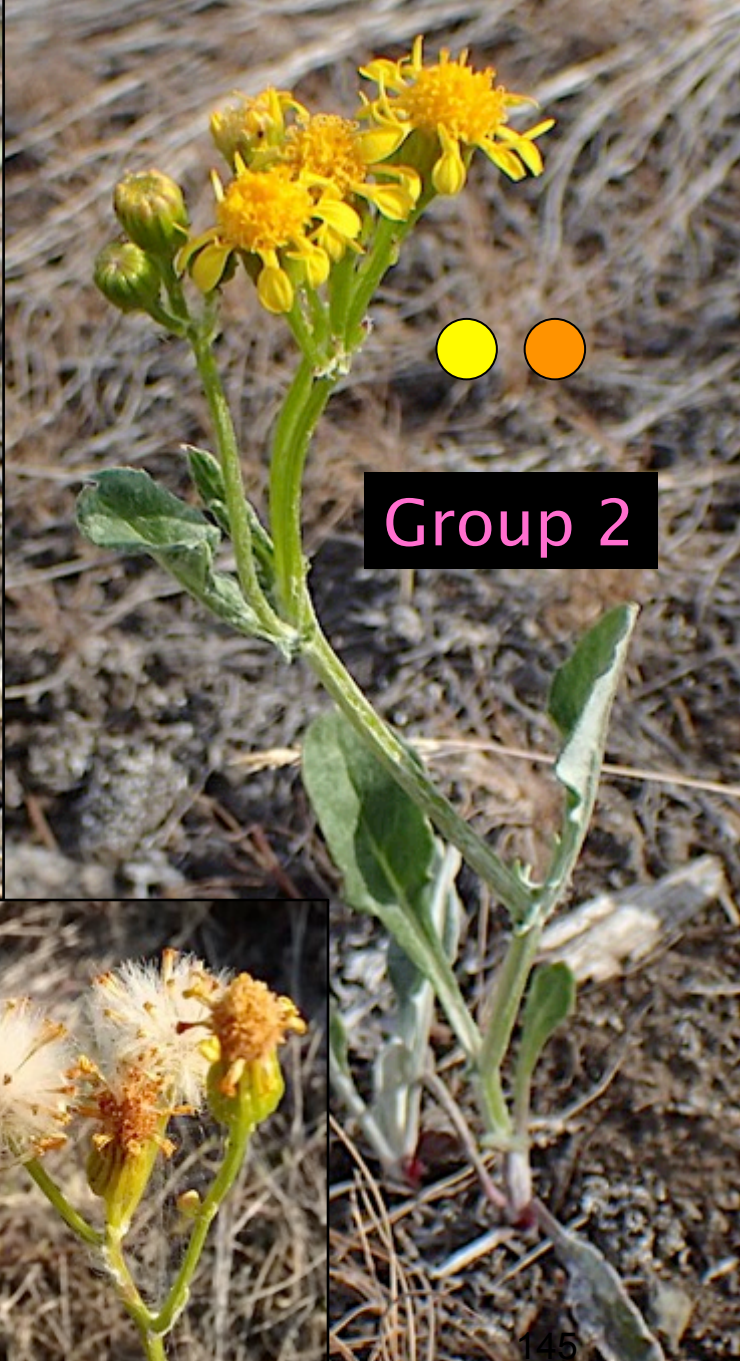
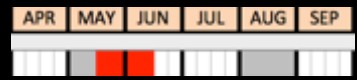


# Woolly Groundsel

*Packera cana*

Asteraceae

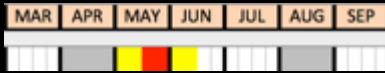
Sunflower family



Striped Coralroot  
*Corallorhiza striata*



Orchidaceae  
Orchid family



Group 2

Twin Arnica

Group 2

*Arnica sororia*



Asteraceae

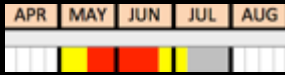
| APR | MAY | JUN | JUL | AUG |
|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   |     |

Sunflower family



Houndstongue  
*Cynoglossum*  
*officinale*

Boraginaceae  
Borage family



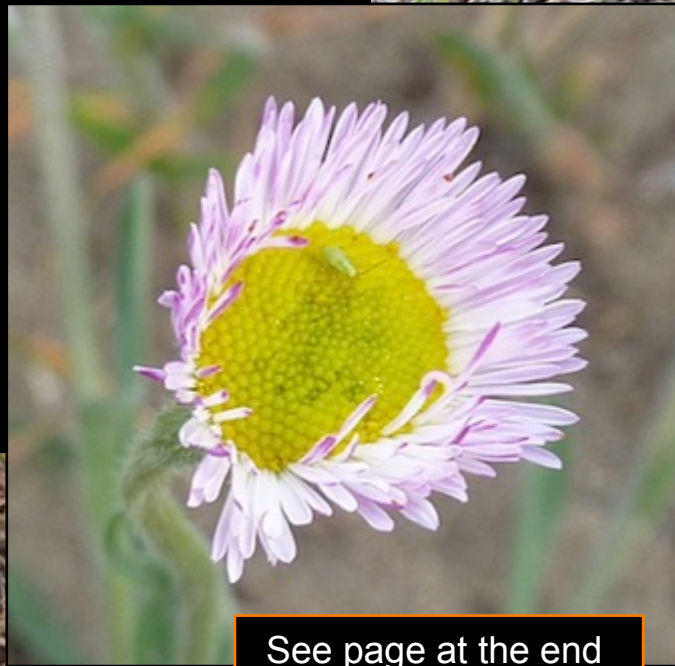
Group 2

Trailing Daisy

*Erigeron flagellaris*

Asteraceae

Sunflower family



See page at the end  
of Introduction for a  
comparison of similar  
*Erigeron* species



Group 2

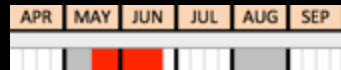
| APR | MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |
|     |     |     |     |     |     |

Bitterroot



*Lewisia redivivus*

Montiaceae



Purslane family Group 2



# Field Milk-vetch

| APR | MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   | ■   |     |

*Astragalus agrestis*

Fabaceae

Group 2

Bean family



# Black Twinberry

*Lonicera involucrata*

Caprifoliaceae

Honeysuckle family

| APR | MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   | ■   | ■   | ■   |



Group 2



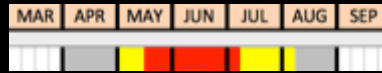


Narrowleaf Plantain

*Plantago lanceolata*

Plantaginaceae

Plantain family



Group 2



Star-flowered  
False Solomon's Seal



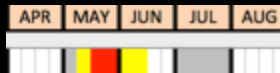
*Maianthemum*  
*stellatum*



Group 2



Asparagaceae  
Asparagus family



Wild Sarsaparilla

*Aralia nudicaulis*

Araliaceae - Ivy family

| APR | MAY | JUN | JUL |
|-----|-----|-----|-----|
|     |     |     |     |

Group 2



Dog rose

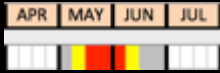
*Rosa canina*

Rosaceae

Rose family



Group 2





Sticky Geranium

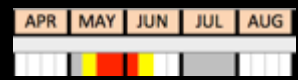
Group 2

*Geranium viscosissimum*



Geraniaceae

Geranium family



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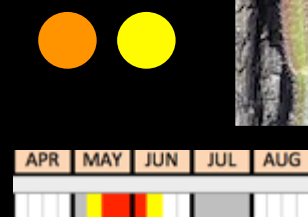
Hairy, or  
Littlepod Flax  
*Camelina*

*microcarpa*

Brassicaceae

Mustard family

Group 2



Red Raspberry

*Rubus idaeus*

Rosaceae

Rose family

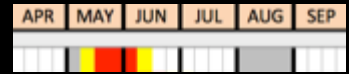
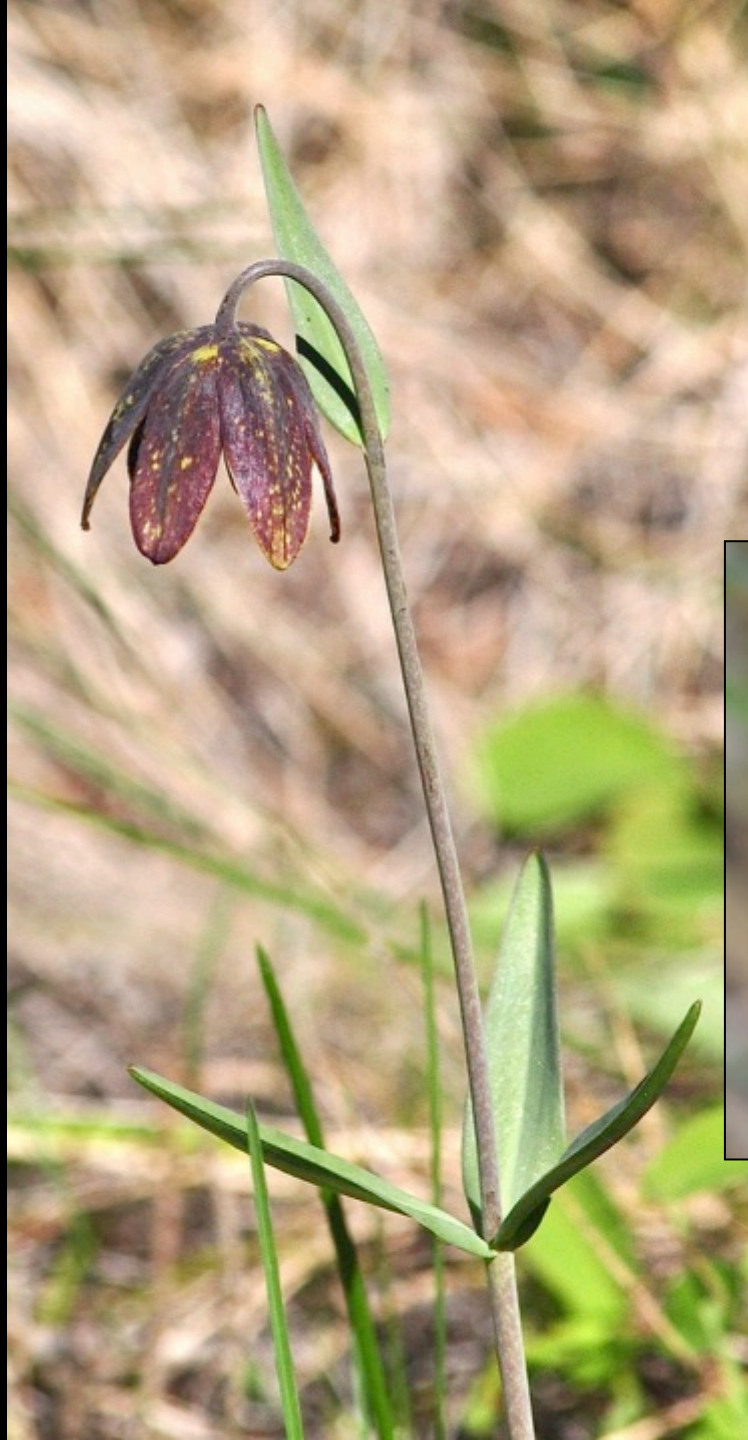


Group 2



Chocolate  
or Checker Lily  
*Fritillaria affinis*  
(used to be *F. lanceolata*)

Liliaceae  
Lily family



Group 2



fruits develop ~2 months  
after the flowers appear

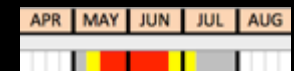


# Sheep Sorrel - *Rumex acetosella*



Group 2

Polygonaceae  
Buckwheat family



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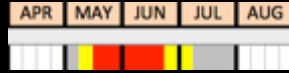


# Canada White Violet

*Viola canadensis*

Violaceae

Violet family



Group 2

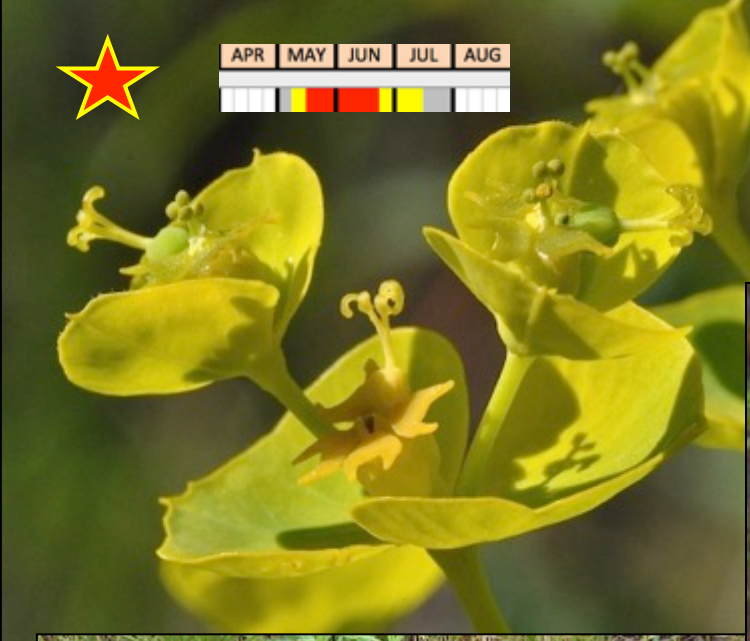


Leafy Spurge  
*Euphorbia esula*  
(*E. virgata*)



| APR | MAY | JUN | JUL | AUG |
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|     |     |     |     |     |

Euphorbiaceae  
Spurge family



Group 2

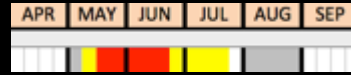
# Thyme-leaf Speedwell

*Veronica serpyllifolia*

Plantaginaceae

Plantain family

Group 2



Loesel's

| APR | MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |

Tumble-mustard

*Sisymbrium loeselii*

Brassicaceae

Mustard family



Group 2

Lewis' Blue Flax

*Linum lewisii*

Linaceae

Flax family



Group 2

| APR | MAY | JUN | JUL | AUG |
|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   | ■   |



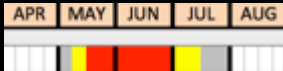
# Slender Hawksbeard



*Crepis atribarba*

Asteraceae

Sunflower family



Group 2



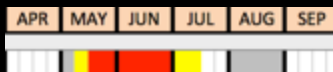
See page at the end of Introduction for a comparison of similar species



