

It's often said that a flora is never truly complete. But this draft is less complete than most. Notably, the three families of graminoids in Poaceae, Cyperaceae, and Juncaceae are still in the process of being reviewed. These keys contain all of the species confirmed for the county and a few that have been collected in the county that I haven't been able to rule out yet. They will likely change substantially from the state they are currently in. Under those families, each genus which is still unfinished is noted. Within those, bolded species names have been confirmed as present in the county. In other families, plants with the ☉ symbol indicate that there have been no collections of these species as of the publication of this draft. However, these are plants I've either found in the county myself and have not yet collected or are the result of credible, high quality iNaturalist observations made by trusted others that I've reviewed and confirmed for accuracy of location. A few are rare plants with CNDDDB records within the county, yet they've never been collected. These plants are on my target list for collecting in the future. But it may be that some are waifs or have been extirpated since being photographed and as such, may never be officially documented with a voucher. I still thought it would be useful to include them in the keys. Plants with the ● symbol indicate plants for which there are collections but whose diagnostic features are not possibly confirmed via herbarium vouchers or existing records are otherwise indeterminable. These plants must be confirmed in situ and I have not found them in the county as of yet. Because there are collections for these plants on record, I thought it would be important to include them regardless. There are very few of these, they are rare or certainly very uncommon in the county, and so I thought it would be a shame to delay publication of this flora waiting for when they may be rediscovered, if ever.

Low elevations refer to areas lower than Grass Valley/North San Juan (below ~2500'). Mid Elevations refer to areas from Grass Valley/North San Juan to Bowman Road (between ~2500 and 5000'). High elevations refer to areas east from there (generally above 5000'). Subalpine areas appear generally 7500' or higher and alpine areas above 8500'.

The keys may not adequately encompass the plant you have in hand and are trying to identify. This could be due to a number of reasons. I elected not to include hybrids in these keys. Known hybrids will be discussed in the final version of this flora. You may have a horticultural plant. It was very difficult to decide which plants from this category to include and which to leave out. Ultimately, the decision ended up being rather arbitrary. Most persistent or naturalized plants are included and some are not. Typically, I included plants found in wild areas and left out those which do not spread in our area, even if they may be problematic elsewhere in California. The last reason your plant may not be included here is because you have a plant which has never been documented in the county before. I encourage you to reach out to me if you have found such a plant. Many plants were added to this flora in the field work this flora required. The odds of more plants needing to be added are high. You can reach me at shanehanofee@gmail.com if you think you have such a find. Additionally, I hold no delusions that this work is immaculate. I accept feedback, corrections, or additional information from anyone wanting to submit any of these, so long as it improves the accuracy and value found within.

Agavaceae

1 Flowers blue, rarely with few white individuals in population - *Camassia*

1' Flowers white

2 Scapes short with flowers near ground level and not much exceeding leaves; far eastern portion of county - *Leucocrinum montanum*

2' Scapes long with flowers held well above and much exceeding leaves; western half of county

3 Leaves distinctly wavy margined; petals long and recurved; common - *Chlorogalum pomeridianum* var. *pomeridianum*

3' Leaves not distinctly wavy margined; petals short and erect; uncommon - *Hastingsia alba*

Camassia

1 Flowers large; pedicels long; tepals usually deciduous in fruit; uncommon - *C. leichtlinii* ssp. *suksdorfii*

1' Flowers smaller; pedicels short; tepals usually persistent in fruit; common - *C. quamash* ssp. *breviflora*

Camassia leichtlinii ssp. *suksdorfii*

Camassia quamash ssp. *breviflora*

Chlorogalum

Chlorogalum pomeridianum var. *pomeridianum*

Hastingsia

Hastingsia alba

Leucocrinum

Leucocrinum montanum

Alismataceae

1 Leaves arrow shaped with two distinct lateral lobes at base - *Sagittaria*

1' Leaves not arrow shaped

- 2 Stamens more than 8; Fruit rounded and appearing spiny - *Echinodorus berteroi*
- 2' Stamens 6; Fruit a whorl of disc-like seeds, not spiny - *Alisma*

Alisma

- 1 Petals pink; leaf bases tapered - *A. lanceolatum*
- 1' Petals white; leaf bases truncate to lobed - *A. triviale*

Alisma lanceolatum

Alisma triviale

Echinodorus

Echinodorus berteroi

Sagittaria

- 1 Lowest node with 2 bisexual flowers; rare - *S. montevidensis* ssp. *calycina*
- 1' Lowest node with 3 female flowers
 - 2 Basal leaf lobes shorter than terminal lobe; fruit point small, on top of fruit, pointing up - *S. cuneata*
 - 2' Basal leaf lobes equal to terminal lobe; fruit point large, on edge of fruit, spreading - *S. latifolia*

Sagittaria cuneata

Sagittaria latifolia

Sagittaria montevidensis ssp. *calycina*

Alliaceae

Allium

- 1 Flowers held close to ground
 - 2 Leaves 1; perianth parts lanceolate, acute, pink with darker midveins; near Washington on serpentine or lava caps - *A. obtusum* var. *conspicuum*
 - 2' Leaves generally 2; perianth parts wider than lanceolate, obtuse; white with darker midveins
 - 3 Leaf margins flat; leaves sickle-shaped; uncommon at eastern end of county - *A. parvum*

- 3' Leaf margins curled up; common at 4000' and above - *A. obtusum* var. *obtusum*
- 1' Flowers held well above ground
 - 4 Inflorescence containing bulblets - *A. vineale*
 - 4' Inflorescence lacking bulblets
 - 5 Stems tall; wet places in the mountains - *A. validum*
 - 5' Stems not particularly tall; generally dry places
 - 6 Leaves wide, sickle-shaped; subalpine habitats - *A. platycaule*
 - 6' Leaves narrow or cylindric; lower than subalpine
 - 7 Perianth parts not alike in size and orientation
 - 8 Leaves 2-3; common - *A. peninsulare* var. *peninsulare*
 - 8' Leaves 1; rare
 - 9 Stigma more or less head-like; perianth margins inrolled, when unrolled, tip acute - *A. sanbornii* var. *sanbornii*
 - 9' Stigma distinctly 3-lobed; perianth parts not inrolled, tip acuminate - *A. sanbornii* var. *congdonii*
 - 7' Perianth parts alike in size and orientation
 - 10 Plants west of crest
 - 11 Ovary crests 0 - *A. hyalinum*
 - 11' Ovary crests 6
 - 12 Flowers white; outer bulb coat cells in herringbone pattern - *A. amplexans*
 - 12' Flowers generally pink with darker crescent near base; outer bulb coat cells not in herringbone pattern
 - 13 Leaves withered in flower; perianth parts keeled - *A. campanulatum*
 - 13' Leaves present at flower; perianth parts not keeled - *A. membranaceum*
- 10' Plants east of crest
 - 14 Stems rather short; perianth parts narrowly lanceolate - *A. anceps*
 - 14' Stems not very short; perianth parts wider
 - 15 Ovary crests obvious, triangular - *A. bisceptrum*
 - 15' Ovary crests not obvious - *A. lemmonii*

Allium amplexans

Allium anceps

Allium bisceptrum

Allium campanulatum

Allium hyalinum

Allium lemmonii

Allium membranaceum

Allium obtusum var. *conspicuum*

Allium obtusum var. *obtusum*

Allium parvum

Allium peninsulare var. *peninsulare*

Allium platycaule

Allium sanbornii var. *congdonii*

Allium sanbornii var. *sanbornii*

Allium validum

Allium vineale

Amaranthaceae

Amaranthus

1 Terminal inflorescence much more developed than axillary inflorescences; leaves large, generally elliptic

2 Terminal inflorescence branches short, rigid, few - *A. powellii*

2' Terminal inflorescence branches long, flexible, many - *A. hybridus*

1' Terminal inflorescence absent or same size as axillary inflorescences; leaves smaller, generally oblanceolate

3 Plant glabrous distally; sepals 1-3 but only 1 well-developed - *A. californicus*

3' Plant woolly distally; sepals 3, rarely 2, and all well-developed

4 Fruit dehiscent; bracts long, spine-tipped - *A. albus*

4' Fruit indehiscent; bracts short, not spine-tipped - *A. deflexus*

Amaranthus albus

Amaranthus californicus

Amaranthus deflexus

Amaranthus hybridus

Amaranthus powellii

Anacardiaceae

1 Terminal leaflet tapered to point of attachment; berries red; inflorescence terminal; flowers sessile - *Rhus aromatica*

1' Terminal leaflet with petiole; berries white with black vertical stripes; inflorescence axillary; flowers pediceled - *Toxicodendron diversilobum*

Rhus

Rhus aromatica

Toxicodendron

Toxicodendron diversilobum

Apiaceae

1 Flowers yellow or purple

2 Flowers purple

3 Plants of vernal pools and similar drying habitats; plants spiny, glaucous - *Eryngium*

3' Plants of grass- and woodlands; not spiny, not glaucous - *Sanicula bipinnatifida*

2' Flowers yellow

4 Fruit ribs winged

5 Only marginal ribs distinctly winged; low to high elevations - *Lomatium*

5' Marginal and ribs on fruit faces both distinctly winged; high elevations -

Cymopterus terebinthinus var. *californicus*

4' Fruit ribs not winged

6 Plants typically tall, 6ft or more in flower; leaf dissections linear and feathery; strongly smelling of anise - *Foeniculum vulgare*

6' Plants much shorter; leaf dissections generally wider than linear and not feathery; strongly smelling often, but carrot-like, not of anise

7 Plants with distinct stem; plants typically small; inflorescence single or small clusters of more or less rounded heads; leaves palmately lobed to pinnately compound; when compound, dissections generally narrow; low to high elevations - *Sanicula*

7' Stem absent; flowers on long peduncle extending above leaves; plants typically robust; inflorescence a flat-topped compound umbel; leaves pinnately compound; leaf

dissections broad; low to mid elevations - *Tauschia hartwegii*

1' Flowers white or green

8 Plants spiny, glaucous, of vernal pools and other drying places - *Eryngium*

8' Plants not spiny, color various, habitat various

9 Leaves broadly dissected; leaflets generally wide (somewhat narrow in *Ligusticum grayi*)

10 Leaves 1-pinnate - *Berula erecta*

10' Leaves simple, ternate, or 2 or more times pinnate, not 1-pinnate

11 Fruit linear - *Osmorhiza*

11' Fruit round or oblong

12 Leaf segments lanceolate, serrate, unlobed

13 Plants hairy; plants of wet and dry habitats; if habitat wet, inflorescence globose - *Angelica*

13' Plants glabrous; plants of wet habitats; inflorescence hemispheric - *Cicuta douglasii*

12' Leaf segments not lanceolate, toothed and lobed

14 Plants very large and robust; outer petals dissimilar to inner -

Heracleum maximum

14' Plants medium sized; petals all similar - *Ligusticum*

9' Leaves narrowly dissected; leaflets narrow (wider in *Perideridia howellii*)

15 Fruits with prickles

16 Fruit with short, smooth nub at tip - *Anthriscus caucalis*

16' Fruit prickles covering full length of fruit

17 Inflorescence bracts small, not leaf-like - *Torilis*

17' Inflorescence with whorl of large, leaf-like bracts at base

18 Flowers many in flat topped umbel - *Daucus*

18' Flowers few; umbel not flat-topped - *Yabea microcarpa*

15' Fruits lacking prickles

19 Fruits long and needle-like - *Scandix pecten-veneris*

19' Fruits round to elliptic

20 Plants of wet habitats; stems splotched in purple - *Conium maculatum*

20' Plants of dry habitats; stems lacking purple splotches or stems absent

21 Plants hairy or glabrous; stem often absent or short, typically prostrate to ascending or clumped; leaves mostly basal; if cauline leaves present, then like basal - *Lomatium*

21' Plants glabrous; stem 1, distinct, tall and erect; leaves basal and cauline, generally dissimilar - *Perideridia*

Angelica

1 Plants of dry conifer forests; inflorescence heads hemispheric - *A. breweri*

1' Plants of wet habitats; inflorescence heads globose - *A. capitellata*

Angelica breweri

Angelica capitellata

Anthriscus

Anthriscus caucalis

Berula

Berula erecta

Cicuta

Cicuta douglasii

Conium

Conium maculatum

Cymopterus

Cymopterus terebinthinus var. californicus

Daucus

1 Annual; bracts typically exceeding inflorescence; center flower white; uncommon in grasslands - *D. pusillus*

1' Biennial; bracts typically not exceeding inflorescence; center flower often purple; common in disturbed habitats - *D. carota*

Daucus carota

Daucus pusillus

Eryngium

1 Stem absent; east side of crest - *E. alismifolium*

1' Stem present; low elevations on west side of crest - *E. castrense*

Eryngium alismifolium

Eryngium castrense

Foeniculum

Foeniculum vulgare

Heracleum

Heracleum maximum

Ligusticum

1 Rays 18 or fewer; leaflets narrow; common at high elevations - L. grayi

1' Rays 16 or more; leaflets wide; rare - L. californicum

Ligusticum californicum

Ligusticum grayi

Lomatium

1 Mature flowers white (occasionally cream or purple in L. macrocarpum)

2 Inflorescence bractlets absent or few and minute; fruit inflated and not divided to axis
- L. fusiformis

2' Inflorescence bractlets present and distinct; fruit not inflated, divided to axis

3 Inflorescence bractlets reflexed; plants primarily of serpentine on west side of crest
- L. macrocarpum

3' Inflorescence bractlets not reflexed; plants primarily of sagebrush habitats on east side of crest - L. nevadense var. nevadense

1' Mature flowers yellow

4 Leaf segments few, large, wide; stem swollen at branching point - L. nudicaule

4' Leaf segments many or if few, segments linear; stems not swollen at branching point

5 Plants of high elevations and east end of county - L. multifidum

5' Plants of low elevations, west end of county

6 Plants tall and robust, to 7' tall; fruits thick winged - L. dissectum

6' Plants usually short, generally not more than 2' tall; fruits thin winged

7 Leaf segments few, long, linear; plants generally of gabbro soils - L.

marginatum var. marginatum

7' Leaf segments many, short, generally wider than linear; habitat variable;
common - L. utriculatum

Lomatium dissectum

Lomatium fusiformis

Lomatium macrocarpum

Lomatium marginatum var. *marginatum*

Lomatium multifidum

Lomatium nevadense var. *nevadense*

Lomatium nudicaule

Lomatium utriculatum

Osmorhiza

1 Fruit ribs glabrous; flowers yellow - *O. occidentalis*

1' Fruit ribs bristly; flowers green or white

2 Flowers white; fruit with narrow projection at one end; leaflets not small, few; common - *O. berteroi*

2' Flowers green; fruit lacking narrow projection; leaflets small, many; uncommon - *O. brachypoda*

Osmorhiza berteroi

Osmorhiza brachypoda

Osmorhiza occidentalis

Perideridia

1 Leaflets wide; to 4cm in width; leaves fern-like - *P. howellii*

1' Leaflets narrow; rarely more than 1.5cm in width; leaves not fern-like

2 Pedicels unequal in length, at least in fruit

3 Flower clusters more or less globose; basal leaves with many pairs of leaflets - *P. bacigalupii*

3' Flower clusters more or less flat-topped; basal leaves with 1 or 2 pairs of leaflets - *P. lemmonii*

2' Pedicels all equal in length

4 Plants of high elevations

5 Fruit 4mm or longer; inflorescence bractlets 2-12, 3-12mm long; basal leaf pairs generally many

- *P. bolanderi* ssp. *bolanderi*

5' Fruit 3.5mm or shorter; inflorescence bractlets 0-2, bristle-like; basal leaf pairs

1-3 - *P. parishii* ssp. *latifolia*

4' Plants of low elevations

6 Basal leaves with 1 or 2 pairs of leaflets; styles 2mm long - *P. bolanderi* ssp. *involucrata*

6' Basal leaves with 3-5 pairs of leaflets; styles 1mm or shorter - *P. kelloggii*

Perideridia bacigalupii

Perideridia bolanderi ssp. *bolanderi*

Perideridia bolanderi ssp. *involucrata*

Perideridia howellii

Perideridia kelloggii

Perideridia lemmonii

Perideridia parishii ssp. *latifolia*

Sanicula

1 Main axis of leaf winged - *S. bipinnatifida*

1' Main axis of leaf unwinged or leaf palmately lobed to palmately compound

2 Leaf palmately lobed to palmately compound - *S. crassicaulis*

2' Leaf pinnately compound

3 Staminate flowers conspicuously extending well past fruit; fruit tubercled - *S. tuberosa*

3' Staminate flowers not conspicuously extending past fruit; fruit with hooked prickles

4 Leaves well distributed along stem; plant more or less erect; common in grasslands - *S. bipinnata*

4' Leaves mostly basal; plant spreading; common at mid to high elevations in conifer forest openings - *S. graveolens*

Sanicula bipinnata

Sanicula bipinnatifida

Sanicula crassicaulis

Sanicula graveolens

Sanicula tuberosa

Scandix

Scandix pecten-veneris

Tauschia

Tauschia hartwegii

Torilis

1 Umbel dense and head-like; inflorescence typically in leaf axils; flowers generally sessile - T. nodosa

1' Umbel open; inflorescence generally terminal; flowers pedicelled - T. arvensis

Torilis arvensis

Torilis nodosa

Yabea

Yabea microcarpa

Apocynaceae

1 With milkweed flowers; petals free and reflexed, filaments and anthers fused forming a column; hoods present; horns present (except in A. cordifolia) - Asclepias

1' Flowers unlike milkweed; petals fused and not reflexed or only recurved at tips; filaments and anthers not fused; hoods and horns absent

2 Sap milky; flowers small, white or pink; generally wild areas - Apocynum

2' Sap not milky; flowers large, purple; generally places with human influence – Vinca major

Apocynum

1 Plants short, arching; dry habitats; leaves dark green; flowers with red-pink tones; corolla lobes spreading to recurved - A. androsaemifolium

1' Plants tall, straight; wet habitats; leaves light green; flowers white to green; corolla lobes erect - A. cannabinum

Apocynum androsaemifolium

Apocynum cannabinum

Asclepias

- 1 Flowers deep purple; stems often spreading; herbage usually with purple tints; horns absent - *A. cordifolia*
- 1' Flowers white to pink; stems mostly erect; herbage green or whitish in color; horns present
 - 2 Herbage green; leaves narrow, generally linear; horns longer than hoods; flowers small - *A. fascicularis*
 - 2' Herbage white-hairy; leaves wider; horns equaling or shorter than hoods; flowers larger
 - 3 Hoods very long and pointed; common - *A. speciosa*
 - 3' Hoods short and rounded; rare - *A. eriocarpa*

Asclepias cordifolia

Asclepias eriocarpa

Asclepias fascicularis

Asclepias speciosa

Vinca

Vinca major

Araceae

- 1 Roots present - *Lemna*
- 1' Roots absent - *Wolffia*

Lemna

- 1 Plant longer than 6mm; with stalk at base - *L. triscula*
- 1' Plant shorter than 6mm; stalk absent
 - 2 Lower surface convex, swollen, with large air-filled cells - *L. gibba*
 - 2' Lower surface more or less flat
 - 3 Plant 2-5mm; veins 3 or 5 (visible best when dry); glossy green - *L. minor*
 - 3' Plant 1-2.5mm; veins 1 or inconspicuous (visible best when dry); pale green - *L. minuta*

Lemna gibba

Lemna minor

Lemna minuta

Lemna trisulca

Wolffia

1 Top surface smooth, convex - *W. columbiana*

1' Top surface with conic projection - *W. brasiliensis*

Wolffia brasiliensis

Wolffia columbiana ●

Araliaceae

1 Vine - *Hedera helix*

1' Perennial herb

2 Plants tall; leaves large, compound, and petiolate - *Aralia californica*

2' Plants very short; leaves round and perfoliate; groundcover - *Hydrocotyle verticillata*

Aralia

Aralia californica

Hedera

Hedera helix

Hydrocotyle

Hydrocotyle verticillata

Aristolochiaceae

1 Vine; flowers curved, bilaterally symmetric; sepals fused; borne in leaf axils along stems - *Aristolochia californica*

1' Low perennial herb; flowers not curved, radial; sepals free; borne under leaves close to ground - *Asarum*

Aristolochia

Aristolochia californica

Asarum

1 Leaves green; flowers small and hairless; sepals short; rhizomatous, forming extensive populations in wet habitats - *A. lemmonii*

1' Leaves green or with white veins; flowers larger and distinctly hairy; sepals elongate; plants usually clumped in dry habitats - *A. hartwegii*

Asarum hartwegii

Asarum lemmonii

Asteraceae

Keying an aster is no easy task so buckle up! Most of the following are artificial groupings made to assist anyone in narrowing down the possibilities in what is an absolutely enormous family. If plants could fall into more than one group, I did my best to treat them in all applicable groups. There is a whole slew of specialized vernacular you'll need to engage with. Each inflorescence is made of one or more heads each encased in a whorl of usually leafy bracts singularly called phyllaries but together called an involucre. Phyllaries may be equal in length or unequal in length and they may be graduated or not. Graduated phyllaries have the tips of each series of phyllaries overlapping like shingles on a roof. The involucres with phyllaries that are not graduated appear more cup-like. The number of series can be an important identification character. Each individual flower in a head is called a floret but the term flower is often still used interchangeably. Florets may be ligulate meaning they are long, unsymmetrical and strap-shaped. They may be discoid meaning they are tubular and symmetrical. Disciform florets are similarly tubular like discoid florets but they are unsymmetrical with one end of the tube elongated. Below each fertile floret is a seed and most members of Asteraceae have an appendage on the seed called a pappus. They may be many different shapes and sizes. Scales, hairs, feathery, etc. The seeds are attached at their base to the receptacle. Some species have membranous bits between the florets and attached to the receptacles called palea.