Blunt-leaf Sandwort  
*Moehringia lateriflora*  
Caryophyllaceae  
Pink family



## Group 2



See page at the end  
of Introduction for a  
comparison of similar  
species

# Dalmatian Toadflax

*Linaria genistifolia*

Plantaginaceae

Plantain family



this is a  
seriously  
invasive alien  
that should  
not be  
encouraged



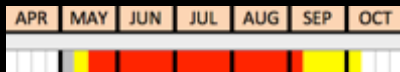
Group 2

a.k.a. *Linaria dalmatica*









Group 2



Hoary Alyssum  
*Berteroa incana*

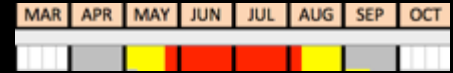
Brassicaceae  
Mustard family

173

© Paul Handford, 2016

White Clover  
*Trifolium repens*

Fabaceae  
Bean family



Group 2



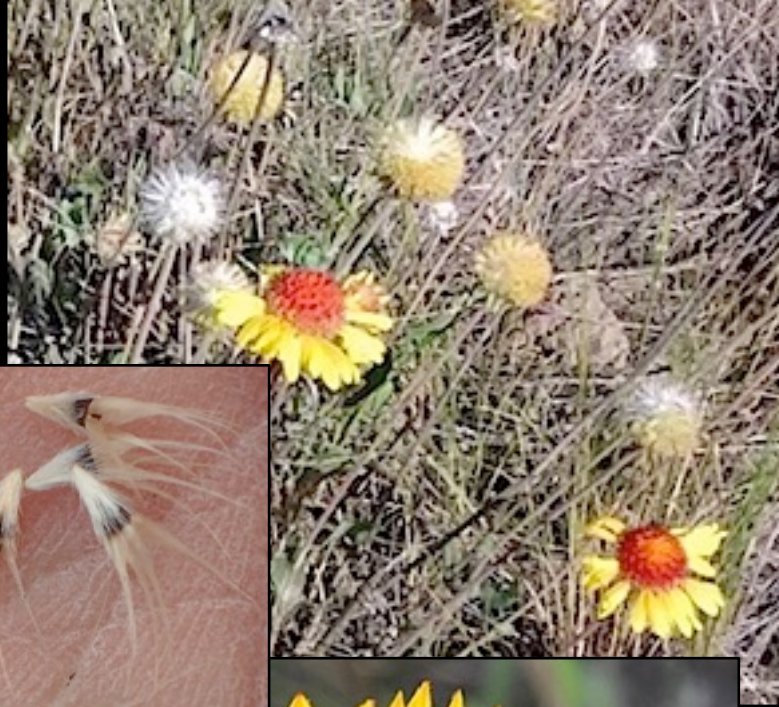
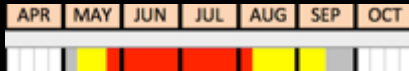
Brown-eyed Susan

*Gaillardia aristata*

Asteraceae

Sunflower family

Group 2







# Okanogan Flameflower

*Phemeranthus sediformis*

Montiaceae

Purslane family



Group 2



Black Gooseberry

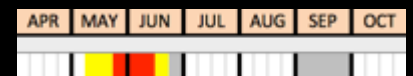
*Ribes lacustre*

Grossulariaceae

Currant family



Group 2







Asparagus

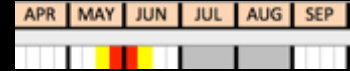
*Asparagus officinalis*

Asparagaceae

Asparagus family



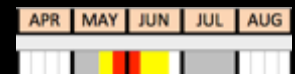
Group 2



Small Wallflower  
*Erysimum*  
*inconspicuum*



Brassicaceae  
Mustard family



Group 2

Michaux's Mugwort  
*Artemisia michauxiana*  
Asteraceae  
Sunflower family



Group 2



Brittle Prickly-pear  
*Opuntia fragilis*

Cactaceae

Cactus family

Group 2



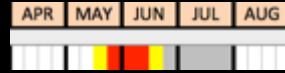


Prickly Rose

*Rosa acicularis*

Rosaceae

Rose family



Group 2



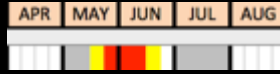
# Orange Honeysuckle

*Lonicera ciliosa*

Caprifoliaceae

Honeysuckle family

Group 2

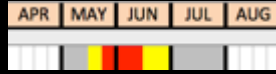


# European Honeysuckle

*Lonicera periclymenum*

Caprifoliaceae

Honeysuckle family

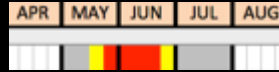


Group 2

# Salsify, or Goatsbeard

*Tragopogon dubius*

Group 2



Asteraceae  
Sunflower family



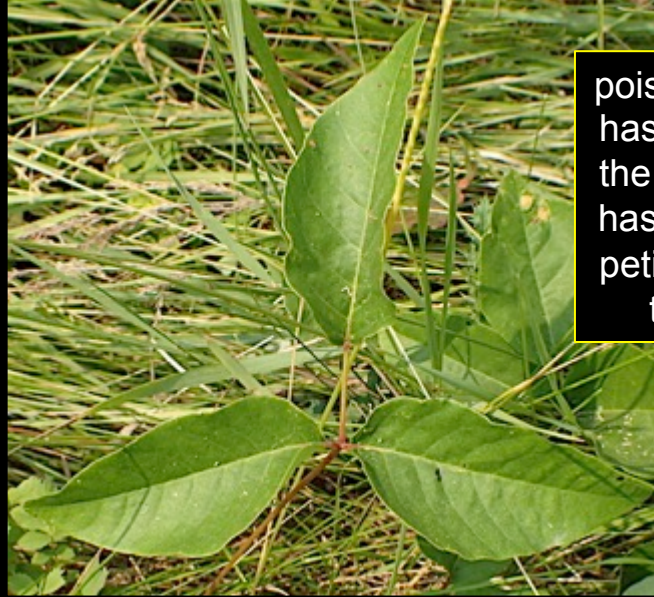
young plants resemble  
grasses or lilies



Poison Ivy

*Toxicodendron radicans*

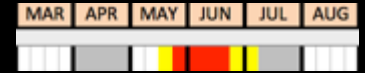
Anacardiaceae  
Sumac family



poison ivy ALWAYS has three leaflets; the terminal leaflet has a much longer petiole (stalk) than the base pair



Group 2

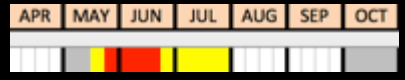


Cornflower ●●

*Centaurea cyanus*

Asteraceae

Sunflower family

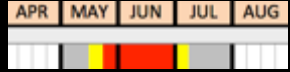


Group 2





Clustered Broomrape  
*Aphyllon (Orobanche)*  
*fasciculatum*



Group 2



Orobanchaceae  
Broomrape family



# Annual Hawksbeard

*Crepis tectorum*

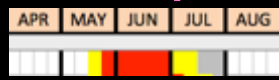
a.k.a. Narrowleaf Hawksbeard

Asteraceae

Sunflower family



Group 2



© Paul Handford, 2016

See page at the end of Introduction for a comparison of similar species

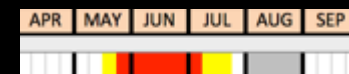
Bunchberry

*Cornus canadensis*

Cornaceae

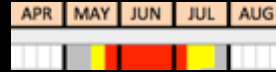
Group 2

Dogwood family



# Parsnip-flowered Buckwheat

*Eriogonum heracleoides*



Polygonaceae - Buckwheat family



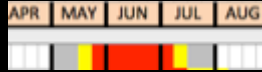
Group 2

# Claspleaf Twistedstalk

*Streptopus amplexifolius*



Liliaceae - Lily family



Group 2

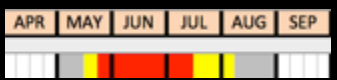


# Cut-leaf Anemone

*Anemone multifida*

Ranunculaceae

Buttercup family



mature seeding heads

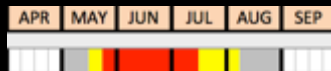


petal-like sepals (often absent) vary from cream, yellow to pink

Group 2

# Prairie Agoseris - *Agoseris glauca*

Asteraceae - Sunflower family



Group 2





Western Groundsel  
or Lambstongue Ragwort  
*Senecio integerrimus*

Asteraceae  
Sunflower family



Group 2

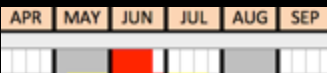


# Biennial Cinquefoil

*Potentilla biennis*

Rosaceae

Rose family



Group 2



Black Medick

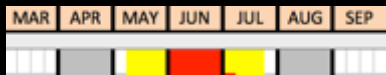
*Medicago lupulina*

Fabaceae

Bean family



Group 2

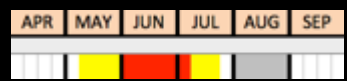


# Bristly Stickseed

*Lappula squarrosa*

Boraginaceae

Borage family



Group 2 ●



# High-bush Cranberry

*Viburnum edule*

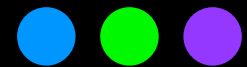
Adoxaceae

Viburnum family



Group 2

| APR | MAY | JUN | JUL | AUG |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |



Prairie Cinquefoil

*Potentilla*

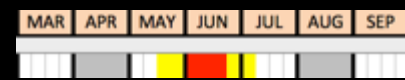
*pensylvanica*

Rosaceae ● ●

Rose family



Group 2



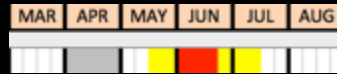
Little Buttercup

*Ranunculus uncinatus*

Ranunculaceae

Buttercup family

Group 2



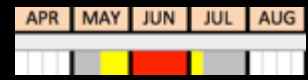
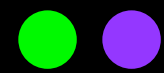
Creamy Peavine

*Lathyrus ochroleucus*

Fabaceae - Bean family



Group 2



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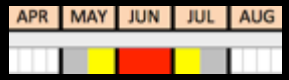
© Paul Handford, 2016

# American Vetch

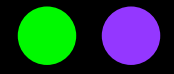
*Vicia americana*

Fabaceae

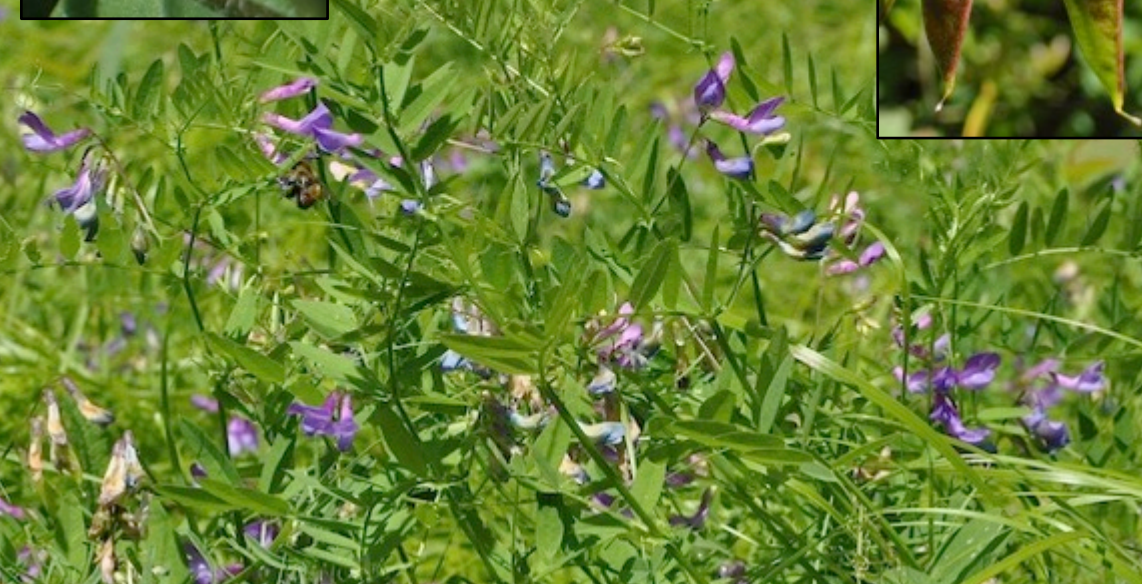
Bean family



Group 2



NB: deeply toothed, crescent-shaped stipules





Madwort

| APR | MAY | JUN | JUL | AUG |
|-----|-----|-----|-----|-----|
|     |     | ■   | ■   | ■   |

*Asperugo procumbens*

Boraginaceae



Borage family

Group 2



# Lance-leaved Stonecrop - *Sedum lanceolatum*

Crassulaceae

Stonecrop family



Group 2



| APR | MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|-----|
| █   | █   | █   | █   | █   | █   |

210

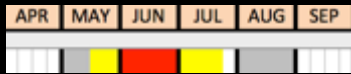
© Paul Handford, 2016

Common Snowberry  
*Symphoricarpos albus*

Caprifoliaceae

Honeysuckle family

Group 2



Pineapple weed

| APR | MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|-----|
|     |     | ■   | ■   | ■   | ■   |     |

*Matricaria discoidea*



Asteraceae - Sunflower family



Group 2

Queen's Cup  
*Clintonia uniflora*

| APR | MAY | JUN | JUL | AUG |
|-----|-----|-----|-----|-----|
|     |     | ■   | ■   |     |

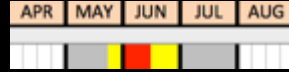
Liliaceae - Lily family



Group 2

Mountain  
Lady's slipper  
*Cypripedium*  
*montanum*

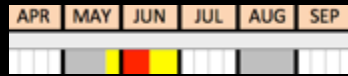
Orchidaceae  
Orchid family



Group 2

Spotted Coralroot  
*Corallorhiza maculata*

Orchidaceae  
Orchid family

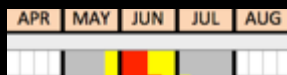


Group 2

# Western Blue Iris

*Iris missouriensis*

Iridaceae ~ Iris family



Group 2

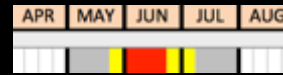


# Meadow Buttercup

*Ranunculus acris*

Ranunculaceae

Buttercup family



Group 2

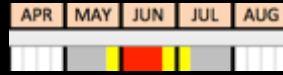


Black Elderberry

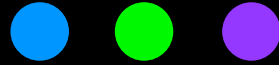
*Sambucus nigra*

Adoxaceae

Viburnum family



Group 2

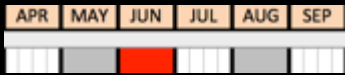


# Rough Cinquefoil Group 3

*Potentilla norvegica*

Rosaceae

Rose family



# Meadow Bird's-foot Trefoil

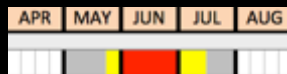
*Lotus denticulatus*

Fabaceae



Bean family

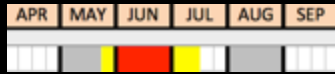
Group 2



Small Geranium  
*Geranium pusillum*

Geraniaceae

Geranium family



Group 2



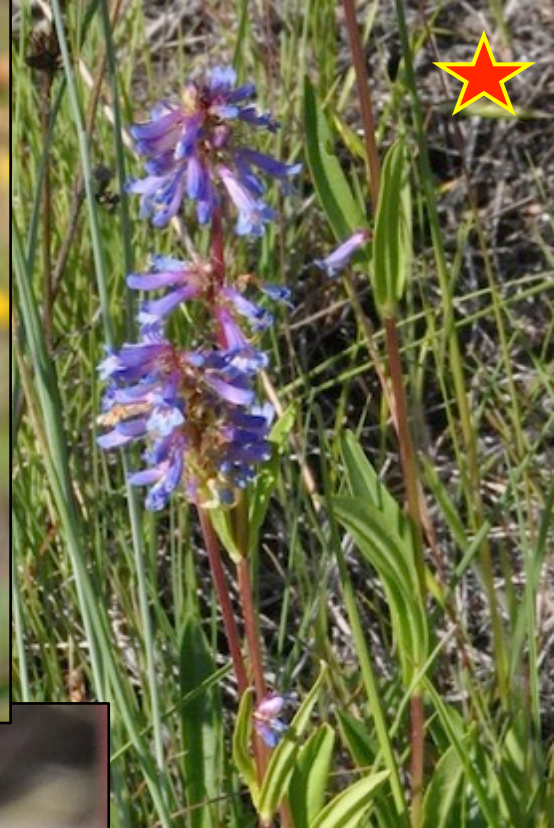
# Small-flowered Penstemon

*Penstemon procerus* Group 2

Plantaginaceae

Plantain family

| APR | MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |
|     |     |     |     |     |     |
|     |     |     |     |     |     |



Stinging Nettle

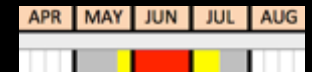
*Urtica dioica*

Urticaceae

Nettle family



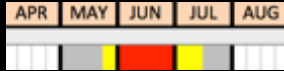
Group 2



Thyme-leaved

Sandwort

*Arenaria serpyllifolia*



●  
Group 2

Caryophyllaceae  
Pink family

See page at the end  
of Introduction for a  
comparison of similar  
species

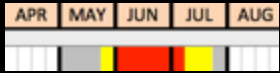


# Showy Milkweed

*Asclepias speciosa*

Apocynaceae

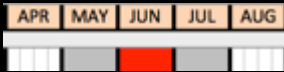
Dogbane family



Group 2 ● ● ●



Asteraceae  
Sunflower family



Group 2



Western hawksbeard  
*Crepis occidentalis*



Golden-aster

*Heterotheca villosa*

Asteraceae

Sunflower family

Group 2

| APR | MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |



before flowering, this plant resembles lesser gromwell, *Lithospermum incisum*, but differs in its dark red hairy stems



Yellow Sweet-clover

*Melilotus officinalis*

Group 2

Fabaceae

Bean family



# White Sweet-clover

*Melilotus albus*

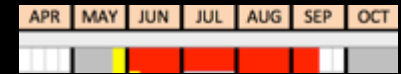
Fabaceae

Bean family

this plant is essentially the same as Yellow Sweet Clover, *M. officinalis*, (previous page) but with white flowers. The two species often grow together



Group 2

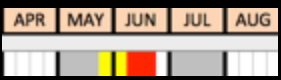


# Straight-up Suncrest

*Boechea stricta*

Brassicaceae

Mustard family



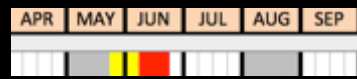
Group 2

# Tall Cinquefoil

*Potentilla arguta*

(a.k.a. *Drymocallis arguta*)

Rosaceae - Rose family



Group 2





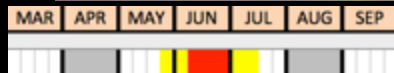
# Common Mitrewort

*Mitella nuda* ●●●

Saxifragaceae

Saxifrage family

Group 2

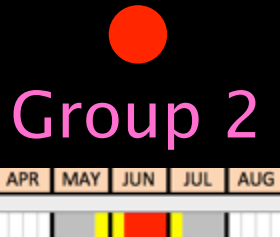


Russian Olive

*Elaeagnus angustifolium*

Elaeagnaceae

Oleaster family



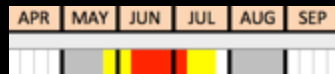
Red (Sitka) Columbine

*Aquilegia formosa*

Group 2

Ranunculaceae

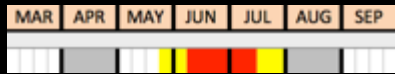
Buttercup family



# Common Silverweed

*Potentilla anserina*

Rosaceae - Rose family



Group 2



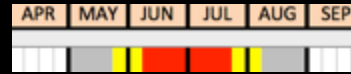
# Long-stalked Starwort

*Stellaria longipes*

Caryophyllaceae

Pink family

Group 2



See page at the end of Introduction for a comparison of similar species





Wavyleaf Thistle

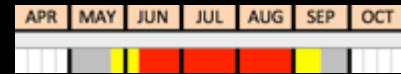
*Cirsium undulatum*

Asteraceae

Sunflower family



Group 2



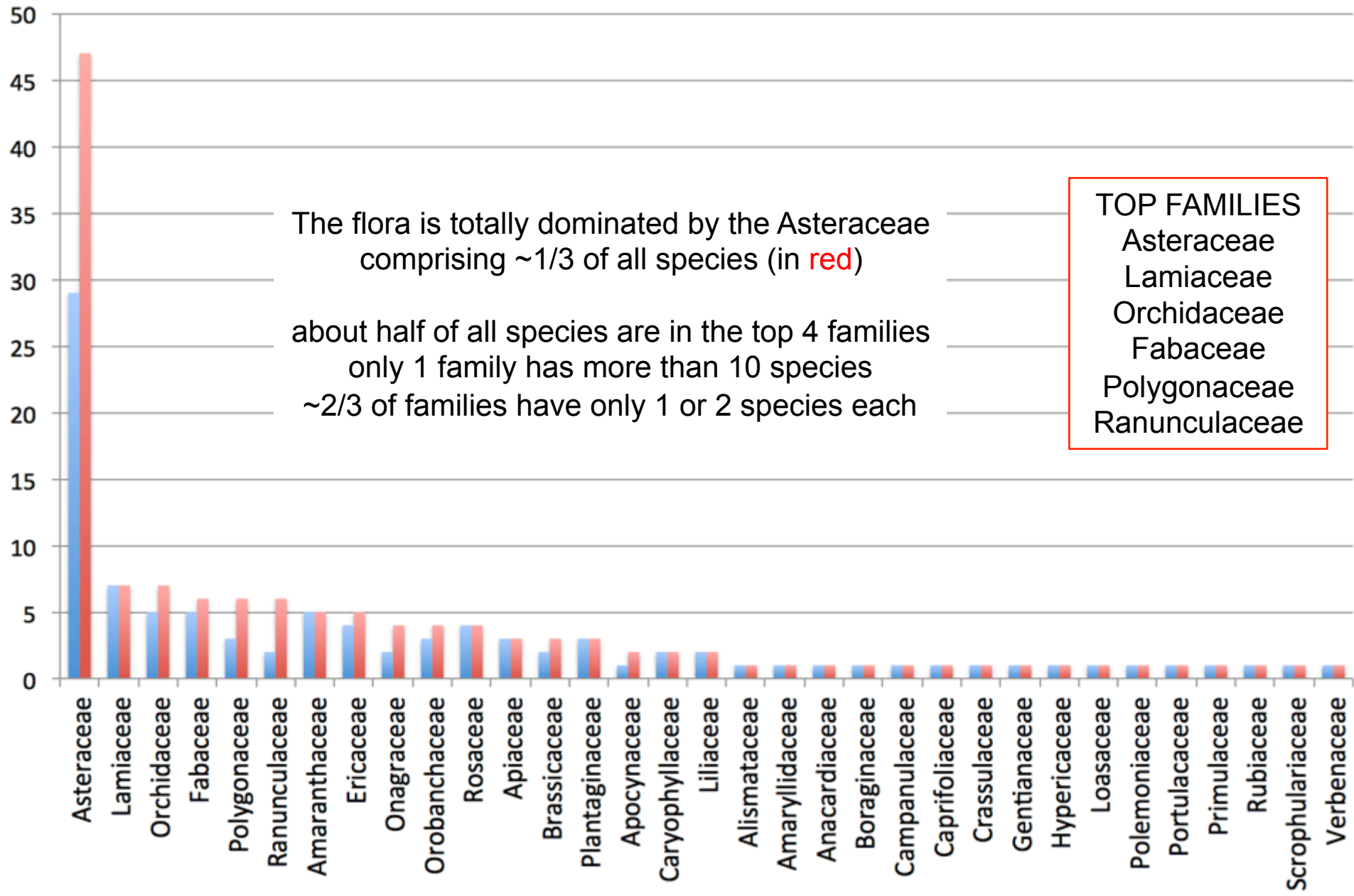
**Group 3** species **begin** flowering **after** end-May

Of these 187 species, **134 are native (72%)**, and **53 are alien (28%)**

The species are rarely seen in flower before early June;  
while **most flower strongly in July & August**  
many often extend in to September, and a few into October



# Family Breakdown of Mid-summer to Fall Species

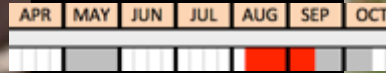


# Sticky Groundsel

*Senecio viscosus*

Asteraceae

Sunflower family



●  
Group 3







Tiger Lily

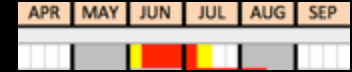
*Lilium columbianum*



Group 3 Liliaceae



Lily family



Orange Agoseris  
*Agoseris aurantiaca*

Asteraceae  
Sunflower family



| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |
|     |     |     |     |     |



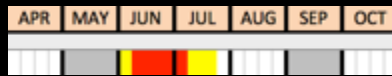
Group 3



Common Chamomile  
*Anthemis arvensis*

Asteraceae

Sunflower family



Group 3

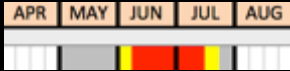


Nodding Onion

*Allium cernuum*

Amaryllidaceae

Amaryllis family



first appears  
with multiple  
flat dark green  
leaves



Group 3



248

© Paul Handford, 2016

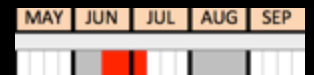


# Douglas' Campion

*Silene douglasii* Caryophyllaceae  
Pink family



## Group 3



# One-flowered Wintergreen

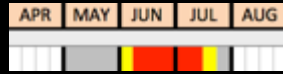
*Moneses uniflora*

Ericaceae

Heath family



Group 3

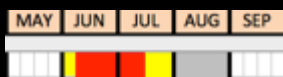


# Northern Bedstraw

*Galium boreale*

Rubiaceae

Madder family



Group 3



# Yellow-dot Saxifrage

## Group 3

*Saxifraga bronchialis*

(a.k.a. *S. vespertina*)

Saxifragaceae – Saxifrage family

| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
| █   | █   | █   | █   | █   |

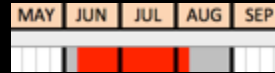


Sitka Valerian

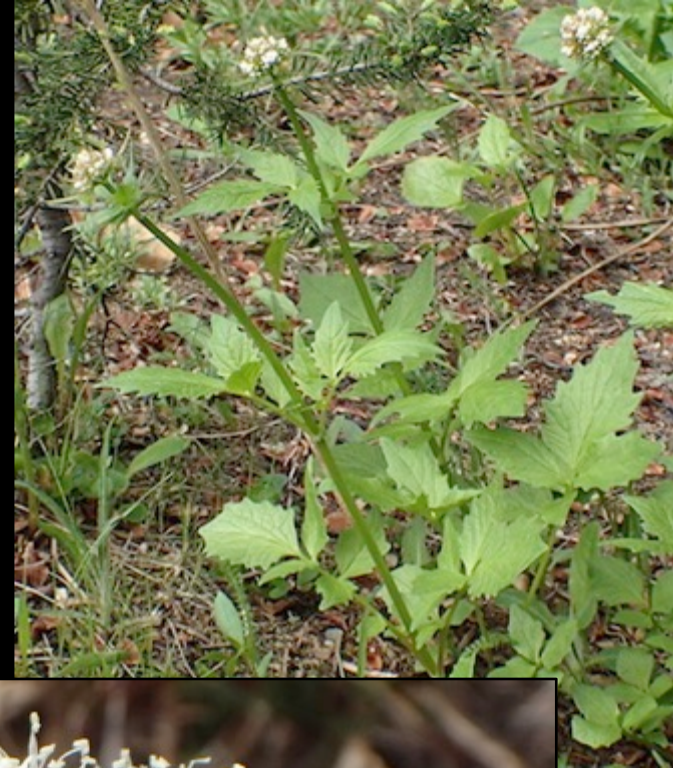
*Valeriana sitchensis*

Caprifoliaceae

Honeysuckle family



Group 3



Loasaceae  
Rock-nettle  
family

| MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |
|     |     |     |     |     |     |
|     |     |     |     |     |     |

● Blazing Star  
*Mentzelia laevicaulis*



Group 3

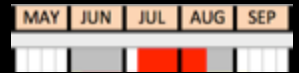


Rocky Mountain Bee-plant

*Peritoma serrulata*

Cleomaceae

Spiderflower family



Group 3

256

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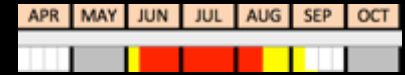