Key to groups

1 Shrubs; plants woody at least at base - Group 1

1' Plants herbaceous

2 All florets ligulate - Group 2

2' Some or all florets not ligulate

3 Inflorescence discoid, stubby and wide, usually nodding discs; individual florets small, not showy; often with fruits large and distinctly spiny or with hooked burs - Group 3

3' Plants not as above

4 Some or all of plant spiny, sometimes only on phyllaries or phyllary margins; involucre ovate to bottle-shaped; inflorescence disciform to discoid (Arctium not spiny except involucre densely coated in large hooked burs) - Group 4

4' Plants not as above

5 Plants usually densely woolly tomentose with discoid inflorescences; often narrowed, often with individual flowers difficult to discern, often with shiny, translucent phyllaries and/or inflated woolly paleae - Group 5

5' Plants not as above

6 Inflorescences discoid - Group 6

6' Inflorescences with ray florets

7 Ray florets white; disc florets not yellow - Group 7

7' Ray florets not white and/or disc florets yellow

8 Plants daisy-like with various colored rays, including white, and with yellow disc flowers, rays lacking any yellow coloration - Group 8

8' Rays yellow

9 Plants often densely glandular; almost always densely hairy, rays often 3 lobed - Group 9

9' Plants generally glabrous or sparsely hairy; rarely significantly glandular; remaining plants with yellow coloration on rays including Gaillardia which can have red rays with yellow only at the tips - Group 10

Group 1: Shrubs

1 Flowers ligulate; plants spiny; flowers pink to purple; eastern edge of county - *Pleiocanthus spinosus*

1' Flowers not ligulate; plants not spiny; flowers yellow or white (occasionally pink-purple in *Ageratina occidentalis*)

2 Plants of low elevations on west end of county

3 Flowers white - *Baccharis*

3' Flowers yellow - *Ericameria arborescens*

2' Plants of high elevations and/or east end of county; flowers various

4 Heads radiate

5 Leaves strongly serrate - *Adiea whitneyi*

5' Leaves entire - *Ericameria*

4' Heads discoid

6 Inflorescence elongate, spike, raceme, or panicle like; leaves 3-lobed at tip or not - *Artemisia*

6' Inflorescence an open, long branched cyme; leaves lanceolate, unlobed - *Doellingeria breweri*

6'' Inflorescence short branched raceme or short clusters or flowers single

- 7 Leaf margins variously toothed; leaves broad
- 8 Leaves oblong; flowers yellow; fruits angled; phyllaries graduated in size -
Adiea whitneyi
- 8' Leaves ovate to deltate; flowers pale yellow to white; fruits 10 ribbed;
phyllaries graduated in size - Brickiella
- 8" Leaves ovate to deltate; flowers white to pink-purple; fruits 5 ribbed;
phyllaries equal - Ageratina occidentalis
- 7' Leaf margins entire; leaves linear or not much wider
- 9 Phyllaries graduated in 1-2 series; plants not sticky or glandular -
Tetradymia canescens
- 9' Phyllaries graduated in 2-7 series; plants usually sticky and glandular
- 10 Leaves short, wider than linear, or if long and linear, stems densely
gray-tomentose - Ericameria
- 10' Leaves long, strap-shaped to linear, often curling or wavy, green -
Chrysothamnus

Group 2: Ligulates

- 1 Flowers pink or red - Agoseris aurantiaca var. aurantiaca
- 1' Flowers orange
 - 2 Fruit beaked - Agoseris aurantiaca var. aurantiaca
 - 2' Fruit not beaked - Hieracium aurantiacum
- 1" Flowers blue
 - 3 Pappus of scales; flowers sessile along more or less leafy stems - Cichorium intybus
 - 3' Pappus of bristles; flowers in open cyme- or panicle-like terminal inflorescences -
Lactuca
- 1''' Flowers purple
 - 4 Flowers smaller; plants erect or squat or somewhat bushy; highly branched, at least
distally; phyllaries not exceeding ligules - Stephanomeria
 - 4' Flowers larger; plants erect, generally unbranched; phyllaries exceeding ligules -
Tragopogon porrifolius
- 1'''' Flowers white
 - 5 Stems hairy along entire length; leaves entire or toothed - Hieracium albiflorum
 - 5' Stems glabrous distally; leaves deeply lobed - Malacothrix floccifera
- 1''''' Flowers yellow or cream
 - 6 Leaves all basal, occasionally with bract-like cauline leaves
 - 7 Heads few-many per stem
 - 8 Perennial; all fruits lacking beaks; few-many heads per stem; receptacle lacking
paleae - Hieracium
 - 8' Annual or perennial; inner fruits beaked; few heads per stem; receptacle with
thin membranous paleae - Hypochaeris
 - 7' Heads 1 per stem
 - 9 Plants entirely glabrous

- 10 Pappus absent; leaves entire; wet habitats - *Phalacroseris bolanderi*
- 10' Pappus present; leaves entire or more often lobed or toothed; wet or dry habitats - *Agoseris*
- 9' Plants hairy at least below heads or along stems
- 11 Leaves entire or wavy-margined; not toothed; pappus of scales
- 12 Plants on east side of crest; pappus scales smoothly tapered to tip - *Nothocalais troximoides*
- 12' Plants on west side of crest; pappus scales abruptly narrowed near tip - *Uropappus lindleyi*
- 11' Leaves variously lobed or toothed (occasionally more or less entire in *Agoseris glauca* var. *glauca*); pappus of hair-like bristles (pappus of scales in *Uropappus lindleyi*)
- 13 Receptacle with thin membranous paleae; peduncles bracted; scape branched or not; weedy plants of low elevations - *Hypochaeris*
- 13' Receptacle lacking paleae; peduncles unbracted; scapes unbranched; weedy plants or not; at low elevations or not
- 14 Phyllaries exceeding ligules; pappus of scales - *Uropappus lindleyi*
- 14' Phyllaries not exceeding ligules; pappus of hair-like bristles
- 15 Inner and outer phyllaries more or less equal in length - *Agoseris*
- 15' Outer phyllaries much smaller than inner
- 16 Leaves stiff-bristly hairy; hairs branched, with bulbous bases; weedy at low elevations - *Leontodon*
- 16' Leaves glabrous to sparsely woolly hairy, not bristly; weedy at all elevations - *Taraxacum officinale*
- 6' Leaves some or all cauline, well-developed
- 17 Pappus absent - *Lapsana communis*
- 17' Pappus present
- 18 Pappus of scales, widened at base or throughout
- 19 Phyllaries exceeding ligules; pappus abruptly narrowed near tip - *Uropappus lindleyi*
- 19' Phyllaries not exceeding ligules; pappus narrowed near base or smoothly tapered to tip
- 20 Heads 1-many per stem; herbage bristly; pappus of inner and outer fruits dissimilar - *Hedypnois rhagadioloides*
- 20' Heads 1 per stem; herbage not bristly; pappus of inner and outer fruits similar - *Microseris*
- 18' Pappus of fine, hair-like bristles
- 21 Fruits not beaked
- 22 Plants glabrous; more or less spiny; cauline leaves distinctly clasping stem - *Sonchus*
- 22' Plants generally hairy; not spiny; cauline leaves not distinctly clasping stem - *Hieracium*
- 21' Fruits beaked
- 23 Heads 1 per branch, terminal

- 24 Leaves linear; phyllaries longer than ligules; phyllaries smooth -
Tragopogon dubius
- 24' Leaves wider than linear; phyllaries shorter than ligules; phyllaries
bristly - Urospermum picroides
- 23' Heads many per branch
- 25 Inflorescence spike-like; cauline leaves linear, entire - Chondrilla
juncea
- 25' Inflorescence cyme- or panicle-like; cauline leaves broad; lobed to
toothed
- 26 Perennial; leaves generally woolly-hairy; not prickly - Crepis
- 26' Annual to biennial; leaves prickly, sparsely hairy, or glabrous
- 27 Seeds flattened; leaves prickly or not - Lactuca
- 27' Seeds not flattened; leaves sparsely hairy to glabrous; never
prickly hairy - Crepis capillaris

Group 3: Ambrosioids

- 1 Stems spiny - Xanthium spinosum
- 1' Stems not spiny
 - 2 Leaves deeply lobed to dissected with narrow segments - Ambrosia
 - 2' Leaves entire to toothed, if lobed then shallowly
 - 3 Annual plants of wet habitats; fruits large, with hooked barbs; leaves large, cordate -
Xanthium orientale
 - 3' Perennial plants of dry habitats; fruits small, unarmed; leaves small, elliptic to
spoon-shaped - Iva axillaris

Group 4: Thistles

- 1 Inflorescence ligulate - Sonchus
- 1' Inflorescence discoid or disciform
 - 2 Stems spiny winged
 - 3 Stems strongly winged, plants sticky glandular or densely woolly - Onopordum
 - 3' Stems narrowly winged or if strongly winged, then not sticky glandular or densely
woolly - Carduus
 - 2' Stems smooth or stems absent and plants rosetted
 - 4 Leaves not spiny on faces or margins
 - 5 Phyllaries with hooked tips - Arctium minus
 - 5' Phyllaries with tips not hooked - Centaurea
 - 4' Leaves spiny on faces or margins
 - 6 Flowers yellow - Carthamus lanatus
 - 6' Flowers not yellow
 - 7 Leaves strongly white-mottled; pappus of barbed bristles; low elevations -
Silybum marianum

7' Leaves not strongly white-mottled; pappus of long-plumose bristles; all elevations - *Cirsium*

Group 5: Everlastings

1 Perennials

2 Plants rhizomatous herbs, patch forming; leaves mostly cauline, green; high elevations - *Anaphalis margaritacea*

2' Plants stolonated or single, sometimes mat-forming; sometimes more or less woody at base; leaves mostly basal, silvery; high elevations - *Antennaria*

2'' Plants short lived perennial, fibrous-rooted; leaves basal and cauline; silvery; disturbed habitats at low elevations - *Gamochaeta*

2''' Plants taprooted; leaves mostly cauline; silvery or if green, plants of low elevations; dry habitats at all elevations - *Pseudognaphalium*

1' Annuals

3 Paleae spreading; heads immediately subtended by whorl of leaves; stems absent or inconspicuous - *Hesperis matronalis* var. *acaulis*

3' Paleae erect or absent; heads not subtended by whorl of leaves; stems present, sometimes short

4 Paleae swollen, ovoid, clustered so as to resemble a white raspberry, sometimes obscured by woolly hairs

5 Plants thin, erect; resembling Q-tips; dry habitats, generally in grasslands - *Micropus californicus* ssp. *californicus*

5' Plants stout, short; resembling little woolly marbles; drying habitats, vernal pools - *Psilocarphus*

4' Paleae not as above

6 Heads narrowed at tips to nearly a point; plants small and erect – *Logfia gallica*

6' Heads narrowed or not but not to a point, generally cylindrical; plants small or not, erect or not

7 Flowers in dense spikes; plants small; phyllaries with green, brown, or purple; disturbed habitats - *Gamochaeta*

7' Flowers in dense heads; plants small to very small, sprawling to prostrate; phyllaries white, occasionally more or less brownish; drying wet habitats - *Gnaphalium palustre*

7'' Flowers in more or less open branched clusters; plants generally larger, erect to ascending; phyllaries white; generally dry habitats, disturbed or otherwise - *Pseudognaphalium*

Group 6: Discoids

1 Plant mat-forming; flowers enveloped by spiky sheaths and not visible without dissection; leaves finely dissected; generally hard-packed ground at low-elevations - *Soliva sessilis*

1' Plants not as above

- 2 Flowers white, pink, purple, or blackish purple
 - 3 Flowers blackish purple, anthers yellow; receptacle conic to nearly cylindrical; plants of wet meadows - *Rudbeckia occidentalis*
 - 3' Plants not as above
 - 4 Leaves deeply lobed or dissected; plants of high elevations or sagebrush scrub - *Chaenactis*
 - 4' Leaves simple
 - 5 Leaves mostly basal; cordate, green adaxially, white abaxially; flowers white; plants of shady conifer forest understory - *Adenocaulon bicolor*
 - 5' Leaves mostly cauline; linear to ovate; flowers pink or white
 - 6 Involucres widened at base, vase-shaped; phyllaries scarious; styles exerted; plants glabrous to sparse-hairy to puberulent or woolly-hairy - *Rhaponticum repens*
 - 6' Involucres narrowly cylindrical; phyllaries not scarious; styles not exerted; plants generally densely woolly-hairy and often glandular - *Lessingia*
 - 2' Flowers yellow, sometimes pale
 - 7 Phyllary margins toothed and/or spine-tipped - *Centaurea*
 - 7' Phyllary margins entire
 - 8 Plants small annuals of disturbed habitats; leaves finely dissected; receptacles conic - *Matricaria discoidea*
 - 8' Plants not as above
 - 9 Plants tall annuals of riparian habitats; outer phyllaries leaf-like and strongly spreading - *Bidens*
 - 9' Plants not as above
 - 10 Inflorescence a flat-topped cluster; leaves pinnately divided, midribs winged, margins serrate; disturbed habitats
 - 11 Herbage green; heads wide, flat, button-like, not dense - *Tanacetum vulgare*
 - 11' Herbage silvery; heads narrow, cylindrical, small, dense - *Achillea filipendulina*
 - 10' Plants not as above
 - 12 Outer phyllaries much smaller than inner
 - 13 Fruits strongly ribbed; phyllary tips green or red; leaves basal and cauline; east side of crest - *Packera*
 - 13' Fruits angled or weakly ribbed; phyllary tips green or black; leaves basal and/or cauline; both sides of crest - *Senecio*
 - 12' Phyllaries more or less equal in length
 - 14 Plants rhizomatous perennials
 - 15 Flowers small; inflorescence elongate, narrow; herbage woolly hairy, often densely so - *Artemisia*
 - 15' Flowers larger; inflorescence open, branched or flowers 1; herbage hairy but not woolly - *Arnica*
 - 14' Plants annual or perennial, not rhizomatous
 - 16 Pappus absent - *Madia*
 - 16' Pappus present

- 17 Tall, erect, leafy annuals; typically of disturbed habitats
 18 Leaves clasping, margins coarsely serrate - *Laennecia coulteri*
- 18' Leaves not clasping, margins entire, serrate, or lobed - *Erigeron*
- 17' Plants not as above
 19 Basal leaves deeply lobed (occasionally entire in *Eriophyllum lanatum*)
- 20 Leaves mostly basal; divided at tips; phyllaries narrow, glandular; sub- to alpine habitats - *Erigeron compositus*
- 20' Leaves mostly cauline; divided evenly; phyllaries generally broad, woolly-hairy; habitats various, including sub- to alpine - *Eriophyllum lanatum*
- 19' Basal leaves entire or toothed but not deeply lobed
 21 Phyllaries equal in length
 22 Phyllaries strongly curved around outer fruits; cauline leaves opposite proximally; low to mid-elevation woodland - *Anisocarpus madioides*
- 22' Phyllaries not strongly curved around outer fruits; leaves alternate or all basal
 23 Leaves basal; heads 1 - *Erigeron bloomeri* var. *bloomeri*
- 23' Leaves mostly cauline; heads many
 24 Heads narrow, cylindrical; mid to high elevation woodland - *Doellingeria breweri*
- 24' Heads wide, hemispheric; habitat and elevation various - *Erigeron divergens*
- 21' Phyllaries strongly graduated in several distinct series
 25 Annual to short-lived perennial; phyllaries white margined at base, tips spreading - *Dieteria canescens* ssp. *shastensis*
- 25' Perennial; phyllaries not white-margined at base, tips not spreading - *Erigeron*

Group 7: White Rayed

- 1 Leaves deeply lobed to dissected, fern-like and feathery - *Achillea millefolium*
- 1' Leaf entire
 2 Leaves elliptic or wider; all parts non-glandular; plants of woodland habitats tending towards higher elevations; phyllaries strongly graduated - *Sericocarpus oregonensis* ssp. *californicus*
- 2' Leaves linear or a bit wider; herbage glandular, at least on phyllaries; plants of grasslands at low elevations; phyllaries equal

- 3 Ray lobes equal; rare - *Holozonia filipes*
- 3' Central ray lobe much smaller than lateral lobes; common - *Calycadenia multiglandulosa*

Group 8: Asters

- 1 Pappus absent or short; rays white
 - 2 Leaves deeply dissected
 - 3 Annual; plants strongly scented - *Anthemis cotula*
 - 3' Perennial; plants not strongly scented - *Tanacetum parthenium*
 - 2' Leaves simple
 - 4 Perennial; leaf margins toothed - *Leucanthemum vulgare*
 - 4' Annual; leaf margins entire - *Bellis perennis*
- 1' Pappus present, made of long bristles; rays white or shades of blue, purple
 - 5 All phyllaries green throughout
 - 6 Heads 1; leaves mostly basal; plants typically of mountain meadows; pappus in 1 series; fruits with 5-10 ribs - *Oreostemma alpigenum* var. *andersonii*
 - 6' Heads 1 to many but generally more; leaves basal and/or cauline; plants of various habitats and elevations including mountain meadows; pappus in 2 series, outer short, inner long; fruits with 2 ribs - *Erigeron*
 - 5' At least some phyllaries with white margins near base
 - 7 Annual or short-lived perennial from taproot or caudex - *Dieteria*
 - 7' Perennial from rhizome
 - 8 Fruit ribs 7-10; phyllaries never equal - *Eurybia*
 - 8' Fruit ribs 2-6; phyllaries equal or not - *Symphyotrichum*

Group 9: Tarweeds

- 1 Inflorescences discoid
 - 2 Plants mat-forming; herbage silvery; alpine - *Raillardella argentea*
 - 2' Plants not mat-forming; mid to high elevations,
 - 3 Leaves entire, lanceolate or generally wider, opposite; plants long hairy, generally glandular - *Arnica*
 - 3' Leaves deeply cut, rarely linear and entire, alternate distally; plants woolly-hairy at least on leaves abaxially - *Eriophyllum*
- 1' Inflorescences radiate (rays sometimes inconspicuous in *Madia*)
 - 4 Plants of mid to high elevations, conifer forests or above
 - 5 Leaves deeply cut, rarely entire and linear; plants woolly hairy at least on leaves abaxially - *Eriophyllum*
 - 5' Leaves entire, lanceolate or wider; hairs various
 - 6 Distal-most leaves opposite - *Arnica*
 - 6' Distal-most leaves alternate
 - 7 Perennials

- 8 Anthers yellow or brown; ray fruit beaked; tending to lower elevations -
Anisocarpus madioides
- 8' Anthers purple; ray fruit not beaked; tending to higher elevations -
Kyhosia bolanderi
- 7' Annuals
- 9 Disc flower 1; anthers yellow; ray fruit compressed back to front; plants very small; paleae deciduous in fruit - *Hemizonella minima*
- 9' Disc flower 1 to many, generally more than 1; anthers yellow or purple or brown; ray fruit compressed side to side; plants typically larger; paleae persistent in fruit -
Madia
- 4' Plants of low elevations, typically of grasslands or oak woodlands
- 10 Ray flowers white or white tipped
- 11 Central tooth of ray flower much smaller than either lateral tooth - *Calycadenia multiglandulosa*
- 11' All ray flower teeth similar sized
- 12 Flowers white; perennial - *Holozonia filipes*
- 12' Flowers white tipped, yellow at base; annual - *Layia*
- 10' Ray flowers entirely yellow
- 13 Leaves firm, sharp, spiky - *Centromadia*
- 13' Leaves not as above
- 14 Rays small; flowers not showy
- 15 Pappus of conspicuous spreading papery bracts - *Achyrrachaena mollis*
- 15' Pappus absent - *Madia*
- 14' Rays conspicuous; flowers showy
- 16 Plants not glandular; plants glabrous, sparsely hairy, or woolly hairy
- 17 Leaves glabrous or sparsely hairy, entire - *Lasthenia californica* var.
californica
- 17' Leaves generally woolly hairy; leaves often deeply cut
- 18 Perennial; inner fruits angled; outer fruits angled or compressed -
Eriophyllum
- 18' Annual; all fruits compressed - *Pseudobahia heermannii*
- 16' Plants glandular or if not glandular, plants densely coarse hairy, not
woolly
- 19 Disc flowers forming fruit
- 20 Tack glands present; all or nearly all hairs glandular; stems mostly smooth and glabrous, especially proximally - *Calycadenia truncata*
- 20' Tack glands absent; glandular distally or not glandular; plants densely coarse hairy - *Jensia rammii*
- 19' Disc flowers not forming fruit
- 21 Flowers small, lacking red markings; rays 5; disc flowers 6; fruit compressed front to back - *Lagophylla*
- 21' Flowers large; often with red markings near center; rays 5-22; disc flowers 25-many; fruit compressed side to side - *Madia elegans*