Oxeye Daisy

*Leucanthemum vulgare*

Asteraceae

Sunflower family



Group 3



# *Chamaenerion angustifolium*

Onagraceae

Fireweed

Evening-primrose family



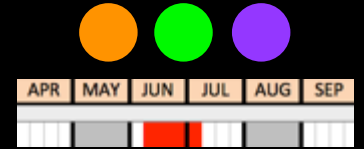
Group 3

# Rocky Mountain Sunflower

*Helianthella uniflora*

Asteraceae

Sunflower family



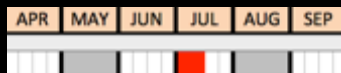
Group 3

Narrow-leaf Collomia

*Collomia linearis*

Polemoniaceae

Phlox family



Group 3



Thimbleberry ●●●

*Rubus parviflorus*

Rosaceae Group 3

Rose family

| MAY | JUN | JUL | AUG |
|-----|-----|-----|-----|
|     | ■   | ■   |     |



Robbins' Milk-vetch

*Astragalus robbinsii*

Fabaceae

Bean family



Group 3

| MAY | JUN | JUL | AUG |
|-----|-----|-----|-----|
|     | ■   | ■   |     |

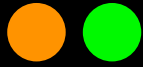


Birch-leaved Spiraea

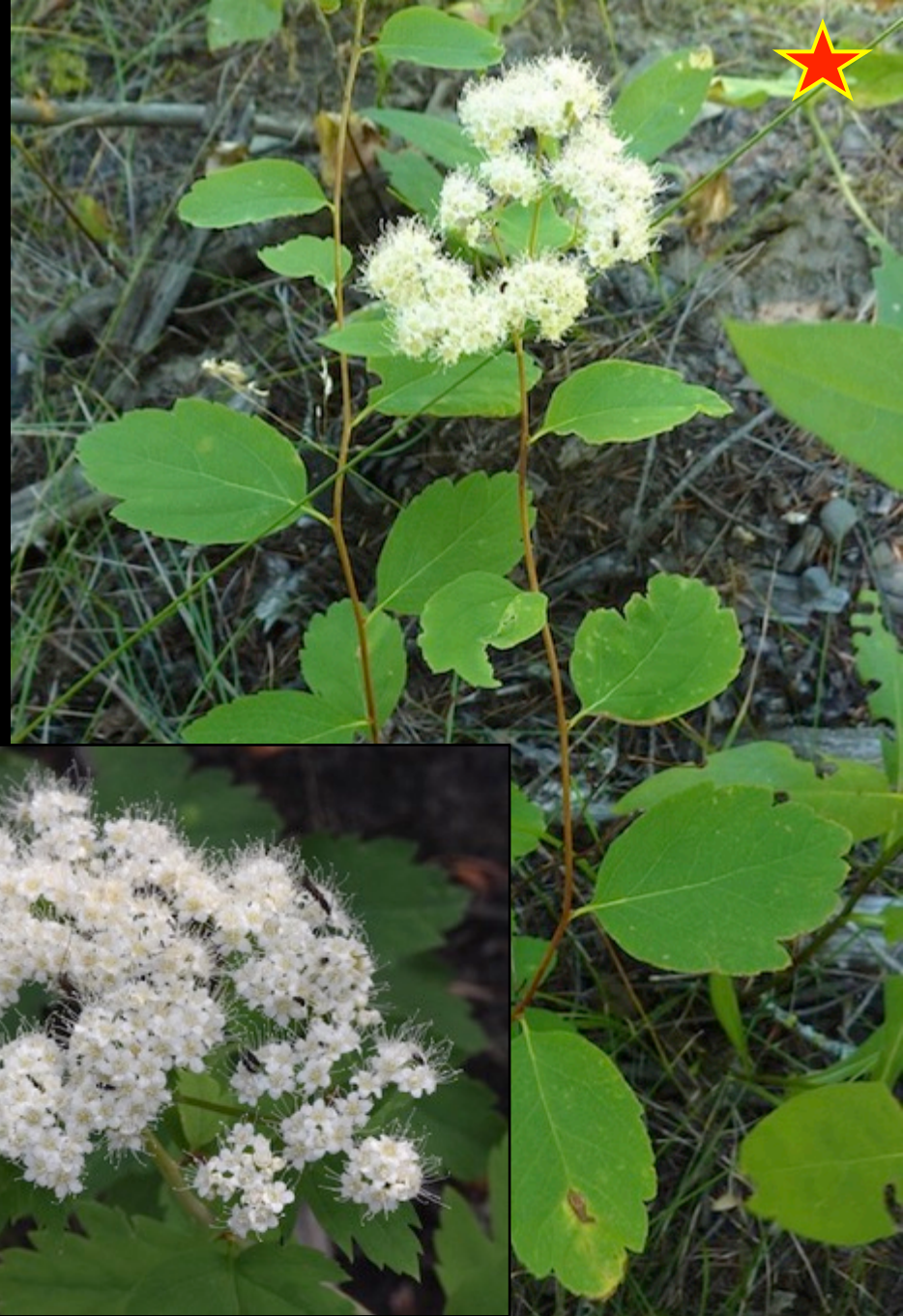
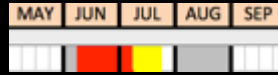
*Spiraea betulifolia*

Rosaceae

Rose family



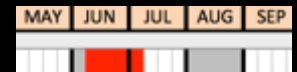
Group 3



# Sainfoin - *Onobrychis viciifolia*

Fabaceae

Bean family



Group 3



# Houndstongue Hawkweed

*Hieracium cynoglossoides*

Asteraceae

Sunflower family



| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |



Group 3



See page at the end of Introduction for a comparison of similar species

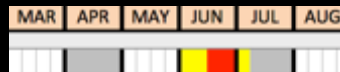


Smooth Sumac  
*Rhus glabra*

Anacardiaceae  
Sumac family



Group 3



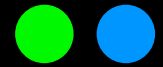


# Tufted Vetch

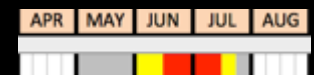
*Vicia cracca*

Fabaceae

Bean family



Group 3



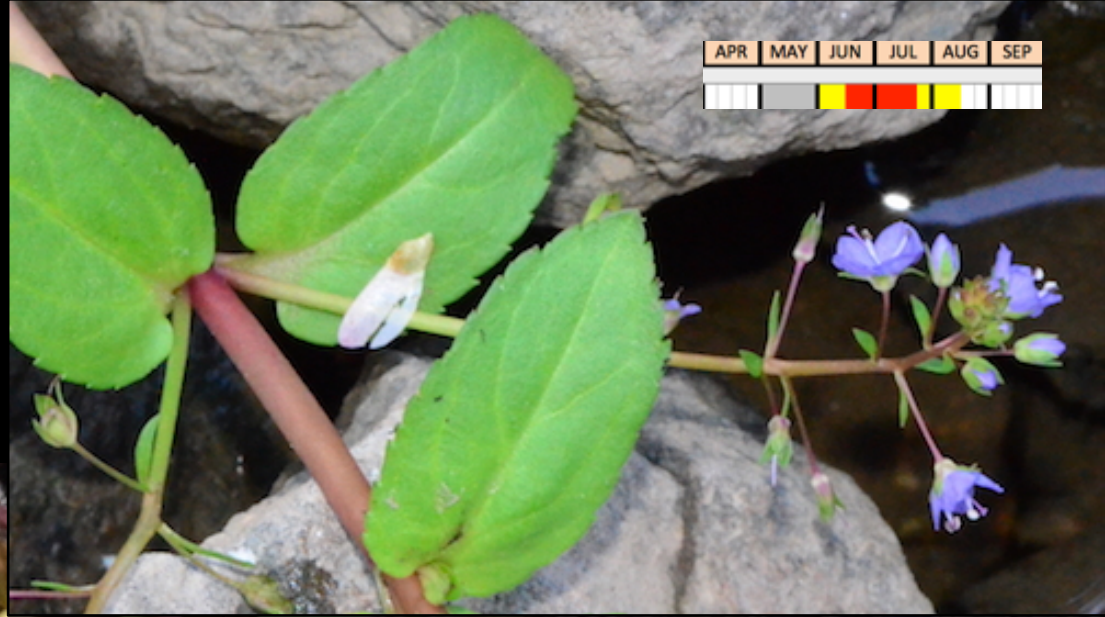


American Speedwell  
*Veronica beccabunga*

Plantaginaceae

Plantain family ● Group 3

| APR | MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|-----|
|     |     | ■   | ■   | ■   |     |



# Meadow Hawkweed

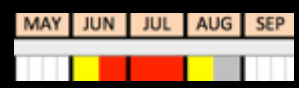
*Hieracium caespitosum*

Asteraceae

Sunflower family



## Group 3



# Bracted, or Carpet Vervain

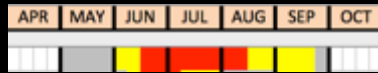
*Verbena bracteata*



Verbenaceae

Group 3

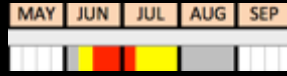
Verbena family





# Goldmoss Stonecrop

*Sedum acre*



Crassulaceae

Stonecrop family

Group 3





Poison Hemlock  
*Conium maculatum*

all parts of this plant are  
DEADLY POISONOUS

Carrot family  
Apiaceae



Group 3



| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   |     |

Common Harebell  
*Campanula rotundifolia*

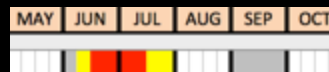
Campanulaceae  
Bellflower family



★  
basal leaves can be  
round to heart-  
shaped; stem  
leaves linear



Group 3



Twinsflower

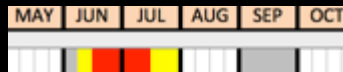
*Linnaea borealis*

Caprifoliaceae

Honeysuckle family



Group 3



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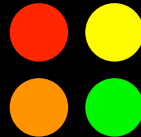
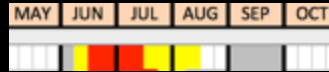
© Paul Handford, 2016

Common Toadflax  
*Linaria vulgaris*

Plantaginaceae  
Plantain family

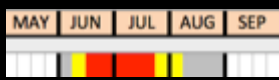


Group 3

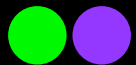


Sickletop Lousewort  
*Pedicularis racemosa*

Group 3



Orobanchaceae  
Broomrape family



Cow-parsnip

Carrot family

*Heracleum maximum*

Apiaceae



Group 3



| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |



Baby's Breath

*Gypsophila paniculata*

Caryophyllaceae

Pink family



Group 3

| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   | ■   |



this seriously  
invasive alien  
should not be  
encouraged





One-sided Wintergreen

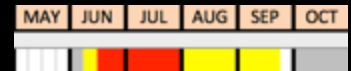
*Orthilia secunda*

Ericaceae

Heath family



Group 3

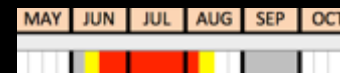


Pink Wintergreen  
*Pyrola asarifolia*

Ericaceae  
Heath family

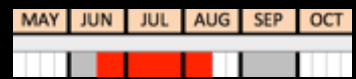


Group 3



Sulphur Buckwheat  
*Eriogonum umbellatum*

Polygonaceae  
Buckwheat family



Group 3    ●   ●   ●   ●

Arctic Lupine

*Lupinus arcticus*

Fabaceae – Pea family



| MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   | ■   | ■   |

Group 3

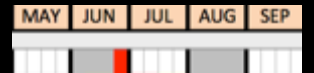


# Small-flowered Ipomopsis

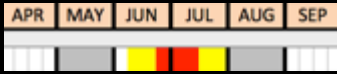
*Microgilia minutiflora*

Polemoniaceae    ● ●

Phlox family    Group 3



# Group 3



Boreal/  
Northern  
Starwort  
*Stellaria*  
*borealis*/  
*calycantha*

Caryophyllaceae  
Pink family



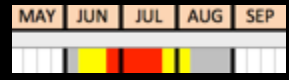
these two species are poorly differentiated and their taxonomy is problematic. Perhaps further samples will permit resolution

Common St. John's-wort

*Hypericum perforatum*

Hypericaceae

Mangosteen family



Group 3

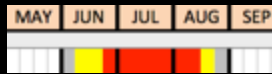


Red Clover

*Trifolium pratense*

Fabaceae

Bean family



Group 3



Green Wintergreen

*Pyrola chlorantha*

Ericaceae - Heath family

Group 3



| MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|
| █   | █   | █   | █   | █   | █   |



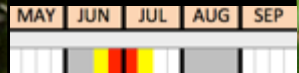
# Northern Green Bog-orchid

## *Platanthera aquilonis*

Orchidaceae - Orchid family



a.k.a.  
*P. hyperborea*



Group 3

Musk Mallow

*Malva moschata*

Malvaceae

Mallow family



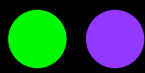
Group 3



Lesser Wintergreen

*Pyrola minor*

Ericaceae- Heather family



Group 3

| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
| █   | █   | █   | █   | █   |















White hawkweed  
*Hieracium albiflorum*

Asteraceae  
Sunflower family

Group 3

| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |

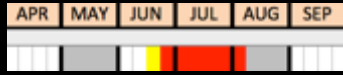


# Showy Polemonium

*Polemonium pulcherrimum*

Polemoniaceae

Phlox family



Group 3



a.k.a. Jacob's Ladder















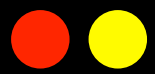
Yellow Clover  
*Trifolium aureum*

Fabaceae  
Pea family

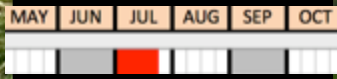


Group 3

Glandular Baby's-breath  
*Gypsophila scorzonerifolia*  
Caryophyllaceae - Pink family



Group 3





Fringed Willowherb

*Epilobium ciliatum*

● ● Group 3

Onagraceae

Evening-primrose family

| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
| █   | █   | █   | █   | █   |
| █   | █   | █   | █   | █   |





# Russian Knapweed

*Acroptilon repens*

a.k.a. *Rhaponticum repens* ●



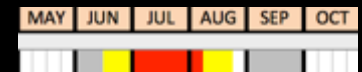
this knapweed is distinguished by the smooth edges & lack of spines on the involucre bracts