Group 10: Yellow Rayed

- 1 Ray flowers mostly red or purple or with red or purple at base - Gaillardia
- 1' Ray flowers entirely yellow
 - 2 Leaves mostly basal, cauline leaves few to none or strongly reduced
 - 3 Plants mat-forming; sub- to alpine - *Stenotus acaulis*
 - 3' Plants not mat-forming
 - 4 Outer phyllaries much smaller than inner, often black-tipped; basal leaves generally not very long or broad - *Senecio*
 - 4' Phyllaries more or less equal in length, often leaf-like; basal leaves generally very long, sometimes broad as well
 - 5 Leaf bases cordate or leaf margins highly irregularly dissected
 - 6 Leaf bases cordate or leaf margins highly irregularly dissected; phyllaries often more or less leaf-like, not strongly graduated, tips often spreading to reflexed; pappus absent; receptacle with paleae - *Balsamorhiza*
 - 6' Leaf margins highly dissected; pappus present; phyllaries not leaf-like, strongly graduated, tips erect; receptacle lacking paleae - *Pyrrocoma apargioides*
 - 5' Leaf bases tapered and margins entire
 - 7 Leaves lanceolate; flower heads with 1-2 leaf-like, elongate, linear bracts immediately subtending head - *Helianthella californica* var. *nevadensis*
 - 7' Leaves broader; flower heads without such bracts - *Wyethia*
 - 2' Leaves mostly cauline or basal and cauline present, generally many cauline and well-developed
 - 8 Small annuals of grasslands; disc generally with stamens oozing white, pollen filled liquid - *Blennosperma nanum* var. *nanum*
 - 8' Plants not as above
 - 9 Plants of wet habitats
 - 10 Heads strongly globose or conic - *Helenium*
 - 10' Heads not strongly globose or conic
 - 11 Outer phyllaries strongly spreading or reflexed
 - 12 Leaves simple, at least lower leaves petiolate; stems very tall, glaucous - *Helianthus californicus*
 - 12' Leaves compound or sessile and fused around stem; stems not particularly tall, not glaucous - *Bidens*
 - 11' Outer phyllaries appressed
 - 13 Phyllaries more or less equal in length; strongly graduated in 3-4 series; heads small, narrowly cylindrical - *Euthamia occidentalis*
 - 13' Outer phyllaries much smaller than inner phyllaries, in 2-3 series; heads generally larger, widened at base, vase-shaped
 - 14 Fruits strongly ribbed; phyllary tips green or red; leaves basal and cauline; east side of crest - *Packera*
 - 14' Fruits angled or weakly ribbed; phyllary tips green or black; leaves basal and/or cauline; both sides of crest

15 Ray and disc fruits all alike in rib thickness and hairiness, one not falling before the other; leaves margins variable but usually entire or shallowly toothed; common - Senecio

15' Ray fruits glabrous and with thick ribs; disc fruits hairy with thin ribs; disc fruits falling before ray fruits; leaves deeply and finely dissected; uncommon waif - Jacobaea

9' Plants of dry habitats

16 Leaves deeply lobed to compound

17 Involucres widely hemispheric; phyllaries more or less equal in length

18 Leaves highly divided into comb-like segments; phyllaries appressed -

Cota tinctoria

18' Leaves deeply lobed or entire but not comb-like; phyllaries more or less spreading, becoming reflexed - Gaillardia

17' Involucres cylindric to widened at base, vase-shaped; outer phyllaries much smaller than inner

19 Fruits strongly ribbed; phyllary tips green or red; leaves basal and cauline; east side of crest - Packera

19' Fruits angled or weakly ribbed; phyllary tips green or black; leaves basal and/or cauline; both sides of crest

20 Ray and disc fruits all alike in rib thickness and hairiness, one not falling before the other; common - Senecio

20' Ray fruits glabrous and with thick ribs; disc fruits hairy with thin ribs; disc fruits falling before ray fruits; uncommon waif - Jacobaea

16' Leaves simple

21 Phyllary tips strongly reflexed to curling; leaves serrate or crenate; plants glabrous or nearly so - Grindelia

21' Plants not as above

22 Plants primarily of disturbed habitats, frequently roadsides

23 Plants highly branched from base; ray flowers minute - Dittrichia graveolens

23' Plant generally with evident main axis; ray flowers obvious

24 Mid-cauline leaves cordate to deltate; petioled - Helianthus annuus

24' Mid-cauline leaves lanceolate to ovate; sessile - Heterotheca

grandiflorus

22' Plants generally of undisturbed habitats

25 Rays small and generally inconspicuous, shorter than 3mm long

26 Plants small, wiry-stemmed; heads 1 at branch tips; generally grassy areas - Rigiopappus leptocladus

26' Plants robust, often forming patches; heads many in flat-topped or panicle-like clusters; habitat various - Solidago

25' Rays larger and noticeable at first glance; 5mm or longer

27 Phyllaries in 2-3 series; outer phyllaries much smaller than inner

- 28 Fruits strongly ribbed; phyllary tips green or red; leaves basal and cauline; east side of crest - *Packera*
- 28' Fruits angled or weakly ribbed; phyllary tips green or black; leaves basal and/or cauline; both sides of crest - *Senecio*
- 27' Phyllaries in 2-9 series, generally more than 3; phyllaries more or less equal in length or unequal but not drastically so
- 29 Plants distinctly hairy
- 30 Leaves entire or serrate, bristly hairy and glandular; plants tall; stems simple from base; rare on serpentine west of the crest - *Helianthus bolanderi*
- 30' Leaves entire, generally bristly hairy; plants shrub-like; stems highly branched from base; both sides of crest; generally in rocky areas, river canyon bottoms - *Heterotheca orovillosa*
- 30'' Leaves serrate, woolly hairy; plants herbaceous; stems generally few branched from base; east side of crest - *Pyrrocoma hirta* var. *lanulosa*
- 29' Plants glabrous or nearly so
- 31 Leaves elliptic to ovate, coarsely serrate, not reduced distally; heads narrowly cylindrical - *Adiea whitneyi*
- 31' Leaves lanceolate to elliptic, entire or serrate, reduced distally; heads bell-shaped to hemispheric - *Pyrrocoma racemosa* var. *paniculata*

Achillea

- 1 Flowers yellow - *A. filipendulina*
1' Flowers white - *A. millefolium*

Achillea filipendulina

Achillea millefolium

Achyrrachaena

Achyrrachaena mollis

Adiea

Adiea whitneyi

Adenocaulon

Adenocaulon bicolor

Ageratina

Ageratina occidentalis

Agoseris

1 Flowers generally orange, rarely pink or red, if yellow, fruit beak short, equal in length to seed body and ligules well exceeding involucre - *A. aurantiaca* var. *aurantiaca*

1' Flowers yellow; fruit beak shorter than seed body or 3-4x length of seed body but not equal, or if fruit beak equalling seed body in length, then ligules more or less equaling involucre

2 Annual

3 Ligules equaling phyllary tips; generally above 2500' - *A. heterophylla* var. *heterophylla*

3' Ligules exceeding phyllary tips; generally below 2500' - *A. heterophylla* var. *cryptopleura*

2' Perennial

4 Fruit beak short, not longer than length of seed

5 Plants hairy, glandular; leaves toothed to lobed; lower lobes reflexed, distal lobes oriented towards leaf tip to spreading - *A. monticola*

5' Plants glabrous or nearly so, if hairs present, non-glandular; leaves glaucous, entire or toothed, if toothed, all lobes facing same direction - *A. glauca* var. *glauca*

4' Fruit beak long, 1-4x length of seed

6 Fruit tip truncate before beak; leaf lobes generally reflexed; fruit beak long, 3-4x length of seed, 10mm long or longer - *A. retrorsa*

6' Fruit tip tapered to beak

7 Plants robust; leaf lobes oriented towards tip or spreading; fruit beak long, 3-4x length of seed, 10mm long or longer; common at low to mid elevations - *A. grandiflora* var. *grandiflora*

7' Plants smaller; leaf lobes reflexed or spreading; fruit beak shorter, 1-3x length of seed, 10mm long or shorter; higher elevations - *A. parviflora*

Agoseris aurantiaca var. *aurantiaca*

Agoseris glauca var. *glauca*

Agoseris grandiflora var. *grandiflora*

Agoseris heterophylla var. *cryptopleura*

Agoseris heterophylla var. *heterophylla*

Agoseris monticola

Agoseris parviflora

Agoseris retrorsa

Ambrosia

- 1 Fruits long-spined - *A. acanthicarpa*
- 1' Fruits short-spined
 - 2 Plants perennial from rhizome - *A. psilostachya*
 - 2' Plants annual, taprooted - *A. artemisiifolia*

Ambrosia acanthicarpa

Ambrosia artemisiifolia

Ambrosia psilostachya

Anaphalis

Anaphalis margaritacea

Anisocarpus

Anisocarpus maidioides

Antennaria

- 1 Phyllaries with pink to rose - *A. geyeri*
- 1' Phyllaries white to green
 - 2 Involucres woolly-hairy at base; stolons present - *A. microphylla*
 - 2' Involucres glabrous; stolons absent
 - 3 Leaves elliptic; phyllaries unequal in length - *A. argentea*
 - 3' Leaves linear; phyllaries more or less equal in length - *A. luzuloides* ssp. *aberrans*
- 1" Phyllaries with brown or black
 - 4 Heads 1 per stem; plants squat, mat-forming; stolons absent - *A. dimorpha*
 - 4' Heads many per stem. flowering stems erect; plants mat-forming or not; stolons present
 - 5 Distinctly matted; phyllaries generally dark brown to black towards tips
 - 6 Herbage not glandular; cauline leaves to 20mm long; pappus 3.5mm or shorter -
A. media
 - 6' Herbage purple-glandular; cauline leaves to 11mm long; pappus 4mm or longer -
A. pulchella
 - 5' Weakly or not matted; phyllaries lighter brown throughout or white with black spot at base
 - 7 Phyllaries white with prominent black spot at base; involucre hemispheric; wetter habitats - *A. corymbosa*

- 7' Phyllaries generally light brown throughout; involucre cylindrical; drier habitats
- 8' Inflorescences compact, cyme-like; heads typically fewer than 10 - *A. rosea* ssp. *confinis*
- 8' Inflorescences elongate, raceme- or panicle-like; heads typically more than 10 - *A. luzuloides* ssp. *aberrans*

Antennaria argentea

Antennaria corymbosa

Antennaria dimorpha

Antennaria geyeri

Antennaria luzuloides ssp. *aberrans*

Antennaria media

Antennaria microphylla

Antennaria pulchella

Antennaria rosea ssp. *confinis*

Anthemis

Anthemis cotula

Arctium

Arctium minus

Arnica

- 1 Pappus absent; plants more or less glaucous - *A. dealbata*
- 1' Pappus present; plants green or sometimes silvery but not glaucous
 - 2 Heads discoid
 - 3 Pappus brown; young heads nodding - *A. parryi*
 - 3' Pappus white; young heads erect - *A. discoidea*
 - 2' Heads radiate
 - 4 Pappus white
 - 5 Leaves lanceolate, clustered towards base; uppermost cauline sessile - *A. sororia*

- 5' Leaves broad; well-distributed; uppermost cauline petioled
 6 Leaf margins toothed; leaf bases strongly cordate; disc flower soft-hairy - *A. cordifolia*
- 6' Leaf margins entire; leaf bases rounded or weakly cordate; disc flower glandular - *A. nevadensis*
- 4' Pappus brown;
 7 Cauline leaves 10-24, not or weakly reduced above
 8 Phyllary tips with small white clusters of hairs; phyllary tips generally obtuse - *A. chamissonis*
- 8' Phyllaries evenly hairy, lacking hair clusters at tips; phyllary tips generally acute - *A. longifolia*
- 7' Cauline leaves 4-10, strongly reduced above
 9 Young heads nodding; rays short; plant long-spreading hairy at base - *A. parryi*
- 9' Young heads erect; rays long; plant glabrous, short-hairy, or glandular at base
 10 Mid-cauline leaves sessile; cauline leaves 6-10, clustered at the stem base and abruptly reduced above - *A. mollis*
- 10' Mid-cauline leaves petiolate; cauline leaves 4-8, clustered at the stem base and gradually reduced above - *A. ovata*

Arnica chamissonis

Arnica cordifolia

Arnica dealbata

Arnica discoidea

Arnica longifolia

Arnica mollis

Arnica nevadensis

Arnica ovata

Arnica parryi

Arnica sororia

Artemisia

1 Herbaceous plants from rhizomes or more or less woody caudex

- 2 Plants from caudex; leaves linear, occasionally some linearly lobed - *A. dracunculus*
- 2' Plants from rhizome; leaves wider, most or all lobed
 - 3 Plants of low to mid elevations; upper leaves generally entire; lower leaves lobed or divided - *A. douglasiana*
 - 3' Plants of high elevations; all leaves deeply lobed or divided - *A. ludoviciana* ssp. *incompta*
- 1' Shrubs or subshrubs with distinctly woody bases
 - 4 Leaves linear, entire - *A. cana* ssp. *bolanderi*
 - 4' Leaves wider, lobed
 - 5 Plants low, mounded; inflorescences narrow, few flowered
 - 6 Inner phyllaries sparsely hairy, shiny - *A. spiciformis*
 - 6' Inner phyllaries densely hairy, not shiny
 - 7 Leaves deeply lobed; leaf lobes linear; rocky ridges in the sub- and alpine, rarely below - *A. tripartita* ssp. *tripartita*
 - 7' Leaves shallowly lobed; leaf lobes wide; volcanic flats east of the crest, below sub-alpine elevations - *A. arbuscula* ssp. *arbuscula*
 - 5' Plants taller, shrubby; inflorescences wider, many flowered
 - 8 Inflorescences not always above leafy branches; branches erect and often spreading and drooping; widespread across the lower elevations east of the crest - *A. tridentata* ssp. *tridentata*
 - 8' Inflorescences always above leafy branches; branches erect; generally at or near the subalpine - *A. tridentata* ssp. *vaseyana*

Artemisia arbuscula ssp. *arbuscula*

Artemisia cana ssp. *bolanderi*

Artemisia douglasiana

Artemisia dracunculus

Artemisia ludoviciana ssp. *incompta*

Artemisia spiciformis

Artemisia tridentata ssp. *tridentata*

Artemisia tridentata ssp. *vaseyana*

Artemisia tripartita ssp. *tripartita*

Baccharis

- 1 Leaves yellow-green, coarsely toothed, ovate; common in dry habitats - *B. pilularis* ssp.

consanguinea

1' Leaves deep green, minutely toothed, lanceolate; rare in wet habitats - *B. salicifolia* ssp. *salicifolia*

Baccharis pilularis ssp. *consanguinea*

Baccharis salicifolia ssp. *salicifolia*

Balsamorhiza

1 Leaves deeply lobed or divided - *B. hookeri*

1' Leaves cordate, not lobed or divided

2 Leaves sparsely hairy; phyllaries glandular; lower elevations - *B. deltoidea*

2' Leaves tomentose; phyllaries non-glandular; higher elevations - *B. sagittata*

Balsamorhiza deltoidea

Balsamorhiza hookeri

Balsamorhiza sagittata

Bellis

Bellis perennis

Bidens

1 Leaves simple, sessile - *B. cernua*

1' Leaves compound; petiolate - *B. frondosa*

Bidens cernua

Bidens frondosa

Blennosperma

Blennosperma nanum var. *nanum*

Brickellia

1 Petiole shorter than 3mm or leaves sessile

2 Heads subtended by several leaves; heads widely cylindrical - *B. greenei*

2' Heads well above uppermost leaves; heads narrowly cylindrical; far east end of county -

B. microphylla var. microphylla

1' Petiole 5mm or longer, usually much more so

3 Heads nodding; plants not very shrubby; peduncle to 40mm long - B. grandiflora

3' Heads spreading to erect; plants very shrubby; peduncle to 5mm long - B. californica

Brickellia californica

Brickellia grandiflora

Brickellia greenei

Brickellia microphylla var. microphylla

Calycadenia

1 Flowers white - C. multiglandulosa

1' Flowers yellow - C. truncata

Calycadenia multiglandulosa

Calycadenia truncata

Carduus

1 Heads narrow, cylindrical - C. pycnocephalus ssp. pycnocephalus

1' Heads wide, spheric

2 Heads solitary; stem narrowly winged - C. nutans

2' Heads clustered; stem strongly winged - C. acanthoides ssp. acanthoides

Carduus acanthoides ssp. acanthoides

Carduus nutans

Carduus pycnocephalus ssp. pycnocephalus

Carthamus

Carthamus lanatus

Centaurea

1 Flowers yellow

2 Central phyllary spine 5-10mm long - C. melitensis

- 2' Central phyllary spine 10-20mm long - *C. solstitialis*
- 1' Flowers not yellow
 - 3 Phyllaries spine-tipped
 - 4 Phyllary spine 10-25mm long; flowers purple - *C. calcitrapa*
 - 4' Phyllary spine 1-3mm long; flowers white - *C. diffusa*
 - 3' Phyllaries not spine-tipped
 - 5 Flowers often blue, occasionally white, pink, purple; plants with few branches; basal leaves entire or few lobed, early-deciduous - *C. cyanus*
 - 5' Flowers pink-purple, or rarely white; plants generally with many branches; basal leaves deeply lobed, persistent - *C. stoebe* ssp. *australis*

Centaurea calcitrapa

Centaurea cyanus

Centaurea diffusa

Centaurea melitensis

Centaurea solstitialis

Centaurea stoebe ssp. *australis*

Centromadia

- 1 Anthers yellow or brown; disc fruit pappus absent; rare waif - *C. pungens* ssp. *pungens*
- 1' Anthers red or purple; disc fruit pappus present; common at low elevations - *C. fitchii*

Centromadia fitchii

Centromadia pungens ssp. *pungens*

Chaenactis

- 1 Plants erect; leaves cauline and basal; mid to high elevations; more abundant on east side of crest - *C. douglasii* var. *douglasii*
- 1' Plants caespitose or matted; leaves basal; sub- to alpine
 - 2 Phyllaries glandular; leaves 2.5-5cm long - *C. nevadensis*
 - 2' Phyllaries non-glandular; leaves 1-2.5cm long - *C. alpigena*

Chaenactis alpigena

Chaenactis douglasii var. *douglasii*

Chaenactis nevadensis

Chondrilla

Chondrilla juncea

Chrysothamnus

1 Inflorescence held well above leaves; heads 3-14 flowered; leaves often irregularly twisted and contorted - *C. viscidiflorus* ssp. *viscidiflorus*

1' Inflorescence nestled in leaves; heads 2-3 flowered; leaves not particularly twisted or contorted - *C. humilis*

Chrysothamnus humilis

Chrysothamnus viscidiflorus ssp. *viscidiflorus*

Cichorium

Cichorium intybus

Cirsium

1 Plants found west of crest

2 Leaf faces with appressed prickles - *C. vulgare*

2' Leaf faces without prickles

3 Plants starkly white on all surfaces; flowers usually red - *C. occidentale* var. *candidissimum*

3' Plants green to grey

4 Phyllaries appressed full length, only spine tip spreading; spine tip 1mm or shorter - *C. arvense*

4' Phyllaries spreading to reflexed and/or spine tip longer than 1mm

5 Heads narrow, somewhat tubular; phyllary margins often ciliate, if cobwebby, sparsely so; innermost phyllaries usually closely appressed, purple; often forming patches; plants of high elevations - *C. andersonii*

5' Heads spheric; phyllary margins not ciliate, usually densely cobwebby; innermost phyllaries usually not appressed, not purple; plants usually solitary; plants generally of low-mid elevations

6 Flowers white, pink, or purple but not red; spreading portion of phyllaries 1cm long or about so; occasionally longer; phyllaries usually straight; lower phyllaries generally not recurved - *C. occidentale* var. *californicum*

6' Flowers red; rarely white, pink, or purple; spreading portion of phyllaries 5cm or longer; phyllaries often bent; lower phyllaries often recurved - *C. occidentale* var.

venustum

1' Plants found east of crest

7 Stem absent; plant a rosette with sessile flowers in center - *C. tioganum*

7' Stem obvious

8 Leaf faces with appressed prickles - *C. vulgare*

8' Leaf faces without prickles

9 Plants starkly white on all surfaces; flowers usually red - *C. occidentale* var.

candidissimum

9' Plants green to grey

10 Phyllaries appressed full length, only spine tip spreading; phyllary spine tip

1mm or shorter

11 Stems white; wet habitats - *C. douglasii* var. *breweri*

11' Stems green or greyish; disturbed habitats - *C. arvense*

10' Phyllaries spreading to reflexed and/or spine tip longer than 1mm

12 Phyllaries appressed full length, only spine tip spreading; wet habitats - *C.*

douglasii var. *breweri*

12' Phyllaries spreading to appressed; dry habitats

13 Heads narrow, somewhat tubular; innermost phyllaries usually closely appressed, purple; often forming patches - *C. andersonii*

13' Heads spheric, sometimes narrowly so; innermost phyllaries usually not appressed, not purple; plants usually solitary

14 Leaves highly divided and very spiky, ruffled looking; lower cauline leaves strongly clasping with basal lobes prominent - *C. cymosum*

14' Leaves not as above, generally flat; lower cauline leaves not strongly clasping, often decurrent - *C. inamoenum* var. *inamoenum*

Cirsium andersonii

Cirsium arvense

Cirsium cymosum

Cirsium douglasii var. *breweri*

Cirsium inamoenum var. *inamoenum*

Cirsium occidentale var. *californicum*

Cirsium occidentale var. *candidissimum*

Cirsium occidentale var. *venustum*

Cirsium tioganum

Cirsium vulgare

Cota

Cota tinctoria

Crepis

1 Annual, roots fibrous; disturbed habitats below 2500' – *C. capillaris*

1' Perennials, taprooted; generally high elevations and east of the crest

2 Phyllaries with sparse to dense black bristles; stems short or absent

3 Phyllaries with stalked glands – *C. occidentalis* ssp. *costata*

3' Phyllaries lacking stalked glands – *C. modocensis* ssp. *subacaulis*

2' Phyllaries lacking black bristles or if bristles present, stems tall

4 Stems short; leaves generally basal

5 Phyllaries lacking stalked glands – *C. occidentalis* ssp. *conjuncta*

5' Phyllaries with stalked glands

6 Leaf midribs not red; herbage gray – *C. occidentalis* ssp. *occidentalis*

6' Leaf midribs red; herbage deeply green - *C. bakeri* ssp. *bakeri*

4' Stems tall; leaves cauline and basal

6 Cauline leaves much reduced, not lobed; phyllaries tomentose only at margins –

C. pleurocarpa

6' Cauline leaves little reduced, lobed; phyllaries glabrous or evenly tomentose

7 Plants densely glandular; most glandular hairs 1mm or longer - *C. monticola*

7 Plants not glandular or if so, sparsely so and glandular hairs shorter than 1mm

8 Phyllaries 8 or fewer; ligules 10 or fewer; plants lacking glands, bristles –

C. acuminata

8' Phyllaries 7 or more; ligules 7 or more; plants sometimes with glands, bristles – *C. intermedia*

Crepis acuminata

Crepis bakeri ssp. *bakeri*

Crepis capillaris

Crepis intermedia

Crepis modocensis ssp. *subacaulis*

Crepis occidentalis ssp. *costata*

Crepis occidentalis ssp. *conjuncta*

Crepis occidentalis ssp. *occidentalis*

Crepis pleurocarpa

Dieteria

1 Ray flowers absent or reduced; if present, sterile; phyllaries in 3-5 series - *D. canescens* var. *shastensis*

1' Ray flowers present, fertile; phyllaries in 5-7 series - *D. canescens* var. *canescens*

Dieteria canescens var. *canescens*

Dieteria canescens var. *shastensis*

Dittrichia

Dittrichia graveolens

Doellingeria

Doellingeria breweri

Ericameria

1 Plants of low elevations

2 Low shrubs; herbage grey - *E. nauseosa* var. *speciosa*

2' Tall shrubs; herbage green - *E. arborescens*

1' Plants of high elevations

3 Phyllaries graduated, unequal in length

4 Leaves wedge-shaped; stems green; granitic rock crevices - *E. cuneata* var. *cuneata*

4' Leaves linear; stems grey-tomentose; various habitats

5 Leaves densely gray-tomentose; widespread - *E. nauseosa* var. *speciosa*

5' Leaves sparsely tomentose or glabrous; far eastern end of county - *E. nauseosa*

var. *oreophila*

3' Phyllaries more or less equal in length

6 Inflorescences radiate

7 Leaf glands blister-like, sunken in pits - *E. bloomeri*

7' Leaf glands absent or, if present, stalked

8 Heads in dense clusters; heads generally narrowly cylindrical; leaves and phyllaries tomentose or not; leaf margins flat - *E. greenei*

8' Heads 1-3 in small clusters; heads generally wide-cylindrical; leaves and phyllaries not tomentose; leaf margins wavy - *E. suffruticosa*

6' Inflorescences discoid

9 Stems greenish when young, becoming reddish-brown - *E. greenei*

9' Stems usually distinctly white or occasionally yellowish

10 Leaves not stalked glandular, linear, green and strongly contrasting with stem, or not; pine forests, sagebrush scrub - *E. parryi* var. *nevadensis*

10' Leaves stalked glandular, oblong, green, strongly contrasting with stem; rocky habitats - *E. discoidea*

Ericameria arborescens

Ericameria bloomeri

Ericameria cuneata var. *cuneata*

Ericameria discoidea

Ericameria greenei

Ericameria nauseosa var. *speciosa*

Ericameria nauseosa var. *oreophila*

Ericameria parryi var. *nevadensis*

Ericameria suffruticosa

Erigeron

1 Heads discoid or with rays shorter than 3mm

2 Plants generally tall with straight single stems; inflorescence highly branched; heads very small; typically low to mid elevations on the west end of county

3 Phyllaries hairy - *E. bonariensis*

3' Phyllaries glabrous - *E. canadensis*

2' Plants low, sprawling, arching, or otherwise not like above; typically high elevations and/or east of the crest

4 Leaves all basal

5 Leaves deeply dissected - *E. compositus*

5' Leaves entire, linear - *E. bloomeri* var. *bloomeri*

4' Leaves all or mostly cauline

- 6 Stems distinctly hairy; hairs not appressed
- 7 Annual or biennial from slender taproot; leaves reduced gradually on stems -
E. divergens
- 7' Perennial from woody caudex; leaves evenly sized and spaced - E. miser
- 6' Stems glabrous or sparsely appressed hairy
- 8 Leaves wider, not thread-like or linear; phyllaries glabrous or sparsely
non-glandular hairy - E. inornatus var. inornatus
- 8' Leaves thread-like or linear; phyllaries densely glandular - E. reductus var.
reductus
- 1' Heads radiate; rays 4mm or longer
- 9 Annual
 - 10 Ray flower with pappus - E. divergens
 - 10' Ray flower pappus absent
 - 11 Leaves toothed - E. annuus
 - 11' Leaves entire - E. strigosus var. strigosus
- 9' Perennials
 - 12 Plants low-mounded or matted
 - 13 Leaves not deeply dissected; plants matted - E. barbellulatus
 - 13' Leaves deeply dissected; plants low-mounding - E. compositus
 - 12' Plants erect or spreading to ascending
 - 14 Plants of low-mid elevations at the west end of the county
 - 15 Phyllaries strongly graduated; ray flowers fewer than 60, purple, rarely white;
rocky places near rivers - E. foliosus var. hartwegii
 - 15' Phyllaries all equal in length; ray flowers 100 or more, white; streamsides -
E. philadelphicus var. philadelphicus
 - 14' Plants of high elevations and east end of county
 - 16 Plants from rhizomes; cauline leaves slightly clasping
 - 17 Phyllary hairs with black cross-walls; non-glandular hairs present; rays
always white; leaves little reduced up stems; wet places generally below subalpine - E. coulteri
 - 17' Phyllary hairs without black cross-walls; all hairs glandular; rays white or
purple; leaves reduced up stems; sub- to alpine habitats - E. glacialis var. glacialis
 - 16' Plants from taproots; cauline leaves not at all clasping
 - 18 Stems 14cm tall or more; all parts larger - E. eatonii var. nevadincola
 - 18' Stems to 12cm tall; all parts smaller - E. eatonii var. sonnei

Erigeron annuus

Erigeron barbellulatus

Erigeron bloomeri var. bloomeri

Erigeron bonariensis

Erigeron canadensis

Erigeron compositus

Erigeron coulteri

Erigeron divergens

Erigeron eatonii var. *nevadincola*

Erigeron eatonii var. *sonnei*

Erigeron foliosus var. *hartwegii*

Erigeron glacialis var. *glacialis*

Erigeron inornatus var. *inornatus*

Erigeron miser

Erigeron philadelphicus var. *philadelphicus*

Erigeron reductus var. *reductus*

Erigeron strigosus var. *strigosus*

Eriophyllum

1 Ray flowers absent; Bowman Rd area - E. "Bowman"

1' Ray flowers present; widespread

2 Ray flowers 8; phyllaries 8, strongly keeled; leaf margins flat; high elevations to east end of county - E. *lanatum* var. *integrifolium*

2' Ray flowers 12-13; phyllaries up to 15; not strongly keeled; leaf margins rolled under

3 Leaves glabrous adaxially, serrate to sharply lobed; pappus absent or minute - E. *lanatum* var. *croceum*

3' Leaves sparsely to very tomentose adaxially; entire to compound; pappus present

4 Leaves 1-3cm long, lobed to compound; peduncle slender; involucre 6-8mm wide; ray 6-9mm long; generally foothills - E. *lanatum* var. *achilleoides*

4' Leaves 3-8cm long; entire to lobed; peduncle swollen below heads; involucre 8-10mm wide; ray 10-20mm long; widespread - E. *lanatum* var. *grandiflorum*

Eriophyllum "Bowman"

Eriophyllum lanatum var. *achilleoides*

Eriophyllum lanatum var. *croceum*

Eriophyllum lanatum var. *grandiflorum*

Eriophyllum lanatum var. *integrifolium*

Eurybia

1 Rays deep purple; stem thick; leaves entire; high elevations - *E. integrifolia*

1' Rays light purple; stem thin; leaves serrate; east side of crest - *E. merita*

1" Rays white, often aging lavender; stem thin; leaves serrate; west side of crest - *E. radulina*

Eurybia integrifolia

Eurybia merita

Eurybia radulina

Euthamia

Euthamia occidentalis

Gaillardia

1 Perennial; rays yellow or yellow with purple at base - *G. aristata*

1' Annual; rays variously colored but not as above - *G. pulchella*

Gaillardia aristata

Gaillardia pulchella

Gamochaeta

1 Leaf face glabrous; involucre glabrous at base - *G. coarctata*

1' Leaf face sparsely-tomentose; involucre tomentose at base - *G. ustulata*

Gamochaeta coarctata

Gamochaeta ustulata

Gnaphalium

Gnaphalium palustre

Grindelia

1 Leaves crenate, teeth rounded, with yellow bump near tip of each tooth; occasional east of the crest - *G. squarrosa* var. *serrulata*

1' Leaves serrate, teeth pointed, lacking yellow bump near tip of each tooth; common west of the crest, occasional east of the crest - *G. camporum*

Grindelia camporum

Grindelia squarrosa var. *serrulata*

Hedypnois

Hedypnois rhagadioloides

Helenium

1 Rays large, spreading; disc flowers 5-lobed - *H. bigelovii*

1' Rays small, generally tucked below disc and somewhat reflexed; disc flowers 4-lobed - *H. puberulum*

Helenium bigelovii

Helenium puberulum

Helianthella

Helianthella californica var. *nevadensis*

Helianthus

1 Stems very tall, glabrous, glaucous; outer phyllaries narrowly lanceolate, spreading to reflexed; plants of wet habitats - *H. californicus*

1' Stems not particularly tall, hairy, not glaucous, few or not branched; outer phyllaries typically widely lanceolate to ovate, appressed; plants typically of dry habitats

2 Phyllaries 5mm wide or more, ovate, abruptly acuminate - *H. annuus*

2' Phyllaries 5mm wide or less, widely lanceolate, gradually tapered to tip - *H. bolanderi*

Helianthus annuus

Helianthus bolanderi

Helianthus californicus

Hemizonella

Hemizonella minima

Hesperevax

Hesperevax acaulis var. *acaulis*

Heterotheca

1 Plants robust; main axis evident; disturbed habitats, roadsides - *H. grandiflora*
 1' Plants bushy and a bit wispy, many-branched; rocky sites, river canyon bottoms - *H. orovillosa*

Heterotheca grandiflora

Heterotheca orovillosa

Hieracium

1 Flowers orange - *H. aurantiacum*
 1' Flowers white - *H. albiflorum*
 1" Flowers yellow
 2 Leaves glabrous or sparsely short hairy - *H. triste*
 2' Leaves coarsely long-hairy - *H. argutum*

Hieracium albiflorum

Hieracium argutum

Hieracium aurantiacum

Hieracium triste

Holozonia

Holozonia filipes

Hypochaeris

1 Annual; glabrous or nearly so; ligules barely exceeding phyllary tips; outer fruits lacking beak - *H. glabra*

1' Perennial; rough-hairy; ligules much exceeding phyllary tips; all fruits beaked - *H. radicata*

Hypochaeris glabra

Hypochaeris radicata

Iva

Iva axillaris

Jacobaea

Jacobaea vulgaris ssp. *vulgaris*

Jensia

Jensia rammii

Kyhosia

Kyhosia bolanderi

Lactuca

1 Plants obviously prickly-hairy, especially on leaf midvein

2 Cauline leaves strongly clasping stem, lobes rounded; basal leaves generally present at flower; fruit with smooth, winged margins - *L. virosa*

2' Cauline leaves weakly clasping stem, lobes acute; basal leaves generally absent at flower; fruit with roughened, unwinged margins - *L. serriola*

1' Plants glabrous or sparsely prickly hairy

3 Fruit beak short and thick; plants erect; leaves broad, lobed or not; inflorescence branches spreading; flowers yellow, blue, or white - *L. biennis*

3' Fruit beak long and thin; plants spreading from base, turning upwards distally; leaves linear, unlobed; inflorescence branches appressed to stem; flowers yellow - *L. saligna*

Lactuca biennis

Lactuca saligna

Lactuca serriola

Lactuca virosa

Laennecia

Laennecia coulteri

Lagophylla

1 Ray flowers 3-6mm long; stem not glandular; most leaves non-glandular; fruit dull or glossy

- *L. ramosissima*

1' Ray flowers 7-13mm long; stem glandular or not; all or lowermost leaves generally glandular; fruit glossy - *L. glandulosa*

Lagophylla glandulosa

Lagophylla ramosissima

Lapsana

Lapsana communis

Lasthenia

Lasthenia californica ssp. *californica*

Layia

1 Rays bi-colored yellow and white; plant not glandular - *L. fremontii*

1' Rays white; plant glandular - *L. glandulosa*

Layia fremontii

Layia glandulosa

Leontodon

1 Annual; beak of inner fruit 2-3mm long - *L. saxatilis* ssp. *longirostris*

1' Perennial; beak of inner fruit 1mm long or thereabouts - *L. saxatilis* ssp. *saxatilis*

Leontodon saxatilis ssp. *longirostris*

Leontodon saxatilis ssp. *saxatilis*

Lessingia

1 Plant branched distally; phyllaries more or less green, glandular - *L. nemaclada*

1' Plant unbranched; phyllaries densely woolly-hairy, sometimes glandular as well - *L. virgata*

Lessingia nemaclada

Lessingia virgata

Leucanthemum

Leucanthemum vulgare

Logfia

Logfia gallica

Madia

1 Flowers large and showy; often with red markings near center - *M. elegans*

1' Flowers small and not showy

2 Anthers yellow to brown

3 Plants small; upper stems wiry; inflorescence generally open; disc flowers 1; fruits beaked - *M. exigua*

3' Plants larger; upper stems not wiry; inflorescence narrow, raceme- or spike-like; disc flowers 5 or more; fruits not beaked - *M. subspicata*

2' Anthers dark purple

4 Disc flowers sterile, only ray flowers producing fruit; fruit not compressed - *M. citriodora*

4' Disc flowers fertile, producing fruit; fruit compressed

5 Heads narrowly ovate; ray flowers 0-3; plants of high elevations - *M. glomerata*

5' Heads spheric to hemispheric; ray flowers typically more than 3, rarely fewer or absent; various elevations

6 Stems glandular throughout - *M. sativa*

6' Stems glandular only distally

7 Central axis exceeding lateral branches - *M. gracilis*

7' Central axis exceeded by lateral branches - *M. citrigracilis*

Madia citrigracilis

Madia citriodora

Madia elegans

Madia exigua

Madia glomerata

Madia gracilis

Madia sativa

Madia subspicata

Malacothrix

Malacothrix floccifera

Matricaria

Matricaria discoidea

Micropus

Micropus californicus var. *californicus*

Microseris

1 Pappus scales tapered smoothly to tips - *M. acuminata*

1' Pappus scales narrowed abruptly near base

2 Plants of mid to high elevations; habitat various; young heads nodding - *M. nutans*

2' Plants of low elevation grasslands

3 Ligules equaling phyllary tips; annual - *M. elegans*

3' Ligules exceeding phyllary tips; perennial - *M. sylvatica*

Microseris acuminata

Microseris elegans

Microseris nutans

Microseris sylvatica

Nothocalais

Nothocalais troximoides

Onopordum

1 Plant sticky, glandular, green - *O. tauricum*

1' Plant not sticky, not glandular, white-woolly hairy - *O. acanthium* ssp. *acanthium*

Onopordum acanthium ssp. *acanthium*

Onopordum tauricum

Oreostemma

Oreostemma alpigenum var. *andersonii*

Packera

1 Leaves and stems woolly-hairy; generally alpine habitats - *P. cana*

1' Leaves and stems glabrous or nearly so

2 Heads generally 1, rarely 2-3 - *P. subnuda* var. *subnuda*

2' Heads 4 or generally more

3 Phyllaries red or red-tipped; heads generally discoid, rarely with short rays - *P. indecora*

3' Phyllaries green; heads radiate - *P. streptanthifolia*

Packera cana

Packera indecora

Packera streptanthifolia

Packera subnuda var. *subnuda*

Phalacroseris

Phalacroseris bolanderi

Pleiacanthus

Pleiacanthus spinosus

Pseudobahia

Pseudobahia heermannii

Pseudognaphalium

1 Herbage yellow-green - *P. californicum*

1' Herbage silvery-grey

2 Flowers, at least some, red; heads dense, head-like - *P. luteoalbum*

2' Flowers all yellow; heads open, panicle-like - *P. thermale*

Pseudognaphalium californicum

Pseudognaphalium luteoalbum

Pseudognaphalium thermale

Psilocarphus

1 Heads 6-14mm wide; densely tomentose; uppermost leaves appressed to heads - *P. brevissimus* var. *brevissimus*

1' Heads 3-6mm wide; tomentose but not densely so; uppermost leaves spreading - *P. tenellus*

Psilocarphus brevissimus var. *brevissimus*

Psilocarphus tenellus

Pyrrocoma

1 Leaves mostly basal - *P. apargioides*

1' Leaves basal and cauline

2 Plant glabrous or nearly so - *P. racemosa* var. *paniculata*

2' Plant woolly-hairy - *P. hirta* var. *lanulosa*

Pyrrocoma apargioides

Pyrrocoma hirta var. *lanulosa*

Pyrrocoma racemosa var. *paniculata*

Raillardella

Raillardella argentea

Rhaponticum

Rhaponticum repens

Rigiopappus

Rigiopappus leptocladus

Rudbeckia

Rudbeckia occidentalis

Senecio

1 Annual; heads discoid, disciform, or minutely radiate

2 Inflorescence often nodding; flowers discoid; herbage glabrous or sparsely hairy - *S. vulgaris*

2' Inflorescence erect; flowers disciform or minutely radiate; herbage densely hairy - *S. sylvaticus*

1' Biennial or perennial herb; conspicuously radiate or not

3 Leaves deeply cut or divided - *S. clarkianus*

3' Leaves entire or shallowly toothed

4 Basal rosette absent; leaves well-distributed; cauline leaves not strongly reduced distally

5 Leaves triangular; truncate or cordate at base; plants on both sides of crest - *S. triangularis*

5' Leaves narrow, tapered to base; plants on east side of crest - *S. serra* var. *serra*

4' Basal rosette present; leaves more dense near base; cauline leaves strongly reduced distally

6 Plants glabrous; herbage glaucous; wet habitats - *S. hydrophilus*

6' Plants hairy, occasionally becoming less so with age; plants of dry habitats

7 Phyllaries 8 or rarely 13; ray flowers 0-2; 15-20 flowers per head; leaves dentate or minutely so; low to mid elevations west of the crest - *S. aronicoides*

7' Phyllaries 13 or 21; ray flowers 0-5 5; 20-40 flowers per head; leaves entire or minutely dentate; mid to high elevations on both sides of the crest

8 Phyllaries always black-tipped; ray flowers absent or 5; east side of crest - *S. integerrimus* var. *exaltatus*

8' Phyllaries usually green, occasionally minutely black-tipped; ray flowers 5; both sides of crest - *S. integerrimus* var. *major*

Senecio aronicoides

Senecio clarkianus

Senecio hydrophilus

Senecio integerrimus var. *exaltatus*

Senecio integerrimus var. *major*

Senecio serra var. *serra*

Senecio sylvaticus

Senecio triangularis

Senecio vulgaris

Sericocarpus

Sericocarpus oregonensis ssp. *californicus*

Silybum

Silybum marianum

Solidago

1 Herbage glabrous - *S. spectabilis*

1' Herbage hairy, sometimes sparsely so

2 Basal leaves largest; herbage densely short-hairy - *S. velutina* ssp. *californica*

2' Mid-cauline leaves largest; herbage sparsely hairy - *S. elongata*

Solidago elongata

Solidago spectabilis

Solidago velutina ssp. *californica*

Soliva

Soliva sessilis

Sonchus

- 1 Claspig lobe of leaves rounded - *S. asper* ssp. *asper*
- 1' Claspig lobe of leaves pointed - *S. oleraceus*