Asteraceae

Sunflower family

Group 3



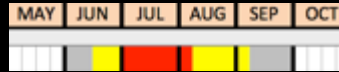
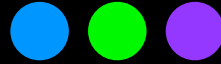




Arrow-leaf Groundsel  
*Senecio triangularis*

Asteraceae  
Sunflower family

Group 3



Blue Lettuce

*Mulgedium*

*pulchellum*

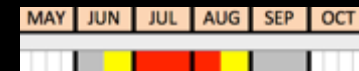
a.k.a. *Lactuca tatarica*

Asteraceae

Sunflower family



Group 3



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Wiry Knotweed

*Polygonum majus*

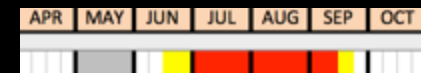
Polygonaceae

Buckwheat family

*P. majus* is very similar to *P. douglasii*;  
given descriptions are +/- identical



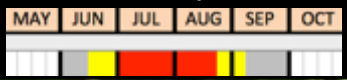
Group 3



# White Virgin's-bower *Clematis ligusticifolia*

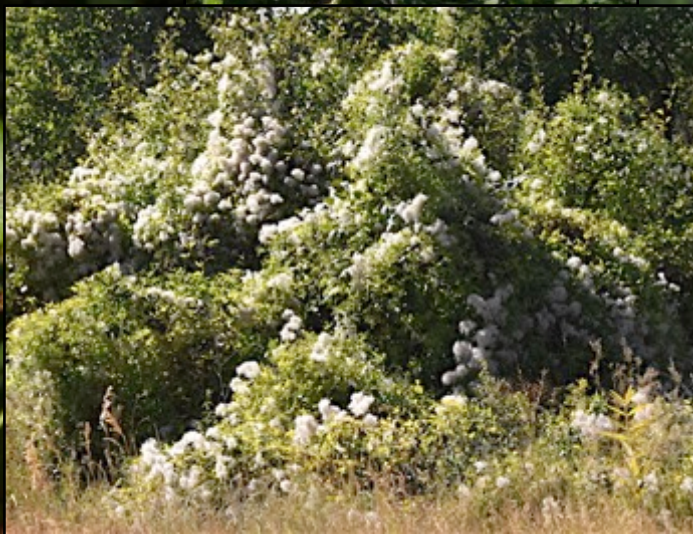
Group 3  
● ● ●  
(Red, Blue, Yellow)

Ranunculaceae  
Buttercup family



young fruits

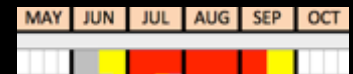
mature fruits



Narrow-leaved  
*Stephanomeria*  
*Stephanomeria*  
*tenuifolia*

Asteraceae  
Sunflower family

● ● ●  
Group 3

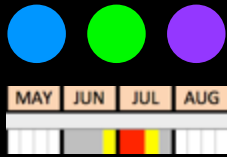


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One-leaved Rein Orchid  
*Platanthera obtusata*

Orchidaceae  
Orchid family



Group 3

Alaska Rein-orchid  
*Piperia unalascensis*



| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |



Orchidaceae  
Orchid family



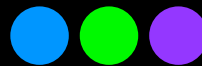
Group 3





Bracted Lousewort  
*Pedicularis bracteosa*

Orobanchaceae  
Broomrape family



Group 3



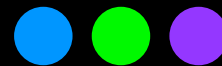
Streambank Groundsel  
*Packera pseud aurea*

Asteraceae

Sunflower family



Group 3



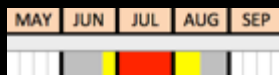


Yellow Rattle

*Rhinanthus minor*



Group 3



Orobanchaceae  
Broomrape family

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# Spreading Dogbane

*Apocynum androsaemifolium*

| MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|
| █   | █   | █   | █   | █   | █   |
| █   | █   | █   | █   | █   | █   |

Group 3



Apocynaceae  
Dogbane family

Mullein

*Verbascum thapsus*

Scrophulariaceae

Figwort family



Group 3

| MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |
|     |     |     |     |     |     |

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# Spotted Knapweed

*Centaurea stoebe*  
(*maculosa*)

Asteraceae

Sunflower family

| MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|
|     | ■   | ■   | ■   | ■   | ■   |



Group 3

flowers are usually pink or purple, sometimes white. Distinguished from Diffuse Knapweed by spineless bracts



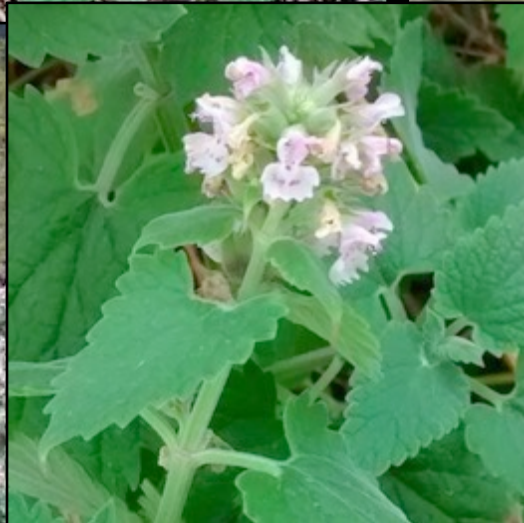
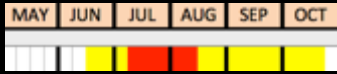


Catnip

*Nepeta cataria*

Lamiaceae

Mint family



Group 3

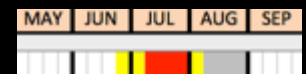
Graceful Cinquefoil

*Potentilla gracilis*

Rosaceae

Rose family

Group 3



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© Paul Handford, 2016



Wild Bergamot

Lamiaceae

*Monarda fistulosa* Mint family



Group 3





# Three-tooth Mitrewort

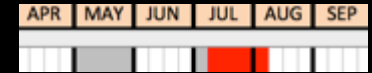
*Mitella trifida*

Saxifragaceae

Saxifrage family



Group 3

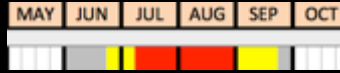






Curly-cup Gumweed  
*Grindelia squarrosa*

Group 3



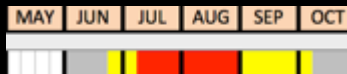
Asteraceae  
Sunflower family



Common Eyebright  
*Euphrasia nemorosa*

Orobanchaceae  
Broomrape family

Group 3



# Pearly Everlasting

*Anaphalis*

*margaritacea*

Asteraceae **Group 3**

Sunflower family

| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
| ■   | ■   | ■   | ■   | ■   |

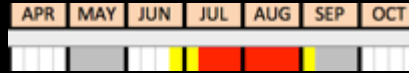


# Celery-leaved Buttercup

*Ranunculus sceleratus*

Ranunculaceae

Buttercup family



Group 3



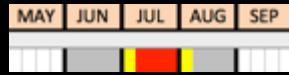
Common Mare's-tail

*Hippuris vulgaris*



Plantaginaceae

Plantain family



Group 3

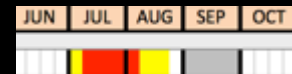


Prairie Fleabane

*Erigeron strigosus*

Asteraceae

Sunflower family



Group 3



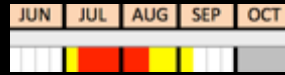


Chicory

*Cichorium intybus*

Asteraceae

Sunflower family



Group 3



Bull Thistle

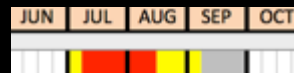
*Cirsium vulgare*

Asteraceae

Sunflower family



Group 3

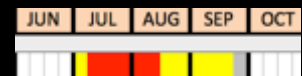


Diffuse Knapweed  
*Centaurea diffusa*

Asteraceae ●  
Sunflower family



flowers are usually white, but can be pink or purple.  
Distinguished from Spotted Knapweed by spiny bracts



Group 3



Showy Aster      Group 3

*Eurybia (Aster) conspicua*

Asteraceae - Sunflower family



| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |

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# Yellow Monkey-flower

*Mimulus guttatus*

Phrymaceae ●

Lopseed family

Group 3

| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
|     |     | ■   | ■   |     |



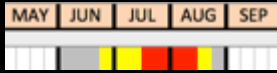


Narrow-leaved Dock  
*Rumex stenophyllus*

Polygonaceae  
Buckwheat family



Group 3





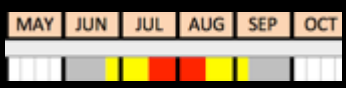
Two-scale Saltbush

*Atriplex micrantha*

Amaranthaceae

Amaranth family

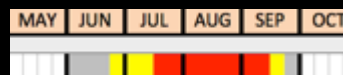
Group 3 ●



# Spikelike Goldenrod - *Solidago spathulata*

Sunflower family

Group 3



Asteraceae

a.k.a. *Solidago simplex*

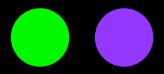
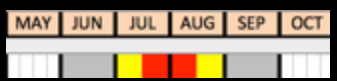


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© Paul Handford, 2016

Pipsissewa Group 3  
*Chimaphila umbellata*

Ericaceae  
Heath family



fruits are a 5-valve dry capsule

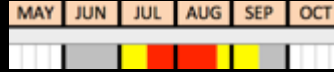
buds remain closed for a week or two

Lamb's Quarters

*Chenopodium album*

Amaranthaceae

Amaranth family



●  
Group 3

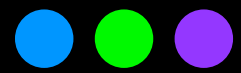


# Fragrant White Bog-orchid

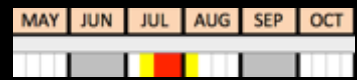
Group 3

*Platanthera dilatata*

Orchidaceae



Orchid family



Fringed Loosestrife

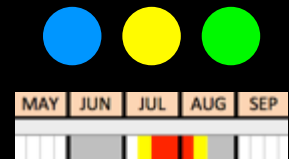
*Lysimachia ciliata*

Primulaceae

Primrose family

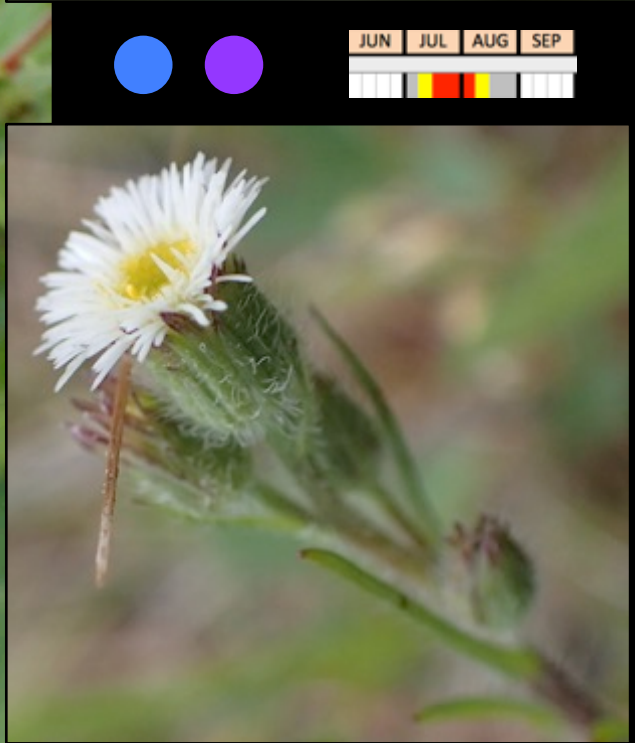


eFlora has this species as *Steironema ciliatum* in the Myrsinaceae,



Group 3

Spear-leaf Fleabane  
*Erigeron lonchophyllus*  
Asteraceae Group 3  
Sunflower family



| JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|
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|     |     |     |     |
|     |     |     |     |

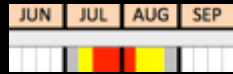
Hemp-nettle

*Galeopsis tetrahit*

Lamiaceae

Mint family

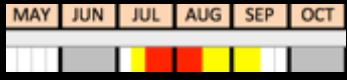
● ● ●  
Group 3





Mountain Sagewort  
*Artemisia norvegica*

Group 3



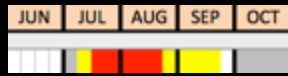
Asteraceae  
Sunflower family

# Blake's Knotweed

*Polygonum achoreum*

Polygonaceae

Buckwheat family



Group 3



Yellow Owl-clover

*Orthocarpus luteus*

Orobanchaceae

Broomrape family

| MAY | JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |



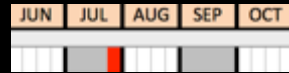
Group 3



Tall Rein-orchid  
*Piperia elongata*

Orchidaceae

Orchid family



Group 3

Field mint

*Mentha arvensis*

Lamiaceae

Mint family



| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |
|     |     |     |     |     |