Sonchus asper ssp. *asper*

Sonchus oleraceus

Stenotus

Stenotus acaulis

Stephanomeria

- 1 Plants leafy throughout lifespan; squat in stature - *S. lactucina*
- 1' Plants wiry, most leaves early deciduous; shrubby or tall and erect in stature
 - 2 Plants shrubby, much branched proximally; heads 1 at branch tips - *S. tenuifolia*
 - 2' Plants tall and erect; stem generally 1, branching distally; heads generally many in nodes of inflorescence branches
 - 3 Ligules 9-15; fruits grooved; outer phyllaries generally reflexed - *S. elata*
 - 3' Ligules 5-9; fruits not grooved; outer phyllaries appressed - *S. virgata* ssp. *pleurocarpa*

Stephanomeria elata

Stephanomeria lactucina

Stephanomeria tenuifolia

Stephanomeria virgata ssp. *pleurocarpa*

Symphyotrichum

- 1 Plants of low to mid elevations
 - 2 Phyllaries equal in length; inflorescence narrow, branches short - *S. bracteolatum*
 - 2' Phyllaries unequal in length; inflorescence open, branches long
 - 3 Leaves strongly reduced upwards; green tip of phyllary short, rounded to diamond shaped - *S. ascendens*
 - 3' Leaves not strongly reduced upwards; green tip of phyllary elongate, elliptic or narrower - *S. chilensis*
- 1' Plants of high elevations
 - 4 Outermost phyllaries green throughout
 - 5 Basal leaves generally withered at flower; leaves narrowly lanceolate, acute tipped;

rays 6-12mm long; flower buds rosette-like; flowers white to pink - *S. bracteolatum*

5' Basal leaves persistent; leaves elliptic to ovate, acute or obtuse tipped; rays 12-25mm long; flower buds button-like; flowers violet to purple, sometimes lighter - *S. foliaceum* var. *parryi*

4' Outermost phyllaries pale-margined at base

6 Stems uniformly strigose distally; green phyllary tips generally short, rounded to diamond-shaped - *S. ascendens*

6' Stems glabrous or sparsely hairy, often in lines going down stem, sometimes uniformly strigose distally; green phyllary tips elongate; linear to elliptic

7 Leaves linear - *S. spathulatum* var. *yosemitanum*

7' Leaves lanceolate to elliptic

8 Heads 10-50; plants generally taller - *S. spathulatum* var. *intermedium*

8' Heads 3-10; plants generally smaller - *S. spathulatum* var. *spathulatum*

Symphotrichum ascendens

Symphotrichum bracteolatum

Symphotrichum chilensis

Symphotrichum foliaceum var. *parryi*

Symphotrichum spathulatum var. *intermedium*

Symphotrichum spathulatum var. *spathulatum*

Symphotrichum spathulatum var. *yosemitanum*

Tanacetum

1 Flowers radiate - *T. parthenium*

1' Flowers discoid - *T. vulgare*

Tanacetum parthenium

Tanacetum vulgare

Taraxacum

Taraxacum officinale

Tetradymia

Tetradymia canescens

Tragopogon

1 Flowers yellow - *T. dubius*

1' Flowers purple - *T. porrifolius*

Tragopogon dubius

Tragopogon porrifolius

Uropappus

Uropappus lindleyi

Urospermum

Urospermum picroides

Wyethia

1 Leaves white-woolly

2 Plants of high elevations; common - *W. mollis*

2' Plants of low elevations; uncommon - *W. helenioides*

1' Leaves green

3 Leaves lanceolate; plants common; generally not on ultramafic substrates - *W. angustifolia*

3' Leaves rounded; plants uncommon; on gabbro - *W. bolanderi*

Wyethia angustifolia

Wyethia bolanderi

Wyethia helenioides

Wyethia mollis

Xanthium

1 Stems spiny - *X. spinosum*

1' Stems not spiny - *X. orientale*

Xanthium orientale

Xanthium spinosum

Athyriaceae

Athyrium

1 Plants of sub- and alpine habitats; sori round; indusia absent - A. distentifolium var. americanum

1' Plants widespread; sori not round; indusia present - A. filix-femina var. cyclosorum

Athyrium distentifolium var. americanum

Athyrium filix-femina var. cyclosorum

Azollaceae

Azolla

1 Plants larger at full size, >1.5cm wide, generally more elongate; band of white cells at leaf margins >3 cells wide; male spore barbs lacking partitions - A. filiculoides

1' Plants smaller at full size, <1.5cm wide, generally more rounded; band of white cells at leaf margins 1-2 cells wide; male spore barbs with partitions - A. microphylla

Azolla filiculoides

Azolla microphylla

Berberidaceae

Berberis

1 Plants tall, not forming thickets; leaflets glossy, elongated; leaf margins with 20+ small spines on margins - B. aquifolium var. aquifolium

1' Plants short, often forming thickets; leaflets dull, more rounded

2 Plants east of crest; leaf margins flat with 20+ small spines - B. aquifolium var. repens

2' Plants west of crest; leaf margins generally strongly wavy with 15 or fewer large spines on leaf margins - B. aquifolium var. dictyota

Berberis aquifolium var. dictyota

Berberis aquifolium var. *repens*

Berberis aquifolium var. *aquifolium*

Betulaceae

1 Small trees of dry habitats; leaves distinctly soft-hairy; fruit a large nut, in a beaked covering - *Corylus cornuta* var. *californica*

1' Small or large trees of wet habitats; leaves not distinctly soft-hairy; fruit several, winged, in a cone-like catkin - *Alnus*

Alnus

1 Of higher elevations; small trees forming thickets; leaf teeth toothed themselves - *Alnus incana* ssp. *tenuifolia*

1' Of lower elevations; large trees not usually forming thickets; leaf teeth not toothed themselves - *Alnus rhombifolia*

Alnus incana ssp. *tenuifolia*

Alnus rhombifolia

Corylus

Corylus cornuta var. *californica*

Bignoniaceae

1 Vine; leaves compound - *Campsis radicans*

1' Tree; leaves simple - *Catalpa speciosa*

Campsis

Campsis radicans

Catalpa

Catalpa speciosa

Blechnaceae

1 Fronds of two kinds; plants smaller; leaves leathery, pinnatifid to 1-pinnate; rare -
Struthiopteris spicant

1' Fronds of one kind; sori elongate on leaf undersides; plants very large; leaves not leathery,
1-pinnate with pinnae pinnatifid, appearing nearly 2-pinnate; common - Woodwardia fimbriata

Struthiopteris

Struthiopteris spicant

Woodwardia

Woodwardia fimbriata

Boraginaceae

1 Flowers yellow

2 Receptacle flat; plants many branched, clumped - Lithospermum

2' Receptacle conic; plants not or few branched - Amsinckia

1' Flowers blue, white, pink, or purple

3 Plants robust perennial herbs; flowers generally large, blue, pink, or purple (almost all
with white or pink morphs, always white in Hackelia californica)

4 Nutlets with prickles - Hackelia

4' Nutlets tubercled or wrinkled but without prickles

5 Plants of wet places at high elevations; corolla tube elongate - Mertensia ciliata
ssp. stomatechoides

5' Plants generally of dry habitats at low to high elevations; corolla tube not
especially elongate

6 Stems glabrous; leaves wide, abruptly narrowed to petiole; cauline leaves few
- Adelinia grandis

6' Stems hairy; leaves narrow, tapered to petiole; cauline leaves many -
Andersonglossum occidentale

3' Plants small; generally annuals; flowers generally small and/or white

7 Nutlets spreading

8 Nutlet margins not winged - Gruvelia pusilla

8' Nutlet margins winged - Pectocarya setosa

7' Nutlets erect

9 Receptacle flat; flowers generally blue, occasionally white - Myosotis

9' Receptacle conic or elongate; flowers white

10 Nutlets without recessed groove where formerly attached, attachment point
never covering full length of fruit

- 11 Nutlets attached below middle; inflorescences generally not clustered at branch tips; all elevations - *Plagiobothrys*
- 11' Nutlets attached above middle; inflorescences clustered at branch tips; east of crest - *Sonnea hispida*
- 10' Nutlets with recessed groove where formerly attached, often covering entire length of fruit
- 12 Plants cushion-like - *Geeneocharis circumscissa* var. *circumscissa*
- 12' Plants not cushion-like
- 13 Annuals; inflorescence variable; generally below subalpine -
Cryptantha
- 13' Perennials; inflorescence ball-like; subalpine to alpine - *Oreocarya humilis* var. *humilis*

Adelinia

Adelinia grandis

Amsinckia

- 1 Some lower stem hairs reflexed - *A. retrorsa*
- 1' All lower stem hairs spreading
 - 2 Corolla tube barely exerted from calyx; flowers smaller - *A. menziesii*
 - 2' Corolla tube well exerted from calyx; flowers larger - *A. intermedia*

Amsinckia intermedia

Amsinckia menziesii

Amsinckia retrorsa

Andersonglossum

Andersonglossum occidentale

Cryptantha

- 1 Nutlets all smooth or nearly so
 - 2 Nutlets attachment scars off-centered
 - 3 Nutlets 4, attachment scar strongly off-centered, appearing marginal; inflorescence elongate; common, widespread - *C. affinis*
 - 3' Nutlet 1 or sometimes 2, attachment scar slightly off-centered; inflorescence a spherical cluster; rare, Truckee area - *C. glomeriflora*

2' Nutlets attachment scars centered

4 Calyx hairs both straight and hooked; west side of crest - *C. flaccida*

4' Calyx hairs straight to curved, not hooked; east side of crest - *C. torreyana* var.

torreyana

1' Nutlets ornamented

5 Corolla generally conspicuous, corolla lobe 2-8mm wide - *C. intermedia* var. *intermedia*

5' Corolla generally inconspicuous, corolla lobe to 2mm wide

6 Calyx midrib hairs short and recurved - *C. simulans*

6' Calyx midribs hairs spreading long-bristly

7 Nutlet tubercles narrow, spine-like - *C. echinella*

7' Nutlet tubercles wide, rounded, not spine-like

8 Calyx 4-6mm long in fruit; pedicel 0.5-1mm long; nutlet abaxial ridge absent -

C. ambigua

8' Calyx 2-4.5mm long in fruit; pedicel shorter than 0.5mm; nutlet abaxial ridge present - *C. muricata* var. *denticulata*

Cryptantha affinis

Cryptantha ambigua

Cryptantha echinella

Cryptantha flaccida

Cryptantha glomeriflora

Cryptantha intermedia var. *intermedia*

Cryptantha muricata var. *denticulata*

Cryptantha simulans

Cryptantha torreyana var. *torreyana*

Greeneocharis

Greeneocharis circumscissa var. *circumscissa*

Gruvelia

Gruvelia pusilla

Hackelia

1 Flowers white - *H. californica*

1' Flowers pink, sometimes turning irregularly blue in age - *H. mundula*

1" Flowers blue or purple (rarely with white or pink morphs)

2 Nutlet prickles absent or sparse on face, abundant on margin; flowers small

3 Plants many-branched from base; fruits sometimes with sparse prickles on face - *H. micrantha*

3' Plants generally single-stemmed; fruits lacking prickles on face - *H. floribunda*

2' Nutlet prickles abundant on face and margins; flowers larger

4 Corolla appendages extended away from corolla throat, longer than wide - *H. velutina*

4' Corolla appendages flush with corolla throat, as long as wide - *H. nervosa*

Hackelia californica

Hackelia floribunda

Hackelia micrantha

Hackelia mundula

Hackelia nervosa

Hackelia velutina

Lithospermum

1 Leaves wide, few; flowers bright yellow; pedicels recurved in fruit; inflorescence open - *L. californicum*

1' Leaves narrow, many; flowers cream or dull yellow; pedicels not recurved in fruit; inflorescence dense - *L. ruderales*

Lithospermum californicum

Lithospermum ruderales

Mertensia

Mertensia ciliata var. *stomatechoides*

Myosotis

1 Calyx tube hairs appressed, not hooked - *M. laxa*

1' Calyx tube hairs spreading, some or all hooked

2 Annual; flowers small, generally with some blue and some white in each inflorescence; pedicel shorter than calyx - *M. discolor*

2' Perennial; flowers larger, white; pedicel longer than or equal to calyx - *M. latifolia*

Myosotis discolor

Myosotis latifolia

Myosotis laxa

Oreocarya

Oreocarya humilis var. *humilis*

Pectocarya

Pectocarya setosa

Plagiobothrys

1 All leaves alternate; basal rosette present

2 Calyx circumscissile - *P. nothofulvus*

2' Calyx not circumscissile

3 Nutlet scar deep-concave, pit-like - *P. fulvus* var. *campestris*

3' Nutlet scar convex

4 Nutlet cross-shaped; both ends of county - *P. tenellus*

4' Nutlet ovate; east end of county - *P. torreyi* var. *diffusus*

1' Lower cauline leaves opposite, upper alternate; basal rosette absent

5 Nutlet scar running $\frac{1}{4}$ or more of fruit length, deep-concave; nutlet with large prickles or distinct deep wrinkles

6 Nutlet with large prickles, generally barb-tipped - *P. greenei*

6' Nutlet without large prickles

7 Corolla limb 5-9 mm diam - *P. glyptocarpus* var. *glyptocarpus*

7' Corolla limb 2-3 mm diam - *P. glyptocarpus* var. *modestus*

5' Nutlet scar running less than $\frac{1}{5}$ fruit length, flat or slightly concave; nutlet without large prickles, only obscurely wrinkled, often tubercled or surface appearing bristly or granular

8 Plants of the west end of the county

9 Nutlet scar on short peg or at least not sunken - *P. stipitatus* var. *micranthus*

9' Nutlet scar sunken

10 Nutlets wrinkled - *P. bracteatus*

10' Nutlets bristly - *P. scriptus*

8' Plants of the east end of county

11 Nutlet scar at base - *P. cognatus*

11' Nutlet scar above base

12 Nutlet plump, symmetric, sharply roughened, dull - *P. hispidulus*

12' Nutlet flattened, asymmetric, smooth to slightly roughened, shiny - *P. cusickii*

Plagiobothrys bracteatus

Plagiobothrys cognatus

Plagiobothrys cusickii

Plagiobothrys fulvus var. *campestris*

Plagiobothrys glyptocarpus var. *glyptocarpus*

Plagiobothrys glyptocarpus var. *modestus*

Plagiobothrys greenei

Plagiobothrys hispidulus

Plagiobothrys nothofulvus

Plagiobothrys scriptus

Plagiobothrys stipitatus var. *micranthus*

Plagiobothrys tenellus

Plagiobothrys torreyi var. *diffusus*

Sonnea

Sonnea hispida

Brassicaceae

1 Fruit a silicle, less than 2x long as wide

2 Hairs simple or plant glabrous

3 Plants aquatic or on drying margins of lakes - *Subularia aquatica* var. *americana*

3' Plants terrestrial

4 Flowers purple; fruit 3cm or longer, 2cm or wider, large flat discs with seeds visible inside - *Lunaria annua*

4' Flowers white or yellow; fruit smaller than above

- 5 Fruits reflexed, not notched at tip - *Thysanocarpus*
- 5' Fruits not reflexed, notched at tip except in some *Lepidium*
- 6 Seeds 2 per fruit; flowers white or yellow; fruits small - *Lepidium*
- 6' Seeds 6 or more per fruit; flowers white; fruit large - *Thlaspi arvense*
- 2' At least some hairs branched
- 7 Cauline leaves absent
- 8 Seeds 4 or fewer per fruit; plants of dry volcanic soils near Boca - *Cusickiella douglasii*
- 8' Seeds 4 or greater per fruit; if seeds few, then sub- and alpine habitats - *Draba*
- 7' Cauline leaves present
- 9 Cauline leaves sessile and lobed, sagittate, or clasping at base
- 10 Fruit heart-shaped, widest nearer tip, more or less flattened - *Capsella bursa-pastoris*
- 10' Fruit pear-shaped, widest nearer base, inflated - *Camelina microcarpa*
- 9' Cauline leaves petioled, if sessile then not lobed, sagittate, or clasping at base
- 11 Fruit reflexed; fruit hairs hooked - *Athysanus pusillus*
- 11' Fruit not reflexed; fruit hairs not hooked or absent
- 12 Seeds 2 or fewer per fruit - *Alyssum*
- 12' Seeds 6 or usually more per fruit - *Draba*
- 1' Fruit a silique, more than 2x long as wide
- 13 Hairs simple or plants glabrous
- 14 Fruit flat, widest near tip, 1-seeded; pedicel recurved - *Isatis tinctoria*
- 14' Fruit not flat, generally linear, seeds more than 1; pedicel not recurved
- 15 Fruit segmented, knobby
- 16 Petals dark veined - *Raphanus*
- 16' Petals not dark veined
- 17 Cauline leaves distinctly clasping stem - *Brassica rapa*
- 17' Cauline leaves petioled, not clasping stem
- 18 Fruit appressed to rachis, 1.5cm or shorter; basal leaves rosetted; common - *Hirschfeldia incana*
- 18' Fruit not appressed to rachis, 2cm or longer; basal leaves not rosetted; uncommon
- 19 Seeds in 2 rows; fruit beak short; each fruit valve with 3 or more veins; perennial, typically somewhat woody at base - *Diplotaxis tenuifolia*
- 19' Seeds in 1 row; fruit beak long; each fruit valve with 1 vein; annual, not woody at base - *Rhamphospermum arvense*
- 15' Fruit unsegmented, not knobby
- 20 Flowers yellow
- 21 Cauline leaves not lobed, sagittate, or clasping at base; typically dry habitats - *Sisymbrium*
- 21' Cauline leaves lobed, sagittate, or clasping at base; wet habitats
- 22 Seeds in 2 rows; plants sprawling or erect; leaves not leathery - *Rorippa*
- 22' Seeds in 1 row; plants erect; leaves leathery - *Barbarea*

- 20' Flowers white to purple (occasionally yellowish in *Streptanthus*)
- 23 Plants aquatic, rooting at nodes - *Nasturtium officinale*
- 23' Plants terrestrial, not rooting at nodes
 - 24 Uppermost leaves deeply clasping to perfoliate, or if not, then leaves simple, linear and plants of ultramafic soils - *Streptanthus*
 - 24' Uppermost leaves not deeply clasping to perfoliate, not linear
 - 25 Cauline leaves compound or if simple, then plants from rhizomes or tubers - *Cardamine*
 - 25' Cauline leaves simple; from taproot or woody caudex - *Boechera*
- 13' At least some hairs branched
 - 26 Cauline leaves sessile, lobed to sagittate or clasping at base
 - 27 Flowers white; fruits erect and appressed to rachis
 - 28 Basal leaves 1-3cm wide; plant glaucous; - *Turritis glabra*
 - 28' Basal leaves no wider than 1cm; plant not glaucous - *Boechera stricta*
 - 27' Flowers purple or if flowers white, fruits not erect and appressed to rachis
 - 29 Fruit linear, skinnier than 3mm; alpine habitats or lower - *Boechera*
 - 29' Fruit dagger-shaped, 3mm or wider; subalpine or alpine habitats
 - 30 Flowers purple; pedicels spreading - *Phoenicaulis cheiranthoides*
 - 30' Flowers white or if purple then pedicels not spreading - *Boechera*
 - 26' Cauline leaves petioled, if sessile then not lobed, sagittate, or clasping at base
 - 31 Inflorescence bracted throughout - *Tropidocarpum gracile*
 - 31' Inflorescence not bracted throughout
 - 32 Flowers yellow or orange
 - 33 Leaves toothed but not divided or deeply lobed - *Erysimum*
 - 33' Leaves divided or deeply lobed - *Descurainia*
 - 32' Flowers white or purple
 - 34 Fruit tip pointed; leaves and flowers large and showy; flowers purple; uncommon garden escapee at low elevations - *Hesperis matronalis*
 - 34' Fruit tip head-like; leaves and flowers generally smaller, sometimes showy; flowers white to purple
 - 35 Basal leaves linear to narrowly oblanceolate, entire or toothed; fruit veins not prominent on margins; fruits 0.9-7mm wide, erect and appressed to reflexed; flowers white or purple; plants woody at base or not - *Boechera*
 - 35' Basal leaves broadly oblanceolate, coarsely toothed; fruit veins prominent on margins; fruits 2.5-4mm wide, erect or ascending; flowers white; plants not woody at base - *Yosemitea repanda*

Alyssum

- 1 Sepals persistent in fruit - *A. alyssoides*
- 1' Sepals falling in fruit
 - 2 Fruit hairy - *A. simplex*
 - 2' Fruit glabrous - *A. desertorum*