Group 3





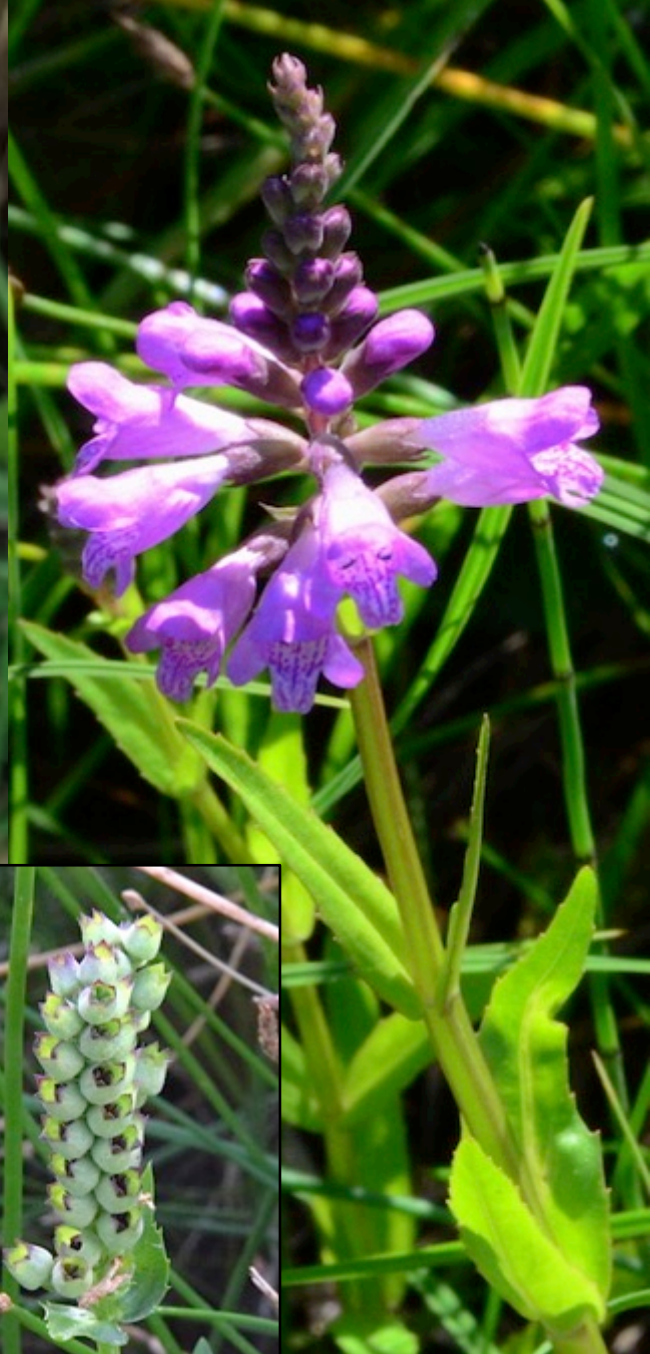
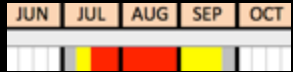
# Purple Dragonhead

*Physostegia parviflora*



Lamiaceae

Mint family



Group 3

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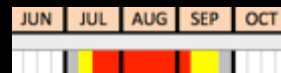


Horseweed  
*Conyza*  
*canadensis*



The status of *Conyza* is in doubt; it might not be native to BC but an invader from neighbouring parts of N. America

Group 3



Asteraceae  
Sunflower  
family

Perennial Sow-thistle



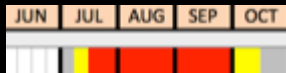
*Sonchus arvensis*

Group 3

Asteraceae

Sunflower

family



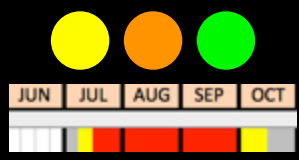
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© Paul Handford, 2016

Western Meadow Aster  
*Symphyotrichum campestre*

Sunflower family  
Asteraceae

Group 3



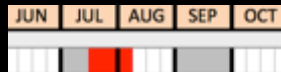


Wall Lettuce

*Mycelis muralis*

Asteraceae

Sunflower family



Group 3

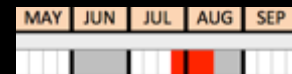
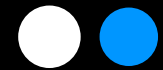
Blue-leaf Cinquefoil

*Potentilla diversifolia*

(*P. glaucophylla*)

Rosaceae

Rose family



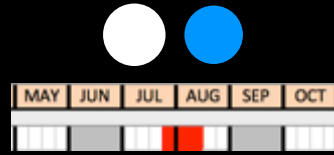
Group 3



White-flower Willowherb  
*Epilobium lactiflorum*

Onagraceae

Evening Primrose family



Group 3

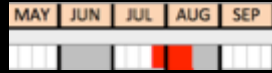


Rusty, or Alaska saxifrage

*Micranthes (Saxifraga) ferruginea*

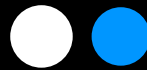
Saxifragaceae    ● ●    Group 3

Saxifrage family





Leatherleaf saxifrage  
*Leptarrhena pyrolifolia*)  
Saxifragaceae  
Saxifrage family



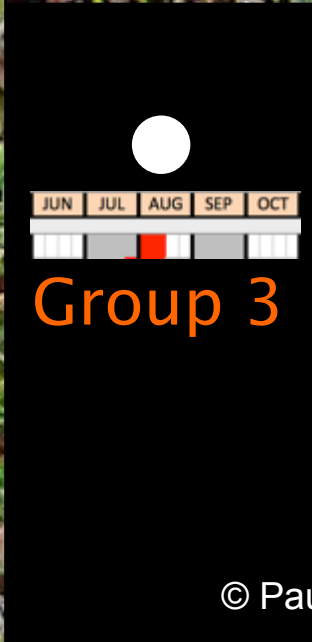
Group 3



Western bell heather

*Cassiope mertensiana*

Ericaceae - Heath family



Group 3



Pink mountain heather

*Phyllodoce empetriformis*

Ericaceae - Heath family

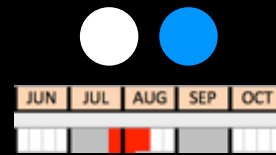


Group 3



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Yellow mountain heather  
*Phyllodoce glanduliflora*  
Ericaceae - Heath family

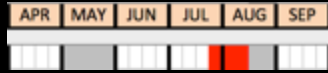


Group 3

White mountain marsh-marigold

*Caltha leptosepala*

Ranunculaceae-Buttercup family



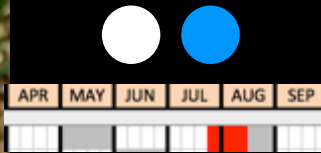
Group 3



Western pasque-flower

Ranunculaceae-Buttercup family

*Pulsatilla (Anemone) occidentalis*



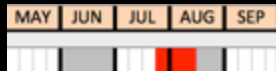
Group 3



Subalpine buttercup

*Ranunculus eschscholtzii*

Ranunculaceae-Buttercup family



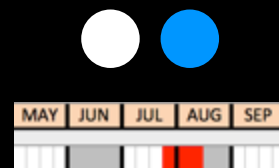
Group 3



Partridge-foot

*Luetkea pectinata*

Rosaceae - Rose family

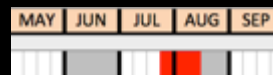


Group 3



Creeping glow-wort  
*Sibbaldia procumbens*

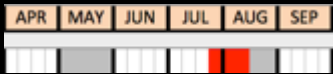
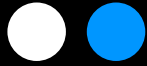
Rosaceae - Rose family



Group 3

# Globe-flower - *Trollius taxus*

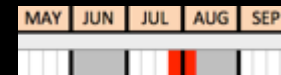
Ranunculaceae - Buttercup family



Group 3



White rhododendron  
*Rhododendron albiflorum*  
Ericaceae ~ Heath family



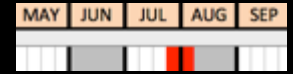
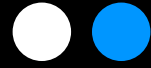
Group 3

Pink Agoseris

*Agoseris lackschevitzii*

Asteraceae

Sunflower family



Group 3

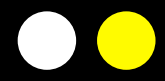
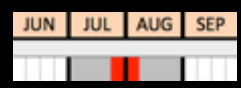


Siberian Aster

*Eurybia sibirica*

Asteraceae

Sunflower family



Group 3

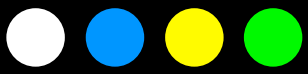


Parry's Arnica

*Arnica parryi*

Asteraceae

Sunflower family



Group 3



Parry's Campion

*Silene parryi*

Caryophyllaceae

Pink family



| JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|
| █   | █   | █   | █   |



Group 3









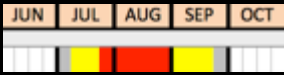
Wormwood

*Artemisia absinthum*

Asteraceae



Sunflower family



Group 3



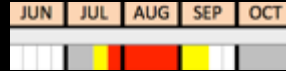
Water Smartweed

*Persicaria amphibia*

Group 3

Polygonaceae

Buckwheat family



Golden Dock  
*Rumex fueginus*



Group 3

Polygonaceae

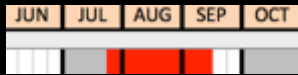
| JUN | JUL | AUG | SEP |
|-----|-----|-----|-----|
|     |     | ■   |     |

Buckwheat family



Canada Goldenrod  
*Solidago canadensis*,  
*Solidago altissima*

Asteraceae  
Sunflower family



Group 3



Fringed Parnassus  
*Parnassia fimbriata*  
Celastraceae  
Bittersweet family



Group 3

Alpine Speedwell

*Veronica wormskjoldii*

Plantaginaceae

Plantain family



Group 3

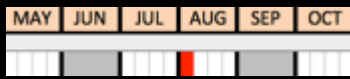
| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |



# Broadleaf Willowherb - *Chamaenerion latifolium*



Group 3



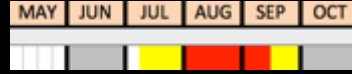
Onagraceae - Evening primrose family

Western Mugwort



*Artemisia ludoviciana*

Asteraceae



Sunflower family

Group 3









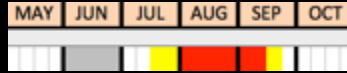
True Forget-me-not

*Myosotis scorpioides*

Boraginaceae

Group 3

Borage family







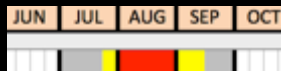


Arum-leaf Arrowhead  
or Wapato

*Sagittaria cuneata*

Alismataceae

Water-plantain family



Group 3

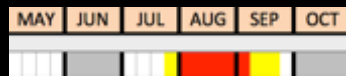


# Marsh Yellowcress *Rorippa palustris*

Brassicaceae

Mustard family

Group 3



Rough Pigweed

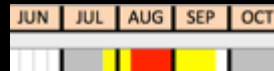
*Amaranthus retroflexus*

Amaranthaceae

Amaranth family



Group 3



# Northern Wormwood

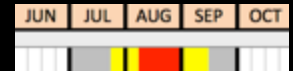
*Artemisia campestris*

Asteraceae

Sunflower family



See page at the end of Introduction for a comparison of similar *Artemisia* species



Group 3





White Prairie Aster



*Symphyotrichum ericoides*

Group 3

Asteraceae

Sunflower

family



| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
| █   | █   | █   | █   | █   |



415

© Paul Handford, 2016

August – September bloomers include several species generally known as **asters**, that have showy white-to-blue-to-purple flowers. Most of these species used to be allocated to the genus *Aster*, but the majority are now in the genus *Symphyotrichum*, while others now appear in *Canadanthus*, *Eucephalus* & *Eurybia*.

The local flora includes up to ten hard-to-distinguish species of *Symphyotrichum*. Identification to species is complicated by the fact that some show substantial variation in form, while at least some of the species hybridize, producing mixes of characters.



The next few pages show my current understanding of these problematic plants.

I continue to explore these species through submission of photographs to **e-Flora**, and in 2016

I began collecting pressed dried specimens to be sent to the folks at e-Flora for formal identification.

Until I can understand these plants better, I reckon I might be best advised to simply to refer to them all as “aster species in the genus *Symphyotrichum*”



# Western Mountain Aster

| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
|     |     | ■   | ■   | ■   |

## *Symphotrichum spathulatum*

v. similar to *S. eatonii* & *S. lanceolatum*,  
which are also found in waterside habitats

### Group 3



Asteraceae



Sunflower family





Sunflower family

Eaton's Aster

Asteraceae

*Symphyotrichum eatoni*



### Group 3

| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
|     |     | ■   | ■   | ■   |

v. similar to  
*S. lanceolatum* &  
*S. spathulatum*,  
which are also found  
in waterside habitats

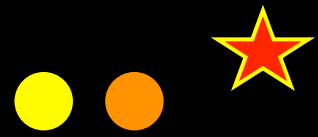


Big Sagebrush

*Artemisia tridentata*

Asteraceae

Sunflower family



| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
|     |     | ■   | ■   | ■   |

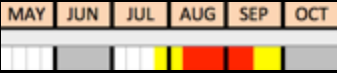
Group 3



# Columbia River Wormwood

*Artemisia lindleyana*

Group 3



Asteraceae  
Sunflower family

Tarragon



*Artemisia dracunculus*

Asteraceae

| JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|
|     |     |     |     |     |
|     |     |     |     |     |

Sunflower family **Group 3**

See page at the end of Introduction for a comparison of similar *Artemisia* species



# Cotton-batting Cudweed

*Pseudognaphalium stramineum*

Asteraceae - Sunflower family



| MAY | JUN | JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|-----|-----|
| █   | █   | █   | █   | █   | █   |

Group 3



Hooded Ladies' Tresses  
*Spiranthes romanzoffiana*

Orchidaceae  
Orchid family



Group 3





Western Goldentop

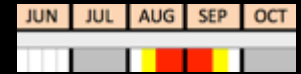
*Euthamia occidentalis*

Asteraceae

Sunflower family



Group 3

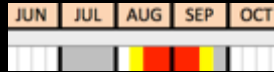


Prairie Sagewort  
*Artemisia frigida*

Asteraceae

Sunflower family

See page at the end of  
Introduction for a  
comparison of similar  
*Artemisia* species



Group 3



Prostrate Knotweed

*Polygonum aviculare*

Polygonaceae

Buckwheat family



Group 3



Rabbit Brush

*Ericameria nauseosa*

Sunflower family

Asteraceae



Group 3

| JUL | AUG | SEP | OCT |
|-----|-----|-----|-----|
| █   | █   | █   | █   |



this plant resembles the less common Grey Horsebrush, *Tetradymia canescens*, but it flowers much later, and the foliage is almost always silvery grey, if with a greenish cast



# the form of inflorescences

- ❖ An inflorescence is that part of a plant that bears the flowers, be they single or multiple.
- ❖ Flowers are arranged on inflorescences in a variety of ways, depending on the manner in which the plant's body-parts— shoots, leaves & flowers— develop and grow.
- ❖ These various arrangements are usually characteristic of species, and often of whole groups, such as Families, e.g. *umbels* in **Apiaceae**, *compound heads* in **Asteraceae**.
- ❖ Inflorescence form is therefore often of utility in plant identification.
  - ❖ There are two primary classes of inflorescence: “**determinate**” vs. “**indeterminate**”, depending on whether the main axis of the inflorescence ends in a **terminal flower** or a continuously-elongating **growing point**.
- ❖ Within these two groups, inflorescences vary depending largely on the extent and pattern of *branching* shown by the flowering stem

The next two pages diagram some of the main kinds of inflorescence ...