Alyssum alyssoides

Alyssum desertorum

Alyssum simplex

Athysanus

Athysanus pusillus

Barbarea

1 Fruit shorter than 5cm; sepals hairy at tip (best seen in bud) - *B. orthoceras*

1' Fruit longer than 5cm; sepals glabrous at tip - *B. verna*

Barbarea orthoceras

Barbarea verna

Boechera

1 Plants from woody caudex

2 Sepals glabrous

3 Pedicels sharply reflexed in fruit - *B. suffrutescens*

3' Pedicels ascending to erect in fruit

4 Hairs on face of basal leaf faces sessile with some 3-4 rayed; fruits 2-3mm wide -

B. elkoensis

4' Basal leaf faces glabrous, margins with simple and stalked 2-3 rayed hairs; fruits 1.5-7mm wide

5 Fruits 3-7mm wide - *B. howellii*

5' Fruits 1.5-2.5mm wide - *B. lyallii*

4" Basal leaves entirely glabrous; fruits 1.5-2.5mm wide

6 Basal petioles persistent and very densely crowded - *B. davidsonii*

6' Basal petioles persistent or not, if persistent, then not densely crowded - *B.*

lyallii

2' Sepals hairy

7 Fruits 3-5.5mm wide; inflorescences 2-7 flowered; cauline leaves not lobed - *B.*

platysperma

7' Fruits 1.3-2.2mm wide; inflorescences 3-70 flowered; cauline leaves lobed (sometimes unlobed in *B. paupercula*)

8 Flower petals 4-8mm in length, white to purple; distal cauline leaves glabrous or with sparse hairs

- 9 Inflorescences 3-8 flowered; distal cauline leaves glabrous; fruits erect - *B. paupercula*
- 9' Inflorescences 17-60 flowered; distal cauline leaves glabrous or with sparse hairs; fruits spreading to descending - *B. pauciflora*
- 8' Flower petals 7-14mm in length, purple; distal cauline leaves distinctly hairy (sometimes sparsely so in *B. breweri* ssp. *shastaensis*)
- 10 Pedicels with 2-4 rayed hairs only - *B. arcuata*
- 10' Pedicels with simple hairs only, sometimes sparse
- 11 Pedicels distinctly hairy, shorter than 9mm; stems short - *B. breweri* ssp. *breweri*
- 11' Pedicels sparsely hairy or glabrous, longer than 9mm; stems long - *B. breweri* ssp. *shastaensis*
- 1' Plants not woody at base
- 12 All parts glabrous except sessile, 2 rayed hairs on basal leaves - *B. stricta*
- 12' Plants variously hairy
- 13 Cauline leaves not lobed at base, not clasping stem
- 14 Stem bases with branched and unbranched hairs intermixed - *B. pendulocarpa*
- 14' Stem base hairs all branched
- 15 Fruit 1.9-2.2mm wide - *B. puberula*
- 15' Fruit 0.9-1.8mm wide - *B. retrofracta*
- 13' Cauline leaves lobed at base, clasping stem
- 16 Pedicels not recurved in fruit, slightly ascending to slightly pendant - *B. sparsiflora*
- 16' Pedicels reflexed to recurved in fruit, often appressed to stem
- 17 Pedicels glabrous
- 18 Basal leaves with branched and unbranched hairs intermixed; pedicels reflexed; fruit appressed to stem - *B. rectissima*
- 18' Basal leaf hairs all branched; pedicels recurved; fruit not appressed to stem - *B. pinetorum*
- 17' Pedicels hairy
- 19 Fruits hairy
- 20 Fruit 1.9-2.2mm wide - *B. puberula*
- 20' Fruit 0.9-1.8mm wide - *B. retrofracta*
- 19' Fruits glabrous
- 21 Basal leaf hairs with 2-5 branches - *B. pinetorum*
- 21' Basal leaf hairs with 5-10 branches - *B. retrofracta*

Boechera arcuata

Boechera breweri ssp. *breweri*

Boechera breweri ssp. *shastaensis*

Boechera davidsonii

Boechera elkoensis

Boechera howellii

Boechera lyallii

Boechera pauciflora

Boechera paupercula

Boechera pendulocarpa

Boechera pinetorum

Boechera platysperma

Boechera puberula

Boechera rectissima

Boechera retrofracta

Boechera sparsiflora

Boechera stricta

Boechera suffrutescens

Brassica

Brassica rapa

Camelina

Camelina microcarpa

Capsella

Capsella bursa-pastoris

Cardamine

1 Annuals lacking tubers or rhizomes

2 Plants found beside perennial streams in conifer forests; basal rosette present during flower; plants usually hairy, rarely glabrous; stems straight; fruits spreading - *C. oligosperma*

2' Plants of disturbed sites; basal rosette present during flower; plants usually hairy at base becoming glabrous distally; stems straight; fruits often appressed - *C. hirsuta*

1' Perennials from tuber or rhizome

3 All leaves along stems

4 Cauline leaves simple - *C. cordifolia*

4' Cauline leaves compound - *C. breweri*

3' Some leaves arising from rhizome below ground

5 Plants on rocky serpentine; herbage thick and glaucous - *C. pachystigma*

5' Plants not on serpentine, typically forest understory; herbage thin and green, sometimes mottled purple

6 Flowers white, aging pink; herbage green throughout - *C. californica*

6' Flowers pink or darker, rarely white; herbage marbled purple or purple abaxially - *C. nuttallii*

Cardamine breweri

Cardamine californica

Cardamine cordifolia

Cardamine hirsuta

Cardamine nuttallii

Cardamine oligosperma

Cardamine pachystigma

Cusickiella

Cusickiella douglasii

Descurainia

1 Fruit wider than linear

2 Fruit widest at tip; fruit midvein prominent - *D. pinnata* ssp. *brachycarpa*

2' Fruit widest at middle; fruit midvein inconspicuous - *D. californica*

1' Fruit linear

3 Fruit appressed to rachis - *D. incana*

3' Fruit not appressed to rachis

4 Leaves 2-3 pinnate - *D. sophia*

4' Leaves 1 pinnate

5' Fruit 10mm or longer; plant glandular or not - *D. incisa* var. *incisa*

5' Fruit 8mm or shorter; plant not glandular - *D. nelsonii*

Descurainia californica

Descurainia incana

Descurainia incisa ssp. *incisa*

Descurainia nelsonii

Descurainia pinnata ssp. *brachycarpa*

Descurainia sophia

Diploaxis

Diploaxis tenuifolia

Draba

1' Flowers white; petals deeply divided - *D. verna*

1' Flowers yellow; petals entire

2' Plants cushion forming; of alpine environments; perennial - *D. densifolia*

2' Plants erect; of various habitats; annual - *D. albertina*

Draba albertina

Draba densifolia

Draba verna

Erysimum

1' Fruit constricted between seeds; seeds 44 or fewer per fruit; petals yellow; typically higher elevations - *E. perenne*

1' Fruit not constricted between seeds; seeds 42 or more per fruit; petals yellow or orange; widespread - *E. capitatum* var. *capitatum*

Erysimum capitatum var. *capitatum*

Erysimum perenne

Hesperis

Hesperis matronalis

Hirschfeldia

Hirschfeldia incana

Isatis

Isatis tinctoria

Lepidium

1 At least some cauline leaf bases lobed to clasping

2 Flowers pale yellow; basal leaves 2-3 pinnately lobed; cauline leaves perfoliate; seeds winged - *L. perfoliatum*

2' Flowers white; basal leaves entire; cauline leaves not perfoliate; seeds wingless

3 Fruit winged and notched; plants not rhizomatous; annual - *L. campestre*

3' Fruit not winged nor notched; plants rhizomatous; perennial

4 Fruit flat - *L. draba*

4' Fruit inflated - *L. appelianum*

1' No cauline leaf bases lobed or clasping

5 Perennial; tall and robust; woody at base; leaves large, undivided, and leathery - *L. latifolium*

5' Annual to biennial; typically small to medium sized; not woody at base; leaves various but not leathery

6 Stamens 4; typically flowering very early in season; generally shiny - *L. nitidum*

6' Stamens 2

7 Fruit inflated, wider than long, indehiscent - *L. didymum*

7' Fruit flat, longer than wide or equal in length and width; dehiscent

8 Fruit faintly net-veined; sepals persistent - *L. strictum*

8' Fruit not net-veined; sepals deciduous

9 Petals absent or smaller than 0.5mm; rachis hairs absent or straight and club-shaped - *L. densiflorum*

9' Petals present, 1-2.5mm; rachis hairs present, curved, cylindrical - *L. virginicum* ssp. *menziesii*

Lepidium appelianum

Lepidium campestre

Lepidium densiflorum

Lepidium didymum

Lepidium draba

Lepidium latifolium

Lepidium nitidum

Lepidium perfoliatum

Lepidium strictum

Lepidium virginicum ssp. *menziesii*

Lunaria

Lunaria annua

Nasturtium

Nasturtium officinale

Phoenicaulis

Phoenicaulis cheiranthoides

Raphanus

1 Fruit beak skinny; fruit strongly constricted between seeds - *R. raphanistrum*

1' Fruit beak wider; fruit barely constricted between seeds, if at all - *R. sativus*

Raphanus raphanistrum

Raphanus sativus

Rhamphospermum

Rhamphospermum arvense

Rorippa

- 1 Plants sprawling; often branched at base - *R. curvisiliqua*
- 1' Plants erect; unbranched at base - *R. palustris* ssp. *palustris*

Rorippa curvisiliqua

Rorippa palustris ssp. *palustris*

Sisymbrium

- 1 Fruit lanceolate, typically short, appressed to stem - *S. officinale*
- 1' Fruit linear, typically long, not appressed to stem - *S. altissimum*

Sisymbrium altissimum

Sisymbrium officinale

Streptanthus

- 1 Cauline leaves linear; plants of ultramafic soils
 - 2 Flowers yellow; on low elevation gabbro soils - *S. polygaloides* ssp. *aureus*
 - 2' Flowers purple; on higher elevation serpentine soils - *S. polygaloides* ssp. *purpureus*
- 1' Cauline leaves cordate, clasping; not of ultramafic soils
 - 3 Uppermost cauline leaves well below lowest flower; herbage glaucous; flowers purple at tips; fruits long and curved; rare - *S. longisiliquus*
 - 3' Uppermost cauline leaves just below or among flowers; herbage variable; flower color variable but usually yellowish; fruits shorter
 - 4 Sepals longer than petals, tips long and linear; rare - *S. tortuosus* ssp. *truei*
 - 4' Petals longer than sepals, tips blunted; very common
 - 5 Stem 1-3 from base, erect; short-lived perennial; low to mid elevations - *S. tortuosus* var. *tortuosus*
 - 5' Stems many from base, spreading; annual; generally high elevations - *S. tortuosus* var. *orbiculatus*

Streptanthus longisiliquus

Streptanthus polygaloides ssp. *aureus*

Streptanthus polygaloides ssp. *purpureus*

Streptanthus tortuosus var. *orbiculatus*

Streptanthus tortuosus var. *tortuosus*

Streptanthus tortuosus ssp. *truei*

Subularia

Subularia aquatica var. *americana*

Thlaspi

Thlaspi arvense

Thysanocarpus

1 Pedicels curving smoothly; anthers purple - *T. curvipes* ssp. *curvipes*

1' Pedicels straight before abruptly reflexing at fruit; anthers yellow - *T. radians*

Thysanocarpus curvipes ssp. *curvipes*

Thysanocarpus radians

Tropidocarpum

Tropidocarpum gracile

Turritis

Turritis glabra

Yosemitea

Yosemitea repanda

Cabombaceae

Brasenia

Brasenia schreberi

Calycanthaceae

Calycanthus

Calycanthus occidentalis

Campanulaceae

1 Flowers bilateral

2 Large patch of yellow on lower corolla entering throat - *Porterella carnosula*

2' Large patch of yellow on lower corolla ending before throat or yellow on corolla absent or reduced to two small lines - *Downingia*

1' Flowers radial

3 Perennial; dry habitats in forest understory; flowers large; petals reflexed, skinny - *Smithiastrum prenanthoides*

3' Annual; habitats various; flowers small; petals erect, wide

4 Plants sprawling; calyx tube short, lobes wide; flowers ephemeral; typically in sheltered, wetter habitats - *Heterocodon rariflorum*

4' Plants typically erect; calyx tube long, lobes skinny; flowers not ephemeral; typically in open, dry habitats and grassy places - *Githopsis specularioides*

Downingia

1 Yellow patch on lower corolla large; upper lobes long; lateral lobes pointing down; east side of Sierra crest - *D. bacigalupii*

1' Yellow patch on lower corolla absent or reduced to two small lines; upper lobes short, erect; lateral lobes pointing out; mid elevations west side of Sierra crest - *D. montana*

1" Yellow patch variable, often large; upper lobes short, curled back towards stem; lateral lobes pointing out; low elevations at western end of county - *D. ornatissima* var. *ornatissima*

Downingia bacigalupii

Downingia montana

Downingia ornatissima var. *ornatissima*

Githopsis

Githopsis specularioides

Heterocodon

Heterocodon rariflorum

Porterella

Porterella carnosula

Smithiastrum

Smithiastrum prenanthoides

Cannabaceae

Humulus

Humulus lupulus

Caprifoliaceae

1 Berries white; corolla radial - Symphoricarpos
 1' Berries red or black; corolla bilateral - Lonicera

Lonicera

1 Plants of low to mid elevations; plants climbing
 2 Flowers yellow, glabrous; stipules absent - L. interrupta
 2' Flowers pink, rarely white, hairy; stipules present near inflorescence - L. hispidula
 1' Plants of high elevations; plants not climbing
 3 Berries 2, black and enshrined in dramatic red involucre - L. involucrata var. involucrata
 3' Berries 1, fused, red
 4 Flowers dark red, almost purple - L. conjugialis
 4' Flowers light yellow, almost white - L. cauriana

Lonicera cauriana

Lonicera conjugialis

Lonicera hispidula

Lonicera interrupta

Lonicera involucrata var. involucrata

Symphoricarpos

1 Only high elevations; shrubs; corolla lobes glabrous; lobes shorter than tube - *S. rotundifolius* var. *rotundifolius*

1' Low to high elevations; shrubs or low creeping woody plants; corolla lobes hairy; lobes equalling tube

2 Low creeping herbs; mostly higher elevations; 8 or fewer flowers per cluster - *S. mollis*

2' Shrub; mostly lower elevations; 8 or more flowers per cluster - *S. albus* var. *laevigatus*

Symphoricarpos albus var. *laevigatus*

Symphoricarpos mollis

Symphoricarpos rotundifolius var. *rotundifolius*

Caryophyllaceae

1 Styles 1, 3 branched - *Polycarpon tetraphyllum* var. *tetraphyllum*

1' Styles 4 or more

2 Flowers large and showy

3 Flowers white - *Silene latifolia*

3' Flowers deep pink - *Lychnis coronaria*

2' Flowers small, not showy

4 Stipules present - *Spergula arvensis*

4' Stipules absent

5 Leaves linear, needle-like; plants tufted to matted - *Sagina*

5' Leaves wider than linear; generally sprawling to erect but not tufted or matted

6 Plants distinctly hairy; fruits cylindrical - *Cerastium*

6' Plants glabrous or nearly so; fruits egg-shaped - *Stellaria calycantha*

1" Styles 2-3

7 Styles 2

8 Petals absent

9 Stipules absent; plants prostrate to erect; sparsely fine hairy - *Scleranthus annuus* ssp. *annuus*

9' Stipules present; plants prostrate; densely hairy - *Herniaria hirsuta* var. *hirsuta*

8' Petals present

10 Flowers large, uniformly white to pink; petals with appendages near lobes; always near water - *Saponaria officinalis*

10' Flowers small to very small; pink to red, often with deeper colored veins and other markings or speckled white; petals lacking appendages; generally dry, disturbed habitats

11 Bracts subtending flowers green - *Dianthus armeria* ssp. *armeria*

11' Bracts subtending flowers reddish to brownish - *Petrorhagia dubia*

7' Styles 3

12 Stipules present - *Spergularia rubra*

12' Stipules absent

13 Calyx fused forming long narrow or inflated tube - *Silene*

13' Calyx free or only fused short distance at base, shallow, not inflated

14 Petals absent

15 Sepals 4 - *Engellaria obtusa*

15' Sepals 5 - *Stellaria*

14' Petals 5

16 Petals deeply notched, more than 1/2 length - *Stellaria*

16' Petal entire to shallowly notched

17 Annual

18 Leaves linear, thread-like, or narrowly lanceolate - *Sabulina*

18' Leaves ovate - *Arenaria serpyllifolia* var. *serpyllifolia*

17' Perennial

19 Leaves linear; sharp-pointed at tip, clustered at base of flowering

stems - *Eremogone*

19' Leaves wider than linear, not sharp-pointed, well distributed along

stem

20 Petals entire - *Moehringia macrophylla*

20' Petals notched

21 Flowers 1; stamens 5; anthers yellow - *Hartmaniella sierrae*

21' Flowers several; stamens 10; anthers purple -

Torreyostellaria jamesiana

Arenaria

Arenaria serpyllifolia var. *serpyllifolia*

Cerastium

1 Inflorescence glandular; upper bract margins green - *C. glomeratum*

1' Inflorescence non-glandular; upper bract margins white - *C. fontanum* ssp. *vulgare*

Cerastium fontanum ssp. *vulgare*

Cerastium glomeratum

Dianthus

Dianthus armeria ssp. *armeria*

Engellaria

Engellaria obtusa

Eremogone

1 Inflorescence an open cyme

2 Sepals obtuse or rounded; leaves generally glaucous - *E. aculeata*

2' Sepals acute or acuminate; leaves green - *E. kingii* var. *glabrescens*

1' Inflorescence head- or umbel-like

3 Pedicels absent or inconspicuous - *E. congesta* var. *congesta*

3' Pedicels 1-12mm long

4 Most sepals acute - *E. congesta* var. *subcongesta*

4' Most sepals obtuse - *E. congesta* var. *suffrutescens*

Eremogone aculeata

Eremogone congesta var. *congesta*

Eremogone congesta var. *subcongesta*

Eremogone congesta var. *suffrutescens*

Eremogone kingii var. *glabrescens*

Hartmaniella

Hartmaniella sierrae

Herniaria

Herniaria hirsuta var. *hirsuta*

Lychnis

Lychnis coronaria

Moehringia

Moehringia macrophylla

Petrorhagia

Petrorhagia dubia

Polycarpon

Polycarpon tetraphyllum var. tetraphyllum

Sabulina

1 Inflorescence glandular; leaves 1cm or more in length - *S. douglasii*

1' Inflorescence non-glandular; leaves shorter than 1cm - *S. californica*

Sabulina californica

Sabulina douglasii

Sagina

1 Perennial; glabrous; pedicels generally recurved in flower - *S. saginoides*

1' Annual; generally glandular hairy, at least on pedicels and/or sepals; pedicels straight in flower

2 Upper leaves hairy near base; petals absent or 4 and smaller than sepals - *S. apetala*

2' Upper leaves glabrous; petals 5 and equal to sepals - *S. decumbens* ssp. *occidentalis*

Sagina apetala

Sagina decumbens ssp. *occidentalis*

Sagina saginoides

Saponaria

Saponaria officinalis

Scleranthus

Scleranthus annuus ssp. *annuus*

Silene

1 Flowers red - *S. laciniata* ssp. *californica*

1' Flowers not red

2 Calyx distinctly inflated in flower, narrowing abruptly at tip - *S. latifolia*

- 2' Calyx not distinctly inflated in flower
- 3 Annual from slender taproot
 - 4 Calyx glandular; flowers small; petals shallowly notched or entire; styles included - *S. gallica*
 - 4' Calyx not glandular; flowers large; petals deeply notched; styles exerted - *S. dichotoma* ssp. *dichotoma*
 - 3' Perennial from caudex or rhizome
 - 5 Petal appendages absent; petals shallowly notched at tip or entire - *S. invis*a
 - 5' Petal appendages present; petals generally deeply notched
 - 6 Petals with 4 or more lobes of similar size
 - 7 Calyx tube short than 10mm; petal lobes lacy, often extremely curved; common - *S. lemmonii*
 - 7' Calyx tube longer than 10mm; petal lobes not lacy, generally spreading; uncommon
 - 8 Flowers smaller; petal lobes parallel; calyx 10-15 mm long; often sub- or alpine habitats - *S. bernardina*
 - 8' Flowers large; petal lobes diverging; calyx longer than 15 mm; conifer forest understories - *S. occidentalis*
 - 6 Petals 2-lobed, sometimes with small lateral teeth appearing like additional lobes
 - 9 Basal and lower cauline leaves crowded at base, abruptly smaller upward; rocky places sub- to alpine habitats - *S. sargentii*
 - 9' Leaves well distributed, gradually smaller upward; generally below subalpine in forest understories
 - 10 Petals shorter than 10mm; leaves broad - *S. menziesii*
 - 10' Petals longer than 10mm; leaves narrow
 - 11 Flowers nodding; stamens well-exserted; to 3000' - *S. bridgesii*
 - 11' Flowers spreading or erect; stamens barely or not exerted; above 5000' - *S. douglasii* var. *douglasii*

Silene bernardina

Silene bridgesii

Silene dichotoma ssp. *dichotoma*

Silene douglasii var. *douglasii*

Silene gallica

*Silene invis*a

Silene laciniata ssp. *californica*

Silene latifolia

Silene lemmonii

Silene menziesii

Silene occidentalis

Silene sargentii

Spergula

Spergula arvensis

Spergularia

Spergularia rubra

Stellaria

1 Styles 4-5 - *S. calycantha*

1' Styles 3

2 Leaves with distinct petioles; common at low to mid elevations - *S. media*

2' Leave sessile; mid to high elevations

3 Flowers single in leaf axils at mid-stem; leaf margins wavy; plants sprawling - *S. crispa*

3' Flowers, at least most, terminal; leaf margins not wavy; plant habit various

4 Petals longer than sepals; common in mountain meadows - *S. longipes* var.

longipes

4' Petals shorter than sepals or absent; uncommon

5 Bract margins green - *S. borealis* ssp. *sitchana*

5' Bract margins white, papery

6 Perennial from rhizomes; flowers generally nodding; petals absent; sepals short; branched near base - *S. umbellata*

6' Annual from taproot; flowers generally erect; petals 5 or absent; sepals long and pointed; not branched or rarely branched below inflorescence - *S. nitens*

Stellaria borealis ssp. *sitchana*

Stellaria calycantha

Stellaria crispa

Stellaria longipes var. *longipes*

Stellaria media

Stellaria nitens

Stellaria umbellata

Torreyostellaria

Torreyostellaria jamesiana

Celastraceae

Paxistima

Paxistima myrsitines

Ceratophyllaceae

Ceratophyllum

Ceratophyllum demersum

Chenopodiaceae

1 Leaves spine-tipped, sharp - *Salsola tragus*

1' Leaves not spine-tipped or sharp

2 Leaves not powdery

3 Leaf margins entire; plant not strong smelling - *Bassia scoparia*

3' Leaves shallowly to deeply toothed; plants strong smelling - *Dysphania*

2' Leaves powdery

4 Calyx absent, instead 2 bracts subtending ovary which swell to enclose fruit - *Atriplex rosea*

4' Calyx present, of 5 sepals enclosing to obscuring fruit - *Chenopodium*

4" Calyx present, of 1 sepal not obscuring fruit - *Monolepis nuttaliana*

Atriplex

Atriplex rosea

Bassia

Bassia scoparia

Chenopodium

1 Leaves with toothed margins

2 Fruit not pitted

3 Seed coat not adhering to fruit - *C. album*

3' Seed coat adhering to fruit - *C. strictum* var. *glaucophyllum*

2' Fruit pitted

4 Style base yellow in fruit - *C. berlandieri* var. *zschackei*

4' Style base not yellow in fruit - *C. berlandieri* var. *sinuatum*

1' Leaves entire or with 2 lobes at base but not toothed on margin

5 Leaves 2-5 times long as wide, narrowly oblong or more narrow

6 Leaf tip rounded or obtuse - *C. atrovirens*

6' Leaf tip acute or acuminate - *C. pratericola*

5' Leaves less than 2 times long as wide, elliptic, narrowly oblong or generally wider

7 Fruit hidden by calyx lobes when mature; each cluster of flowers a panicle - *C. incanum* var. *occidentale*

7' Fruit not hidden by calyx lobes when mature; each cluster of flowers spike-like - *C. fremontii*

Chenopodium album

Chenopodium atrovirens

Chenopodium berlandieri var. *sinuatum*

Chenopodium berlandieri var. *zschackei*

Chenopodium fremontii

Chenopodium incanum var. *occidentale*

Chenopodium pratericola

Chenopodium strictum var. *glaucophyllum*

Dysphania

- 1 Sepals sparsely glandular; plants typically larger
 - 2 Stem glabrous or glandular, long non-glandular hairs absent - *D. ambrosioides*
 - 2' Stems with glandular and long non-glandular hairy mixed - *D. chilensis*
- 1' Sepals densely glandular; plants typically smaller
 - 3 Inflorescence elongate; sepal glands stalked - *D. botrys*
 - 3' Inflorescence rounded; sepal glands sessile - *D. pumilio*

Dysphania ambrosioides

Dysphania botrys

Dysphania chilensis

Dysphania pumilio

Monolepis

Monolepis nuttalliana

Salsola

Salsola tragus

Cleomaceae

Cleomella

Cleomella serrulata

Comandraceae

Comandra

Comandra umbellata ssp. *californica*

Convolvulaceae

- 1 Plants lacking chlorophyll; herbage orange; parasitic - *Cuscuta*
- 1' Plants with chlorophyll; herbage not orange; not parasitic
 - 2 Flowers small, not showy; styles 2 - *Dichondra*

- 2' Flowers larger, showy; styles 1
- 3 Floral bracts small, more than 1.5cm below flowers - *Convolvulus arvensis*
- 3' Floral bracts large, sometimes leaf-like, directly below flowers to appressed against calyx - *Calystegia*

Calystegia

- 1 Leaves deeply linear lobed; gabbro substrates - *C. stebbinsii*
- 1' Leaves not or shallowly lobed; leaves more or less arrow-shaped
 - 2 Leaves densely white hairy - *C. malacophylla* ssp. *malacophylla*
 - 2' Leaves usually glabrous or nearly so, occasionally hairy but not densely white-hairy - *C. occidentalis* ssp. *occidentalis*

Calystegia malacophylla ssp. *malacophylla*

Calystegia occidentalis ssp. *occidentalis*

Calystegia stebbinsii

Convolvulus

Convolvulus arvensis

Cuscuta

- 1 Stigmas elongated; calyx with short hood-like appendage at tips of lobes - *C. approximata*
- 1' Stigmas rounded or elliptic; calyx without appendage
 - 2 Corolla scales absent
 - 3 Fruit easily visible in corolla tube, top of fruit reaching base of corolla lobes; fruit translucent - *C. occidentalis*
 - 3' Fruit not visible in corolla tube; top of fruit well below base of corolla lobes; fruit not translucent
 - 4 Calyx length less than $\frac{1}{2}$ corolla tube length - *C. brachycalyx*
 - 4' Calyx length more than $\frac{3}{4}$ corolla tube length - *C. californica* var. *californica*
 - 2' Corolla scales present
 - 5 Calyx half the length of corolla tube - *C. subinclusa*
 - 5' Calyx equal to or longer than corolla tube
 - 6 Corolla scales very small; generally in mountain meadows - *C. suksdorfii*
 - 6' Corolla scales large and easily noticeable; habitat various - *C. campestris*

Cuscuta approximata

Cuscuta brachycalyx

Cuscuta californica var. *californica*

Cuscuta campestris

Cuscuta occidentalis

Cuscuta subinclusa

Cuscuta suksdorfii

Dichondra

Dichondra donelliana

Cornaceae

Cornus

1 Inflorescence with large, white, petal-like bracts below flower clusters; plants of dry habitats

- *C. nuttallii*

1' Inflorescence with large, white, petal-like bracts absent; plants of wet habitats

2 Flowers small, green-yellow, inconspicuous, emerging before leaves; fruit black, olive-like

- *C. sessilis*

2' Flowers larger, white, conspicuous, emerging after leaves; fruit white to metallic blue

3 Leaf veins in 3-4 pairs; typically lower elevations - *C. glabrata*

3' Leaf veins in 4-7 pairs; typically of higher elevations, rare at mid-elevations

4 Leaves abaxially glabrous or sparsely hairy - *C. sericea* ssp. *sericea*

4' Leaves abaxially densely hairy - *C. sericea* ssp. *occidentalis*

Cornus glabrata

Cornus nuttallii

Cornus sericea ssp. *occidentalis*

Cornus sericea ssp. *sericea*

Cornus sessilis

Crassulaceae

1 Annual; leaves opposite, persistent beyond flowering, fused and sheathing at base; inflorescence axillary, single - *Crassula*

1' Annual; leaves alternate, absent by peak flower, free, not sheathing at base; inflorescence terminal, cyme - *Sedella pumila*

1" Perennial (annual or short-lived perennial in *Sedum radiatum* ssp. *radiatum*); leaves persistent beyond flowering, alternate or whorled, free, not sheathing at base

2 Inflorescence axillary; rosettes robust - *Dudleya cymosa* ssp. *cymosa*

2' Inflorescence terminal; rosettes small or absent

3 Petals 5; plants typically small and mat-forming; inflorescence a cyme - *Sedum*

3' Petals 4; plants typically robust and not mat-forming; inflorescence head-like - *Rhodiola integrifolia* ssp. *integrifolia*

Crassula

1 Flowers 1 per node; plants of wet habitats; sprawling and rooting at nodes - *C. aquatica*

1' Flowers 2 per node; plants of dry habitats; erect and not rooting at nodes

2 Leaves pointed; flower parts in threes - *C. tillaea*

2' Leaves rounded; flower parts in fours - *C. connata*

Crassula aquatica

Crassula connata

Crassula tillaea

Dudleya

Dudleya cymosa ssp. *cymosa*

Rhodiola

Rhodiola integrifolia ssp. *integrifolia*

Sedella

Sedella pumila

Sedum

1 Plants from above 5000 ft; petals short and erect or long and spreading

2 Leaves linear and pointed; petals long and spreading; highest elevations - *S. lanceolatum*

2' Leaves wide and rounded; petals short and erect; occurring at lower elevations than *S. lanceolatum* and also overlapping in range

3 Flowers yellow, aging white or yellow - *S. obtusatum*

3' Flowers white, aging pink - *S. paradisum* ssp. *subroseum*

1' Plants from below 5000 ft; petals long and spreading

4 Leaves flat in cross-section, generally glaucous; rosettes abundant; flowers yellow; very common - *S. spathulifolium*

4' Leaves more or less rounded in cross-section, green; rosettes not abundant; flowers yellow; rare from one known occurrence - *S. radiatum* ssp. *radiatum*

4" Leaves rounded in cross-section; green; rosettes not abundant; flowers white to pink; rare from one known occurrence - *S. album*

Sedum album

Sedum lanceolatum

Sedum obtusatum

Sedum paradisum ssp. *subroseum*

Sedum radiatum ssp. *radiatum*

Sedum spathulifolium

Cucurbitaceae

Marah

1 Fruits very prickly, green; flowers rotate; leaves shallowly lobed - *Marah fabacea*

1' Fruits sparsely or not prickly, often with dark vertical lines; flowers bell-shaped; leaves deeply lobed - *Marah watsonii*

Marah fabacea

Marah watsonii

Cupressaceae

1 Cone fleshy and berry like; leaves linear or awl-like - *Juniperus*

1' Cone elongated and two-valved; leaves flat and scale-like - *Calocedrus decurrens*

1" Cone rounded, soccer ball like; leaves with white resin glands - *Hesperocyparis macnabiana*

1''' Cone cylindrical; leaves awl-like - *Sequoiadendron giganteum*

Calocedrus

Calocedrus decurrens

Hesperocyparis

Hesperocyparis macnabiana

Juniperus

1 Low creeping-sprawling shrub - *J. communis* var. *kelleyi*

1' Tall tree - *J. grandis*

Juniperus communis var. *kelleyi*

Juniperus grandis

Sequoiadendron

Sequoiadendron giganteum

Cyperaceae

1 Flowers, fruit enclosed in a sac-like structure - *Carex*

1' Flowers, fruit not enclosed

2 Flower bracts 2-ranked; spikelets flattened

3 Inflorescence axillary - *Dulichium arundinaceum* var. *arundinaceum*

3' Inflorescence terminal - *Cyperus*

2' Flower bracts spiraled or absent; spikelets not flattened

4 Cauline leaves absent

5 Flower bracts absent; spikelet always 1 - *Eleocharis*

5' Flower bracts present; spikelets 1 or more

6 Plants tall; flower bract with one vein - *Schoenoplectus*

6' Plants short; flower bract with 3 veins

7 Flower bract 1 per flower - *Isolepis setacea*

7' Flower bract 2 per flower, second bract often reduced between spikelet

and axis - *Lipocarpa*

4' Cauline leaves present

8 Inflorescences 2 or more

9 Flowers 5 or fewer per spikelet - *Rhynchospora*

9' Flowers 10 or more per spikelet - *Scirpus*

8' Inflorescence 1

10 Leaf sheath tip margins scabrous or ciliate - *Bulbostylis capillaris*

- 10' Leaf sheath tip margins glabrous
- 11 Stem cylindrical; perianth bristles many, smooth - *Eriophorum gracile*
- 11' Stem 3-angled; perianth bristles few, barbed
- 12 Inflorescence head-like - *Calliscirpus brachythrix*
- 12' Inflorescence branched - *Scirpus*

Bulbostylis

Bulbostylis capillaris

Calliscirpus

Calliscirpus brachythrix

Carex

This genus is incomplete. **Bolded** species names are confirmed in the county. Names not bolded may not actually be present in county but have been documented as occurring here.

To make things a bit easier, I've split the *Carex* into nine groups. There are several specialized terms you must know to work with *Carex* species. The perigyna, shortened in the key to peri, is the fruit covering. Each female flower has one. The peri may have a beak at its tip or not. Similarly, below each female flower is the pistillate flower bract. They often contrast in color to the peri. Spikelets are clusters of flowers and inflorescences are clusters of spikelets. Below each stem leaf is the sheath which splits off into a blade at the collar. At the collar, usually appressed to the leaf blade, you will find the ligule. Opposite the stem from the leaf blade, some species have an appendage called the contraligule. The other terms you'll come across are general botany vocabulary that applies across the board. Mature peri are needed in most cases to identify to species. Complicating things, sometimes *Carex* species put out aberrant late season flowers which can differ from their normal forms by quite a bit. *Carex* are very difficult, especially those in group 9! But they can be very rewarding to work with. And as with most things, practice makes perfect.

Key to groups

- 1 Plants hairy on any part - Group 1
- 1' Plants entirely glabrous
 - 2 Spikelets 1, terminal - Group 2
 - 2' Spikelets 2 or more
 - 3 Stigmas 3
 - 4 Inflorescence bract sheath 6mm long or more - Group 3

- 4 Inflorescence bract sheath 5mm long or less - Group 4
- 3' Stigmas 2
 - 5 Male and female flowers on separate flowering stems - Group 5
 - 5 Male and female flowers present on the same flowering stem
 - 6 Terminal spikelet staminate - Group 6
 - 6' Terminal spikelet with both male and female flowers
 - 7 Staminate flowers located above pistillate flowers in each spikelet - Group 7
 - 7' Pistillate flowers located above staminate flowers in each spikelet
 - 8 Peri without winged margins - Group 8
 - 8 Peri with winged margins, wings sometimes very narrow - Group 9

Group 1: Plants hairy on any part

Check the peri, the leaves, and the stems for hairs.

- 1 Leaves or sheaths hairy; peri hairy or glabrous
 - 2 Plants dioecious - *C. scirpoidea* ssp. *pseudoscirpoidea*
 - 2' Plant monoecious
 - 3 Leaf blades glabrous; sheaths hairy at least at mouth
 - 4 Plants caespitose; spikelets narrow and drooping; peri narrow and gradually narrowed at tip - ***C. cyrtostachya***
 - 4' Plants rhizomatous; spikes wider, not drooping; peri rounded and abruptly narrowed at tip - ***C. amplifolia***
 - 3' Leaf blades hairy; sheaths hairy or glabrous
 - 5 Plants caespitose
 - 6 Peri hairy; generally in forest openings below 5000' - ***C. hirtissima***
 - 6' Peri glabrous; generally in forest understories above 5000' - ***C. whitneyi***
 - 5' Plants rhizomatous
 - 7 Peri gradually narrowed to beak; fruit smaller than peri body - ***C. sheldonii***
 - 7' Peri abruptly narrowed to beak; fruit more or less filling peri body
 - 8 Upper ligules short, tough - ***C. lasiocarpa***
 - 8' Upper ligules longer, membranous - ***C. pellita***
 - 1' Leaves and sheaths glabrous; peri hairy
 - 9 Spikelets 1
 - 10 Plants dioecious - *C. scirpoidea* ssp. *pseudoscirpoidea*
 - 10' Plants monoecious - ***C. filifolia* var. *erostrata***
 - 9' Spikelets 2 or more
 - 11 Staminate spikelets 2-3, sometimes additional spikelets are small and inconspicuous
 - 12 Upper ligules short, tough - ***C. lasiocarpa***
 - 12' Upper ligules longer, membranous - ***C. pellita***
 - 11' Staminate spikelets 1
 - 13 Plants on gabbro between 2000-3000' - ***C. xerophila***

13 Plants not on gabbro; found above 4000'

14 Peri elongate

15 Peri with short, stiff hairs or bristles; flower bract midvein and distal margin scabrous to ciliate - **C. fissuricola**

15' Peri faces with long, soft, thin hairs; flower bract midvein and margin glabrous - **C. luzulina**

14' Peri rounded

16 Peri with 12-20 strong veins at least to midbody; pistillate flower bracts with 3-5 prominent veins - **C. brainerdii**

16' Peri with 2 strong veins, veins otherwise absent or faint; pistillate flower bracts with 1 prominent vein

17 Peri 3.1mm or shorter, beak 0.8 mm or shorter; stems spreading or arching, smooth except near inflorescence; rhizomes slender - **C. deflexa var. boottii**

17' Peri 3.1mm or longer, beak 0.7mm or longer; stems ascending, scabrous; rhizomes stout - **C. rossii**

Group 2: Inflorescence 1 terminal spikelet

This small group of *Carex* has only a single spikelet. Take care not to confuse a dense inflorescence of several spikelets for only one.

1 Lowest pistillate flower bracts green and leaf-like

2 Upper stem angles rounded or blunt; inflorescence held further out than reaches of longest leaves - **C. multicaulis**

2' Upper stem angles sharp; inflorescence not held further out than reaches of longest leaves - *C. tompkinsii*

1' Lowest pistillate flower bracts not green or leaf-like

3 Peri body wide and round - **C. capitata**

3' Peri body narrow, elliptic to oblanceolate - **C. nigricans**

Group 3: Stigmas 3 AND Inflorescence bract sheath 6mm long or more

This group has 3 stigmas per flower and inflorescence bract, located below the lowest spikelet has a sheath which is quite long. Some species of *Carex* may have 2 or 3 stigmas, but if that is known of the species, I've included that species in both keys.

1 Terminal spikelet with pistillate flowers held over staminate flowers

2 Peri flat - **C. heteroneura**

2' Peri plump

3 Peri papillate - **C. serratodens**

3' Peri not papillate - **C. luzulina**

1' Terminal spikelet staminate or with staminate flowers held over pistillate flowers

4 Pistillate flower bract light colored

5 Lowest spikelet long peduncled - **C. hirtissima**

5' Lowest spikelet sessile or short peduncled

6 Spikelets long, 3cm or longer - **C. utriculata**

6' Spikelets short, 2cm or shorter long - **C. lemmonii**

4' Pistillate flower bract dark colored

7 Peri beak distinct and shorter than 0.5mm, or indistinct

8 Peri gradually narrowed to indistinct beak - **C. luzulina**

8' Peri abruptly narrowed to distinct beak

9 Peri not papillate - **C. raynoldsii**

9' Peri papillate - **C. hassei**

7' Peri beak distinct and longer than 0.5mm

10 Pistillate spikelets 2cm or longer, linear; peri beak ciliate on inner side of teeth -

C. cyrtostachya

10' Pistillate spikelets 2cm or shorter, oblong; peri beak generally not ciliate on inner side of teeth, but beak margins and outer side of teeth generally with spreading, stiff bristles

11 Pistillate flower bract margins ciliate distally - **C. fissuricola**

11' Pistillate flower bract margins glabrous

12 Peri flat margin more than 1/2 fruit width; lowest spikelets long-peduncled; inflorescence bract sheath expanded - **C. luzulifolia**

12' Peri flat margin absent or less than 1/2 fruit width; lowest spikelets sessile or short-peduncled; inflorescence bract not expanded

13 Pistillate flower bract margins white - **C. lemmonii**

13' Pistillate flower bract margins not white - **C. luzulina**

Group 4: Stigmas 3 AND Inflorescence bract sheath shorter than 5mm

This group contains the last of the species with 3 stigmas. All other groups beyond this incorporate species with 2 stigmas.

1 Peri inflated

2 Lower lateral spikelets drooping - **C. amplifolia**

2' Lower lateral spikelets not drooping

3 Lateral spikelets 2cm or shorter; peri 2mm wide or less; peri beak 0.5mm or shorter -

C. raynoldsii

3' Lateral spikelets longer than 2cm; peri wider than 2mm; peri beak 1mm or longer

4 Leaves wider; plants rhizomatous; stem base spongy and thickened; crosswalls between veins at stem base many, obvious- **C. utriculata**

4' Leaves more narrow; plants cespitose; stem not as above; crosswalls between veins at stem base fewer, sometimes inconspicuous - **C. vesicaria**

1' Peri not inflated

5 Terminal spikelet staminate

6 Spikelet 1; dry forest understories - **C. tompkinsii**

6' Spikelets 2 or more; wet habitats

7 Lowest spikelet erect to ascending

8 Peri beak with two obvious teeth - **C. serratodens**

8' Peri beak teeth 0 - **C. raynoldsii**

7' Lowest spikelet nodding

9 Spikelets long, to 14cm - **C. amplifolia**

9' Spikelets short, 3cm or shorter

10 Pistillate flower bract brown; rhizomatous - **C. limosa**

10' Pistillate flower bract dark purple with light colored midrib; cespitose - **C.**

spectabilis

5' Terminal spikelet pistillate or pistillate and staminate mixed

11 Pistillate flower bract not awned

12 Peri faces veined; fruit not filling peri when mature - **C. raynoldsii**

12' Peri faces veinless or veins obscure; Fruit filling peri when mature - **C.**

heteroneura

11' Pistillate flower bract awned

13 Peri faces veined - **C. serratodens**

13 Peri faces veinless - **C. helleri**

Group 5: Stigmas 2 AND Male and female flowers on separate flowering stems

This group contains the dioecious species which have separate male and female individuals. The key provides a path whether you happen to have found a male or a female plant.