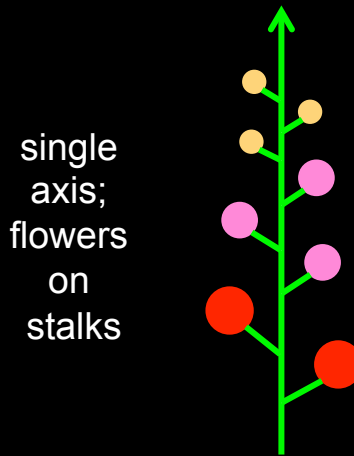
# indeterminate inflorescences

There is no terminal flower: all flowers are formed from lateral buds as the stem elongates. Here, flowers & stalks are shown arranged alternately, but they could also be opposite or spiral. Just as racemes can be compounded as panicles, there are compound corymbs & umbels too.



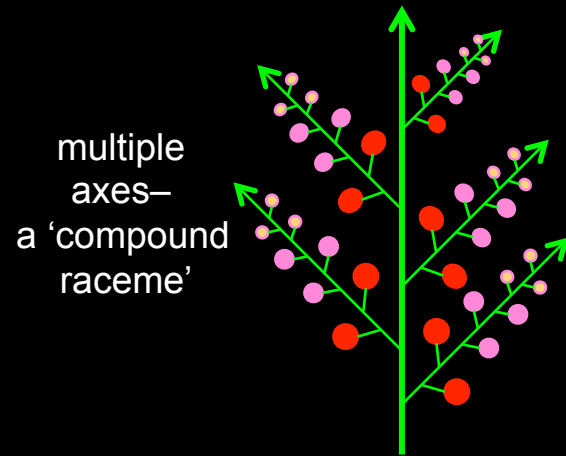
single axis;  
flowers sessile—  
no stalk

spike



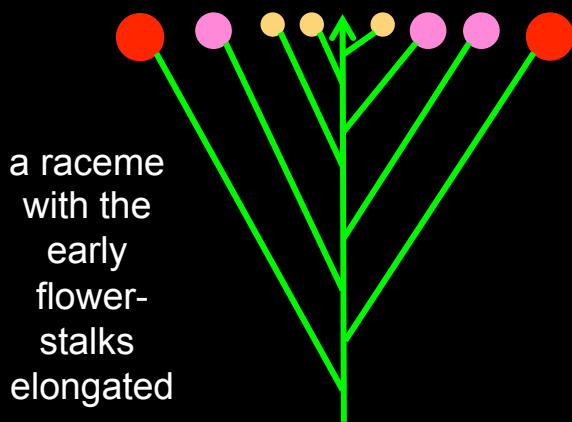
single axis;  
flowers on stalks

raceme



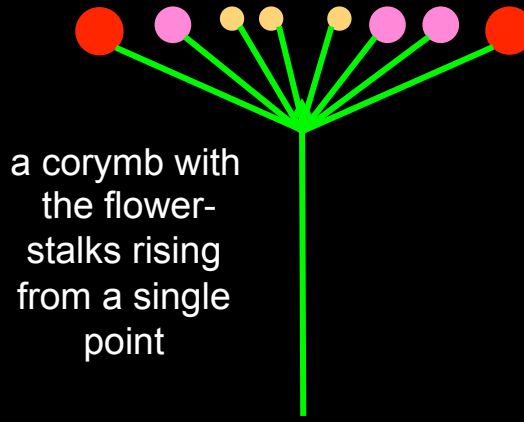
multiple axes—  
a 'compound raceme'

panicle



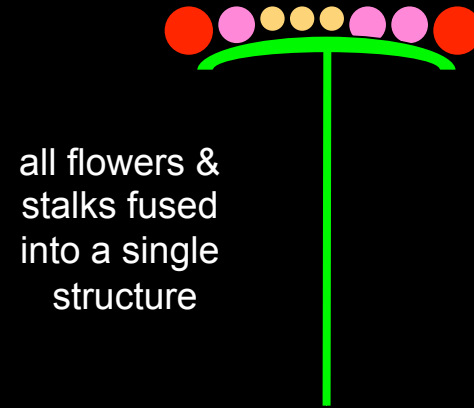
a raceme with the  
early flower-  
stalks  
elongated

corymb



a corymb with  
the flower-  
stalks rising  
from a single  
point

umbel



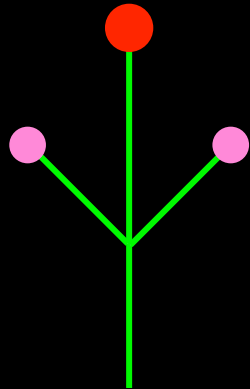
all flowers &  
stalks fused  
into a single  
structure

head

# determinate inflorescences

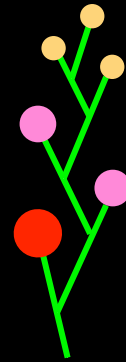
The flowering stalk ends in a terminal flower: younger flowers form on lateral shoots below. Lateral shoots may themselves have further sub-shoots of various sorts. Inflorescence types result from the degree & pattern of lateral branching and sub-branching.

two simple  
opposite  
lateral  
flower-  
shoots



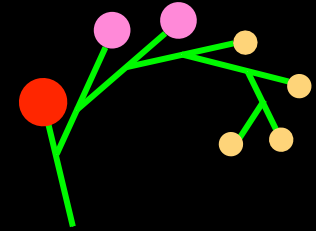
simple cyme

single  
lateral  
shoot +  
alternating  
sub-shoots



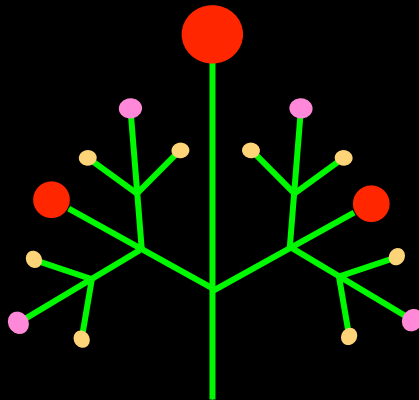
scorpioid cyme

single  
lateral  
shoot +  
sub-shoots  
on one side



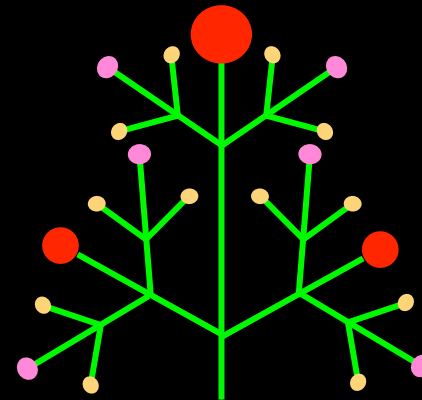
helicoid cyme

paired  
lateral  
shoots, with  
paired sub-  
shoots



compound cyme

multiple  
paired  
lateral  
shoots, with  
paired sub-  
shoots



elongated cyme

## Changes in Names & Arrangement

As the evolutionary relationships among plant species and lineages become further clarified, much through the analysis of DNA-sequence data, it is sometimes necessary to make changes to their naming and to their arrangement into a classification— *this is because the naming & classification system is intended to be a precise representation of our best understanding of the evolutionary (genetic, historical, genealogical) affinities among species*— that is, the closeness of the descent relationships among species and species groups, or lineages.

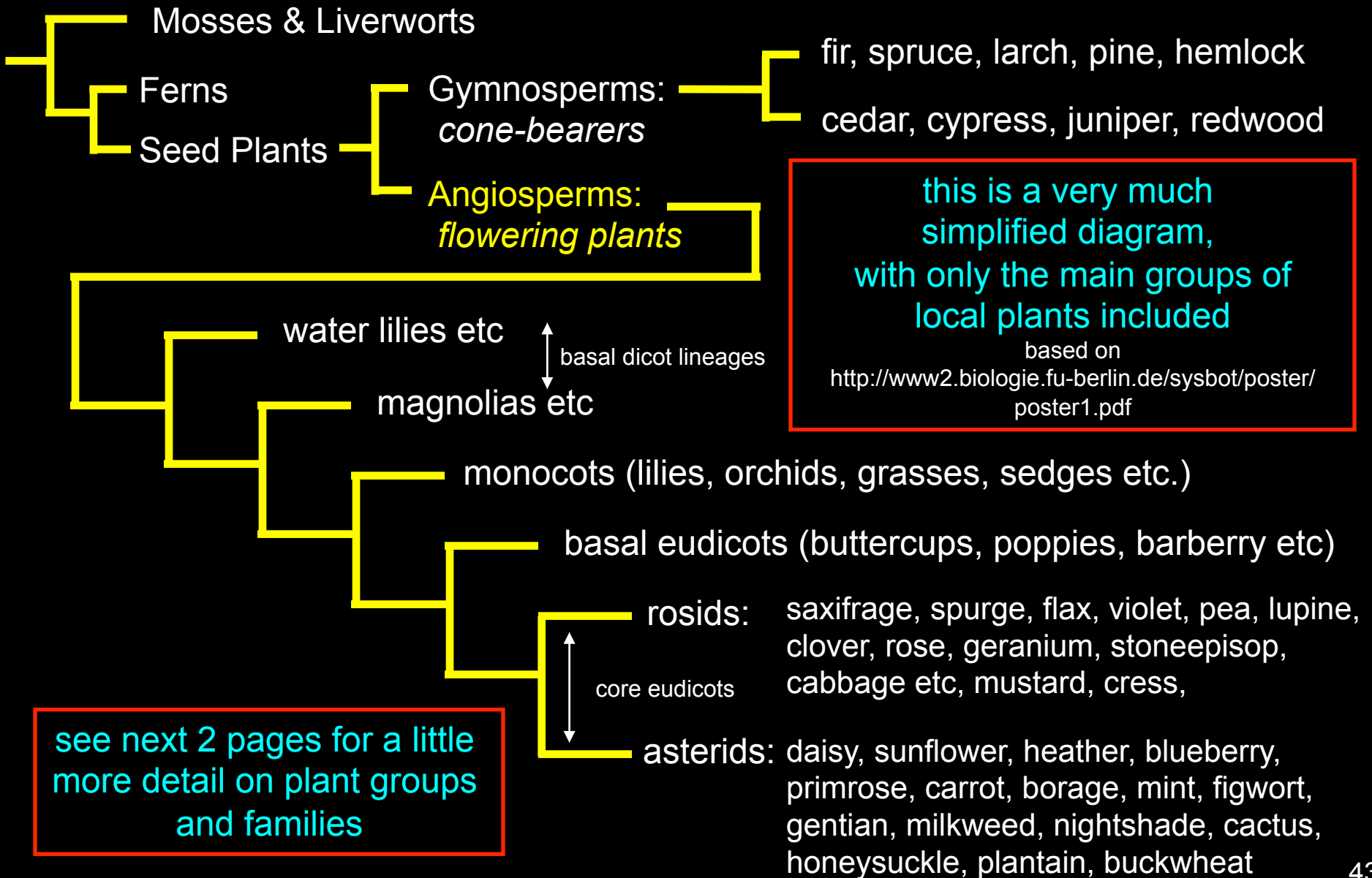
Today's generally accepted plant classification is that of the **Angiosperm Phylogeny Group**, first published in 1998; its most recent version is known as **APG IV** (2016); see following pages and <http://www.kew.org/blogs/kew-science/apg-classification-consensus> for details.

Here are examples of some of the changes that have been made to this list because of advances in our understanding of genealogical evolutionary relationships:

- ❖ *Disporum hookeri* is now moved to a different genus, as *Prosartes hookeri*
- ❖ *Smilacina* species are now shifted into *Maianthemum*.
- ❖ Several species of *Arabis* have been moved into the genus *Boechera*.
- ❖ Some genera (*Collinsia*, *Penstemon*) have been moved from Orobanchaceae (Broomrapes) into Plantaginaceae (Plantains).
- ❖ Though opinion is split on this matter, e-Flora has opted to separate *Phacelia* from the Boraginaceae (Borages, Forget-me-nots) into the Hydrophyllaceae (Waterleaf, Scorpionweed).
- ❖ All genera but *Portulaca* have been moved out of family Portulacaceae to other families; in our flora, *Montia* has been moved to Montiaceae.
- ❖ The Liliaceae has been broken into several families: **Amaryllidaceae** (*Allium*), **Asparagaceae** (*Asparagus*, *Maianthemum*, *Muscari*), **Iridaceae** (*Iris*), **Melanthiaceae** (*Zigadenus*), and **Liliaceae** (*Calochortus*, *Clintonia*, *Fritillaria*, *Lilium*, *Prosartes*, *Streptopus*).



# Evolutionary Relationships of Plants



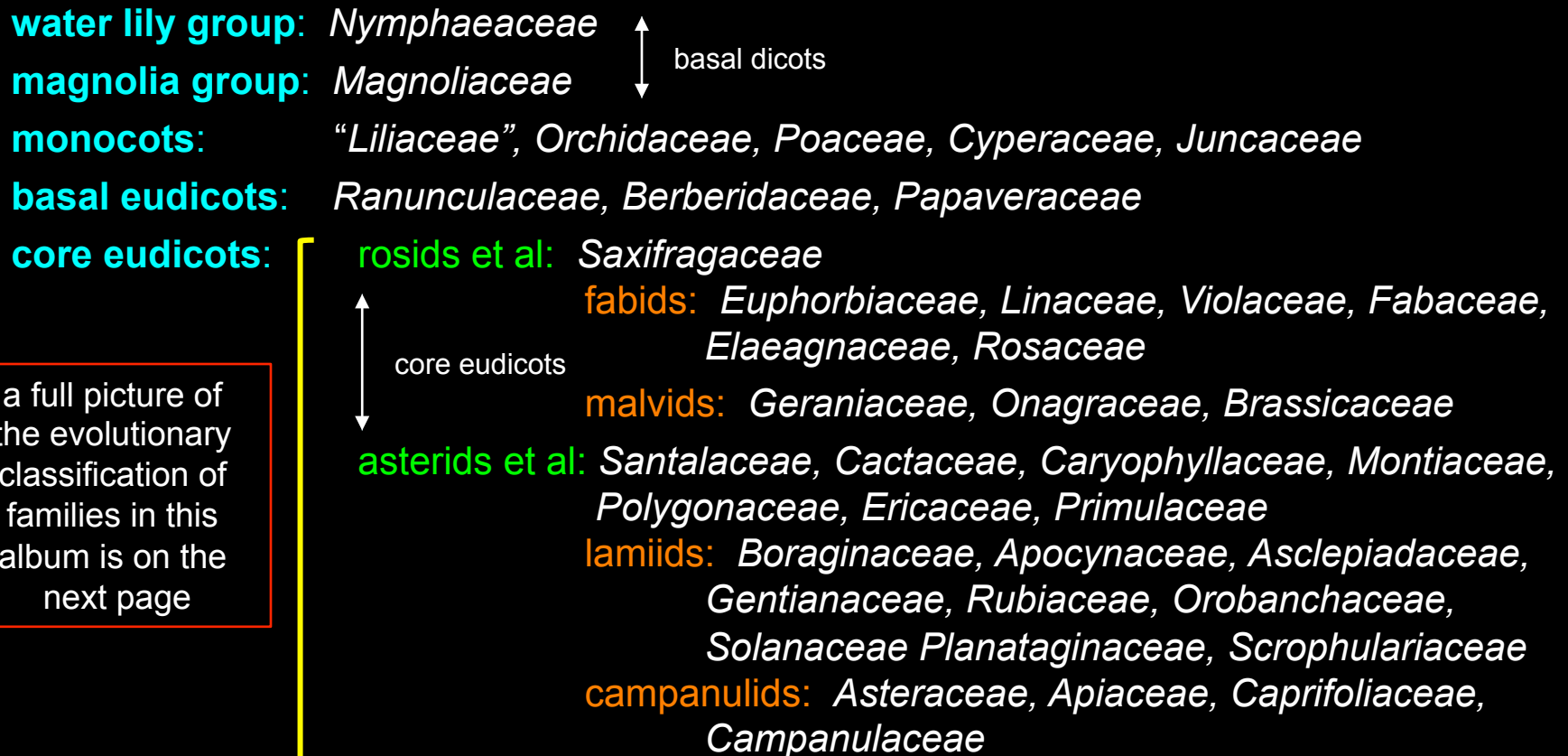
this is a very much simplified diagram, with only the main groups of local plants included

based on  
<http://www2.biologie.fu-berlin.de/sysbot/poster/poster1.pdf>

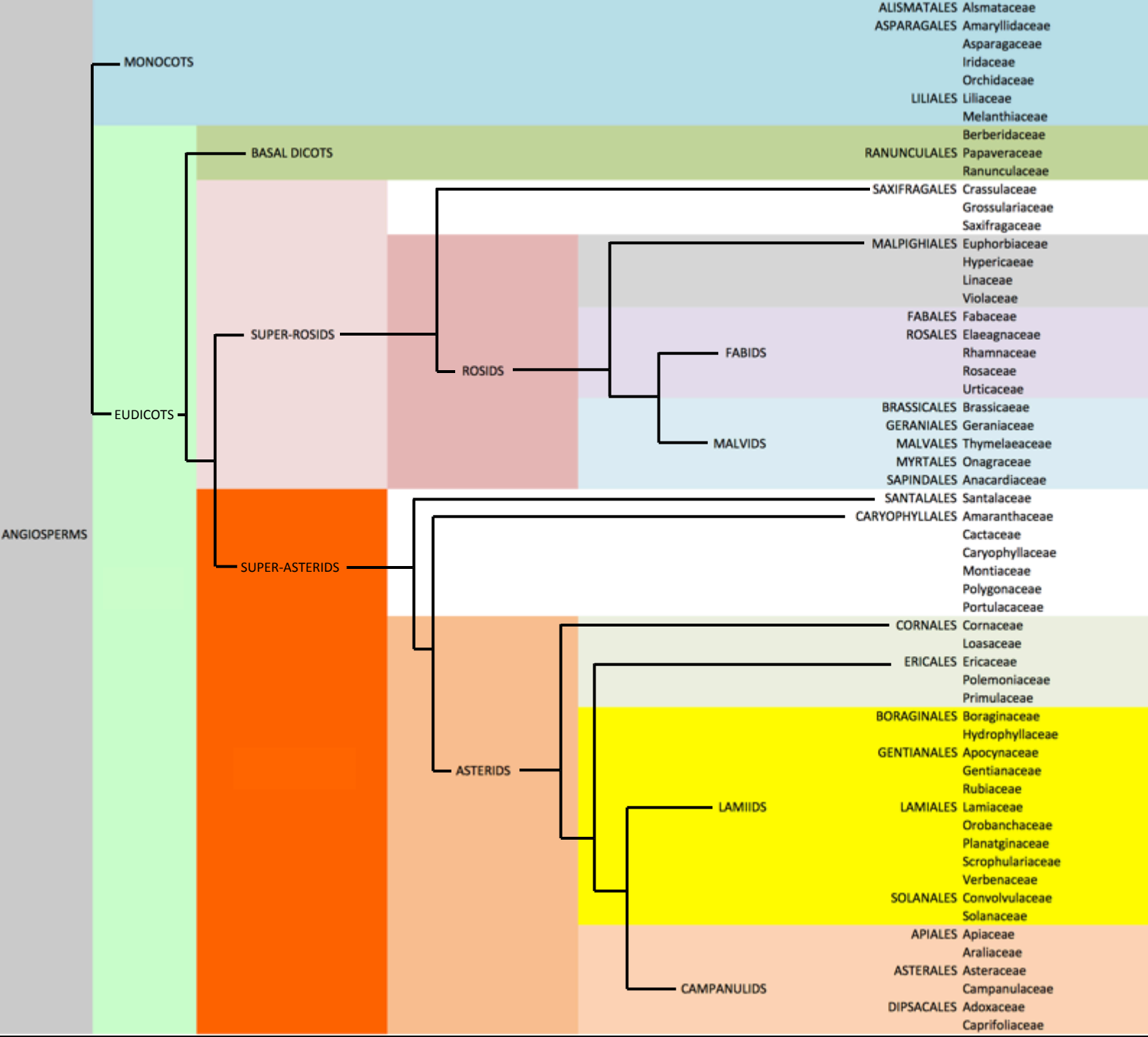
see next 2 pages for a little more detail on plant groups and families

As mentioned above, our understanding of the evolutionary relationships of Angiosperm plants and their corresponding arrangement in their classification has changed substantially in the last 25 years or so. Before that, flowering plants were seen as comprising two clearly distinct lineages – **monocots & dicots** – based on physical characters such as flower and leaf structure (while the relationships among their constituent families was often poorly understood.)

From the study of **DNA-sequence data**, we now know that the monocots are actually nested *among* several lineages of dicot plants, meaning that some dicots are more closely related to the monocots in evolutionary terms than they are to other dicots, despite their morphological similarities, as shown in the preceding tree diagram. The standard modern picture of evolutionary relationships among plant groups is that provided by the Angiosperm Phylogeny Group (APG IV, 2016), followed here and in UBC’s e-Flora



a full picture of the evolutionary classification of families in this album is on the next page



the most recent APG-IV (2016) classification of the families of flowering plants found in our area

only families appearing in this photo-guide are shown here

other 'dicot' angiosperm lineages (e.g. magnolia, water-lily) branch off before the monocots, as shown on previous pages

see [https://en.wikipedia.org/wiki/APG\\_IV\\_system](https://en.wikipedia.org/wiki/APG_IV_system) for the full picture

# Why use scientific (“Latin”) names? or: What’s wrong with common names?

there are two primary reasons why it is more useful to use scientific names in biology:

- ◆ common names are **neither unique nor standardized**; rather they **vary and overlap**; but **scientific (systematic) names are unique, precise & universal**
- ◆ common (a.k.a. vernacular, or vulgar) names are simply **labels** (albeit sometimes descriptive); but **scientific names both identify AND carry information about evolutionary relationships**

as an example, take the vernacular name “*robin*”. what kind of bird is being referred to? depending on where you are, you might be pointing to quite different, totally unrelated birds; all they have in common is some red, or reddish, feathers on their chests (and sometimes not even that). “*Robin*” really says little to nothing about who or what these birds really are; but their scientific names do.



*Erithacus rubecula*, the ‘original’ robin is a member of the large family of Old World flycatchers, the Muscicapidae



*Turdus migratorius*, the American ‘robin’ is actually a thrush in the wide-ranging family Turdidae, which is fairly closely related to Muscicapidae



*Petroica goodenovii*, the Australian Red-capped ‘robin’, is in the strictly Australasian family Petroicidae, only distantly related to the other two here

the same confusion of vernacular names applies even more severely to plants, where the same species might be known by several very different names in different places– or even in the same place! Further, the very same name might be applied to quite different species. These vernacular names rarely give any clear indication of relationships



**lemonweed** puccoon, western stone-seed,  
Columbia gromwell, western gromwell,  
Columbia puccoon

*Lithospermum ruderale*

↑  
genus

↑  
species



**narrowleaf stoneseed**, yellow gromwell,  
fringed gromwell, narrowleaf puccoon,  
plains stone-seed

*Lithospermum incisum*



**corn gromwell**, field gromwell, bastard alkanet

*Lithospermum arvense*

this example refers to three closely related species, well known in our area.

their most frequent vernacular names (around here at least) are given in **this colour**; those names provide no hint that the three species might be closely related to each other

**white text** provides alternative vernacular names, offering the possibility of further confusion

on the other hand, the unique scientific names, **in yellow**, unambiguously refer to one species ONLY, and show these species' close relationship though their being in the same **genus**; the uniqueness of the names leaves no room for ambiguity over what plant is being referred to.

# The scientific naming system – Carl Linnaeus

*its foundations were laid in the mid-eighteenth century, based in careful observation of the details of anatomy, initially of plants*



dressed for fieldwork



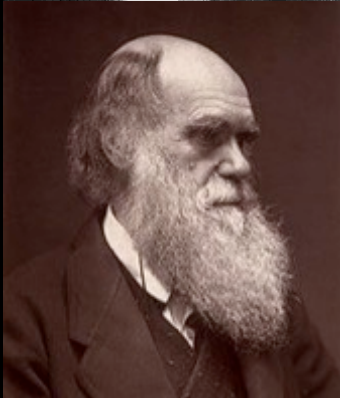
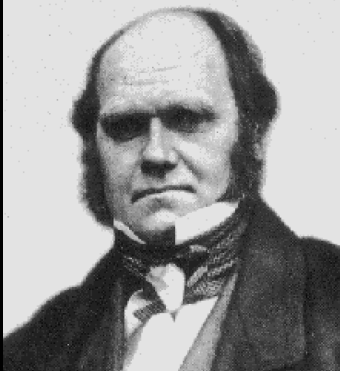
dressed for marriage

- ❖ **systematic naming** of species began with **Linnaeus** (1707 - 1778), a Swedish physician, botanist and zoologist, following his extensive fieldwork in Lapland
- ❖ he saw a '**natural order**' in the **degrees of resemblance** shown by organisms
- ❖ his **hierarchical grouping & naming system** attempted to reflect this order
- ❖ his classification system of **species**, nested successively within **genera**, within **families**, within **orders, classes, phyla & kingdoms**, is *based on the degree of sharing of similar structure in flowers & fruits*
- ❖ species are more **structurally similar** to members of their **own** group than they are to members of any **other** groups at the same level in the classification
  - ❖ as we have seen, all species have a two-part name: **genus + species**
    - ❖ species within a given genus are the most similar of all
- ❖ Latin was the universal language of 'scientists' (but they also used Greek terms; now we use words from many languages)

*but Linnaeus was not an evolutionist;  
he offered no explanation for the existence of the patterns he described*

# Why, then, is there a hierarchy of similarity?

*this was the primary question addressed by the theory of evolutionary change*



- ❖ **Linnaeus** saw the pattern of similarity but didn't know **WHY** it was there
- ❖ like other natural philosophers, he saw it as expressive of 'Divine Providence'
- ❖ this changed dramatically with **Charles Darwin**; he developed a natural explanation for the hierarchy of structural resemblance among organisms
- ❖ he proposed that all life is related by descent; that close similarity reflects close descent from a recent common ancestor
- ❖ the branching structure of descent thus explains the hierarchical, tree-like, pattern of similarity among organisms: closer relatives are more similar to one another than they are to more distant relatives
- ❖ we have seen that all species have a two-part name: *genus + species*
- ❖ species within any given genus are thus each other's closest relatives through evolutionary descent
- ❖ so scientific names are **unique, universal, AND** directly informative of evolutionary relationships

*at left, we see, from top to bottom, images of Charles Darwin in his early 20s, ready for the Beagle voyage; at 50, when *The Origin of Species* was published; and as the venerable patriarch, in his 70s.*

1809 - 1882

# Revisions to the Tree of Life & Classification



Cactaceae  
New World cacti



Euphorbiaceae  
Old World spurges

- ❖ similarity of morphological characters can reflect **both** close evolutionary descent relationship (recent common ancestry) **and** adaptation to **similar conditions**, producing **evolutionary convergence** of form. At left is a striking example of convergence in structure between two unrelated groups of plants in response to the exigencies of life in very arid desert environments: cacti in the New World, spurges in the Old World (there are no native cacti in the Old World).
- ❖ sorting out the ‘meaning’ of characters can therefore be very tricky—even with the floral characters that Linnaeus used
- ❖ analysis of DNA has been very helpful in sorting out this matter, and it has given us new pictures— sometimes strikingly distinct ones— of the structure of life’s tree
- ❖ these new pictures of descent relationships have required revisions in both naming and in grouping— to the question of “*who belongs with whom*”?
  - ❖ thus, many **species** have been moved to other **genera**
  - ❖ many **genera** have been moved to other **families**
  - ❖ and so on, up the hierarchy of life’s tree

**Descent with Modification** was Darwin’s answer to the structure of organismal diversity;  
**Natural Selection** was his answer to the close fit of organisms to conditions



# Changing Neighbours

**Scrophulariaceae**— the figwort family— used to embrace many local species:



*Castilleja*

\*



*Euphrasia*

\*



*Linaria*

\*



*Penstemon*

\*



*Rhinanthus*

\*

but recent DNA work has shown that most of our members of this family properly belong with  
(are more closely related to) two other families— \***Orobanchaceae** \***Plantaginaceae**

leaving one species in the  
**Scrophulariaceae** —  
*Verbascum thapsus*, mullein