1 Flowers male

2 Leaf sheath red-dotted

3 Leaf sheath front colorless at mouth, rim not thick or dark, generally with contraligule

- **C. alma**

3' Leaf sheath front orange or purple at mouth, rim often thick or dark, without contraligule - **C. cusickii**

2' Leaf sheath not red dotted

4 Anther awn absent; plant cespitose - **C. infirminervia**

4' Anther awn present; plant rhizomatous

5 Anther awn hairy - **C. praegracilis**

5' Anther awn glabrous

6 Inflorescence bract scale-like and inconspicuous - **C. douglasii**

6' Inflorescence bract obvious, leaf-like - **C. simulata**

1' Flowers female

7 Leaf sheath red-dotted

8 Leaf sheath front colorless at mouth, rim not thick or dark, without contraligule - **C.**

alma

8' Leaf sheath front orange or purple at mouth, rim often thick or dark, with contraligule - **C. cusickii**

7' Leaf sheath not red dotted

9 Peri length less than 2x width - **C. simulata**

9' Peri length 2x width or more

10 Plant cespitose; leaf sheath ligule 2.5-7mm long - **C. infirminervia**

10' Plant rhizomatous; leaf sheath ligule absent or shorter than 3mm

11 Inflorescence ovate; styles exerted; pistillate flower bract larger than peri -

C. douglasii

11' Inflorescence narrow; styles included; pistillate flower bract roughly equal in size to peri - **C. praegracilis**

Group 6: Male and female flowers both present on each flowering stem AND terminal spikelet staminate

This group contains those species which have a staminate terminal spikelet. In some species, this is variable and I've done my best to include that variability by duplicating species across applicable groups.

1 Peri fleshy, plump

2 Mature peri bright orange just before dropping, green to white when immature, spheric, spreading; pistillate flower bracts spreading; ripe peri smooth, papillate when immature - **C. aurea**

2' Mature peri green to white just before dropping, occasionally purple- or red-brown-marked, elliptic, ascending; pistillate flower bracts ascending; ripe peri densely papillate - **C. hassei**

1' Peri not fleshy, more or less flat

3 Peri veinless

4 Lower leaf sheaths red-dotted or white; inflorescence bract generally exceeding inflorescence; flower stem base thickened - **C. aquatilis var. aquatilis**

4' Lower leaf sheaths brown- or purple-dotted; inflorescence bract not exceeding inflorescence; flower stem base not thickened - **C. scopulorum var. bracteosa**

3' Peri veined

5 Lower leaf sheaths lacking red or brown colorations

6 Pistillate flower bracts longer than peri; rhizomatous - **C. nebrascensis**

6' Pistillate flower bracts shorter than peri; cespitose

7 Upper half of peri purple-dotted, abaxially with 1 to 3 veins, beak generally purple - **C. lenticularis var. impressa**

7' Upper half of peri generally green, abaxially with 5 to 7 veins, beak generally green, tip purple - **C. lenticularis var. lipocarpa**

5' Lower leaf sheaths with red or brown colorations

8 Lower leaf sheaths bladeless

9 Pistillate flower bract shorter than peri; cespitose - **C. nudata**

9' Pistillate flower bract longer than peri; rhizomatous - **C. angustata**

8' Lower leaf sheaths all with blades

10 Pistillate flower bract shorter than peri - **C. senta**

10' Pistillate flower bract longer than peri - **C. barbarae**

Group 7: Staminate flowers located above pistillate flowers

Examine your spikelets. This group is for those that have staminate flowers located distal to the pistillate flowers.

1 Lower leaf sheath faces hyaline or green, not brown nor red-dotted; cespitose

2 Peri widest near middle, abruptly narrowed to distinct beak, peri dark brown with green margin, veinless - **C. hoodii**

2' Peri widest near base, gradually narrowed to indistinct beak, peri pale brown, conspicuously veined - **C. jonesii**

1' Lower leaf sheath faces brown- or red-dotted; cespitose

3 Peri green or pale to medium brown

4 Inflorescence generally elongate with many protruding bracts - **C. vulpinoidea**

4' Inflorescence generally head-like with few, if any, protruding bracts

5 Plants of elevations below 4000'; peri 3-7 veined - **C. densa**

5' Plants of sub- and alpine habitats; peri 7-15 veined - **C. nervina**

3' Peri dark brown to black

6 Contraligule absent or shorter than 1mm - **C. alma**

6' Contraligule 4mm long or generally longer

6 Peri strongly 7-11 veined abaxially - **C. cusickii**

6' Peri strongly 4-6 veined abaxially - **C. diandra**

1" Lower leaf sheath faces brown; rhizomatous

8 Inflorescence open; peri few, plump - **C. disperma**

8' Inflorescence dense and head-like or elongate but continuous; peri many, more or less flattened

9 Peri length less than 2x width - **C. simulata**

9' Peri length 2x width or more

10 Pistillate flower bracts lacking white margins - **C. vernacula**

10' Pistillate flower bracts with white margins

11 Inflorescence ovate; styles exerted; pistillate flower bract larger than peri; anther awn glabrous - **C. douglasii**

11' Inflorescence narrow; styles included; pistillate flower bract roughly equal in size to peri; anther awn hairy - **C. praegracilis**

Group 8: Pistillate flowers located above staminate flowers

AND Peri without winged margins

1 Peri widely spreading or reflexed, beak obvious

2 Pistillate flower bract black, obtuse - **C. illota**

2' Pistillate flower bract brown, acute - **C. echinata ssp. echinata**

1' Peri ascending or beak inconspicuous

3 Peri beak 0.5mm or shorter or absent; peri widest near middle

4 Peri not fleshy - **C. canescens ssp. canescens**

4' Peri fleshy

5 Mature peri bright orange just before dropping, green to white when immature, spheric, spreading; pistillate flower bracts spreading, often falling before peri; ripe peri smooth (often papillate when immature) - **C. aurea**

5' Mature peri green to white just before dropping, occasionally purple- or red-brown-marked, elliptic, ascending; pistillate flower bracts ascending, generally persisting with peri; ripe peri dense-papillate - **C. hassei**

3' Peri beak generally 0.5mm or longer; peri widest somewhere below middle

6 Pistillate flower bract not awned; peri beak up to 40% peri length when measured on peri taken from middle of spikelet - **C. laeviculmis**

6' Pistillate flower bract awned; peri beak more than 40% peri length when measured on peri taken from middle of spikelet

7 Peri beak teeth prominent; mid-stem glabrous or scabrous; spikelets longer than 13mm - **C. bolanderi**

7' Peri beak teeth not prominent; mid-stem papillate; spikelets shorter than 15mm - **C. infirminervia**

Group 9: Peri with winged margins

This is our final group and it is by far the largest and most difficult to work with. You'll need a dissecting microscope and a ruler to work with these. The differences between species can be subtle. If you've been undeterred, please proceed. I wish you luck!

1 Leaf sheath green to top or with white translucent area shorter than 6mm - **C. feta**

1' Leaf sheath with white translucent area 10mm long or more

2 Contraligule 3-13mm long

3 Peri wings less than 0.3mm wide at mid-body; contraligule longer than 5mm - **C.**

fracta

3' Peri wings 0.3-0.5mm wide at mid-body; contraligule generally 3-5mm long

4 Peri adaxial veins 1-6, none exceeding fruit - **C. multcostata**

4' Peri adaxial veins 6-10 with 3 or more exceeding fruit - **C. specifica**

2' Contraligule 2mm or shorter or absent

5 Peri margin entire; wings less than 0.2mm wide

6 Peri wings often inrolled, beak generally with inconspicuous suture; 2500' or below - **C. gracilior**

6' Peri wings flat, beak with obvious white-margined suture; 3000' or higher - **C.**

integra

5' Peri margin serrate or wings wider than 0.2mm

7 Flower bracts covering peri

8 Inflorescence bent, flexible, or nodding - **C. gracilior**

8' Inflorescence straight, stiff, and erect

9 Longest peri 6mm or longer - **C. specifica**

- 9' Longest peri shorter than 6mm
 - 10 Peri 1.2mm wide or less; wings incurved - **C. leporinella**
 - 10' Peri 1.3mm or wider; wings not incurved - **C. phaeocephala**
- 7' Flower bracts shorter than or more narrow than peri
 - 11 Longest peri longer than 6mm
 - 12 Inflorescence elongate, not head-like
 - 13 Inflorescence generally dense, elliptic, spikelets 6-14; peri margin crinkled or flat; pistillate flower bracts green, light brown, or red-brown - **C. specifica**
 - 13' Inflorescence open, oblong, spikelets 1-7; peri margin flat; pistillate flower bracts red-brown - **C. davyi**
 - 12 Inflorescence head-like, dense
 - 14 Peri flat except over fruit; pistillate bracts dark brown to black - **C. haydeniana**
 - 14' Peri panoconvex; pistillate bracts light brown or reddish - **C. pachycarpa**
 - 11' Longest peri shorter than 6mm
 - 15 Inflorescence dense, ovate, head-like
 - 16 Peri flat except over fruit; pistillate bracts dark brown to black - **C. haydeniana**
 - 16' Peri panoconvex; pistillate bracts light brown or reddish - **C. pachycarpa**
 - 15' Inflorescence dense or not, elliptic to oblong in shape, but not head-like
 - 17 Inflorescence generally dense, elliptic, spikelets 6-14; peri margin crinkled or flat; pistillate flower bracts green, light brown, or red-brown - **C. specifica**
 - 17' Inflorescence open, oblong, spikelets 1-7; peri margin flat; pistillate flower bracts red-brown - **C. davyi**
 - 18 Inflorescence bract longer than inflorescence
 - 19 Peri adaxial veins exceeding fruit tip - **C. fracta**
 - 19' Peri adaxial veins absent or not exceeding fruit tip - **C. athrostachya**
 - 18' Inflorescence bract shorter than inflorescence
 - 20 Peri tip winged, flattened, serrate, light colored
 - 21 Widest peri more narrow than 2.2mm - **C. staminiformis**
 - 21' Widest peri wider than 2.2mm
 - 22 Peri adaxial veins exceeding fruit; peri lanceolate - **C. specifica**
 - 22' Peri adaxial veins not exceeding fruit or absent; peri ovate
 - 23 Peri gradually narrowed to indistinct beak, adaxial veins obvious, 3-13 in number - **C. multcostata**
 - 23' Peri abruptly narrowed to distinct beak, adaxial veins absent or with 3, inconspicuous - **C. preslii**
 - 20' Peri tip cylindrical, entire, often dark colored or black
 - 24 Peri flat, thin except over fruit

25 Peri wide-elliptic to round, margins occasionally crinkled or ruffled, beak distinct, 1/5-1/4 of total peri length; pistillate flower bract width 1/2 peri width - **C. straminiformis**

25' Peri ovate to lanceolate, margins flat, beak indistinct or longer than 1/4 of total peri length; pistillate flower bract width more than 1/2 peri width

26 Most peri distinctly short-stalked; inflorescence bract on some heads long-awned, wide at base - **C. athrostachya**

26' Most or all peri not distinctly stalked; inflorescence bract rarely long-awned or wide at base - **C. microptera**

24' Peri somewhat convex, thick

27 Peri adaxial veins 3-10, exceeding fruit

28 Inflorescence compact, head-like, lower spikelets indistinct, spikelet bases generally blunt - **C. abrupta**

28' Inflorescence elongated, not head-like, lower spikelets generally distinct, spikelet bases generally tapered - **C. mariposana**

27' Peri adaxial veins absent or short, none exceeding fruit

29 Peri wings at mid-body often inrolled so not visible from abaxial side - **C. gracilior**

side

29' Peri wings generally not inrolled, visible from abaxial

than 0.3mm wide - **C. subfusca**

30 Peri shorter than 3.5mm, wing at midbody less

wide or more - **C. preslii**

30' Peri 3.5mm or longer, wing at midbody 0.3mm

Carex abrupta

Carex alma

Carex amplifolia

Carex angustata

Carex aquatilis var. aquatilis

Carex athrostachya

Carex aurea

Carex barbarae

Carex bolanderi

Carex brainerdii

Carex canescens ssp. canescens

Carex capitata

Carex cusickii

Carex cyrtostachya

Carex davyi

Carex deflexa var. boottii

Carex densa

Carex diandra

Carex disperma

Carex douglasii

Carex echinata ssp. echinata

Carex feta

Carex filifolia var. erostrata

Carex fissuricola

Carex fracta

Carex gracilior

Carex hassei

Carex haydeniana

Carex helleri

Carex heteroneura

Carex hirtissima

Carex hoodii

Carex illota

Carex infirminervia

Carex integra

Carex jonesii

Carex laeviculmis

Carex lasiocarpa

Carex lemmonii

Carex lenticularis var. impressa

Carex lenticularis var. lipocarpa

Carex leporinella

Carex limosa

Carex luzulifolia

Carex luzulina

Carex mariposana

Carex microptera

Carex multicaulis

Carex multcostata

Carex nebrascensis

Carex nervina

Carex nigricans

Carex nudata

Carex pachycarpa

Carex pellita

Carex phaeocephala

Carex praegracilis**Carex preslii****Carex raynoldsii****Carex rossii**

Carex scirpoidea ssp. pseudoscirpoidea

Carex scopulorum var. bracteosa

Carex senta

Carex serratodens**Carex sheldonii****Carex simulata****Carex specifica****Carex spectabilis****Carex straminiformis****Carex subfusca**

Carex tompkinsii

Carex utriculata**Carex vernacula****Carex vesicaria****Carex vulpinoidea****Carex whitneyi**

Carex xerophila**Cyperus**

1 Stigmas 2

2 Flower bracts yellow, wrinkled - *C. flavescens*2' Flower bracts brown or black, not wrinkled - *C. melanostachys* var. *capitatus*

1' Stigmas 3

3 Flower bract tips outcurved - *C. squarrosus*

3' Flower bract tips not outcurved

4 Rhizomes absent; annual; flower bracts 1mm or shorter - *C. difformis*

4' Rhizomes generally present; annual or perennial; flower bracts 1.3mm or longer

5 Fruit length equaling width - *C. eragrostis*5' Fruit longer than wide - *C. strigosus**Cyperus difformis**Cyperus eragrostis**Cyperus flavescens**Cyperus melanostachys* var. *capitatus**Cyperus squarrosus**Cyperus strigosus***Dulichium***Dulichium arundinaceum* var. *arundinaceum***Eleocharis**

1 Annuals; rhizomes absent

2 Plants very small; fruit textured; distal leaf sheath delicate, often disintegrating - *E. bella*

2' Plants very small or larger; fruit smooth; distal leaf sheath firm, persistent

3 Fruit tubercle less than $\frac{1}{4}$ the length of the fruit; perianth bristles usually much smaller than fruit but can equal fruit in length - *E. engelmannii*3' Fruit tubercle $\frac{1}{3}$ the length of the fruit or longer; perianth bristles longer than fruit -*E. obtusa*

1' Perennials; rhizomes or caudices present

4 Distal leaf sheath delicate, often disintegrating - *E. acicularis*

4' Distal leaf sheath firm, persistent

6 Stigmas 2

7 Basal flower bracts clasping $\frac{3}{4}$ of stem or more; distal leaf sheath truncate to obtuse, sometimes with tooth-like projection - *E. macrostachya*

7' Basal flower bracts clasping $\frac{3}{4}$ of stem or less; distal leaf sheath obtuse to acute - *E. palustris*

6' Stigmas 3

8 Proximal spikelet internodes thicker and shorter than internodes in middle of spikelet; spikelet scales 4-12

9 Caudices 0.5mm or thinner or usually absent; proximal spikelet scale with flower; resting buds on rhizomes usually present - *E. quinqueflora*

9' Caudices 1-2mm thick; proximal spikelet scale without flower; resting buds absent - *E. suksdorfiana*

8' Proximal spikelet internodes same thickness and length as internodes in middle of spikelet; spikelet scales 5-many

10 Perianth bristles not more than half fruit length; fruit tubercle not distinct; fruit straw colored - *E. bolanderi*

10' Perianth bristles more than half fruit length or not; fruit tubercle distinct; fruit dark colored

11 Stems sharply 4 angled - *E. pachycarpa*

11' Stems cylindrical or flat

12 Distal stem sheath truncate or flatly obtuse, without tooth-like projection; flower bracts 10-20 - *E. decumbens*

12' Distal stem sheaths, at least some, with 1mm long tooth-like projection; flower bracts 30-100 - *E. montevidensis*

Eleocharis acicularis

Eleocharis bella

Eleocharis bolanderi

Eleocharis decumbens

Eleocharis engelmannii

Eleocharis macrostachya

Eleocharis montevidensis

Eleocharis obtusa

Eleocharis pachycarpa

Eleocharis palustris

Eleocharis quinqueflora

Eleocharis suksdorfiana

Eriophorum

Eriophorum gracile

Isolepis

Isolepis setacea

Lipocarpha

1 Outer flower bract awn 1mm or longer, always outcurved - *L. occidentalis*

1' Outer flower bract 1mm or shorter, outcurved or straight - *L. micrantha*

Lipocarpha micrantha

Lipocarpha occidentalis

Rynchospora

1 Flowers generally white or pale; perianth bristles 10-12 - *R. alba*

1' Flowers generally brown or darker; perianth bristles 5-7 - *R. capitellata*

Rynchospora alba

Rynchospora capitellata

Schoenoplectus

1 Stem 3-angled, at least near inflorescence

2 Flower bracts notched; leaf blades present; far eastern end of county - *S. americanus*

2' Flower bracts not notched; leaf blades absent; far western end of county - *S.*

mucronatus

1' Stem cylindrical

3 Stem 1.5mm diameter or skinnier; flower bract tip notch absent - *S. subterminalis*

3' Stem 2mm diameter or wider; flower bract tip notch present - *S. acutus* var. *occidentalis*

Schoenoplectus acutus var. *occidentalis*

Schoenoplectus americanus

Schoenoplectus mucronatus

Schoenoplectus subterminalis

Scirpus

1 Ligule where leaf meets stem present; stigmas 2 - *S. microcarpus*

1' Ligule where leaf meets stem absent; stigmas 3

2 Perianth bristles much exceeding fruit when uncurled; minute perianth bristle teeth ascending - *S. congdonii*

2' Perianth bristles more or less equal to fruit when uncurled; minute perianth bristle teeth reflexed - *S. diffusus*

Scirpus congdonii

Scirpus diffusus

Scirpus microcarpus

Cystopteridaceae

Cystopteris

Cystopteris fragilis

Dennstaediaceae

Pteridium

Pteridium aquilinum var. *pubescens*

Dipsacaceae

Dipsacus

1 Flower spines straight - *D. fullonum*

1' Flower spines recurved - *D. sativus*

Dipsacus fullonum

Dipsacus sativus

Droseraceae

Drosera

1 Leaf ascending; leaf elongate; seeds black, striate; rare with one general population known of in the county - *D. anglica*

1' Leaf spreading; leaf round; seeds light brown, striate to netted; relatively common when in the right habitat - *D. rotundifolia*

Drosera anglica

Drosera rotundifolia

Dryopteridaceae

1 Auricle (sword hilt) present at pinna base; leaves leathery - *Polystichum*

1' Auricle absent at pinna base; leaves not leathery - *Dryopteris arguta*

Dryopteris

Dryopteris arguta

Polystichum

1 Pinnae divided deeply, almost to midrib, especially at base - *P. californicum*

1' Pinnae not divided, only toothed

2 Plants large; rachis scales wide and persistent; tip of pinnae generally gradually tapering to point - *P. munitum*

2' Plants smaller; rachis scales skinny and deciduous, often few distally; pinnae tip generally abruptly tapering to point

3 Pinnae turned more or less perpendicular to rachis, less than 5x long as wide; generally exposed rocky areas - *P. imbricans* ssp. *imbricans*

3' Pinnae held more or less parallel to rachis, more than 5x long as wide; generally shaded forests - *P. imbricans* ssp. *curtum*

Polystichum californicum

Polystichum imbricans ssp. *curtum*

Polystichum imbricans ssp. *imbricans*

Polystichum munitum

Elatinaceae

Elatine

Elatine chilensis

Equisetaceae

Equisetum

1 Stems long-lived, fertile stems green, photosynthetic; infertile stems never branched

2 Cone tip abruptly pointed; stem rough in texture; sheath with two dark bands - *E.*

hyemale ssp. *affine*

2' Cone tip rounded to widely pointed; stem smooth in texture; sheath with one dark band

- *E. laevigatum*

1' Stems short-lived, fertile stems brownish, non-photosynthetic; infertile stems branched

3 Sheath teeth 14 or fewer; stems smaller in diameter; cone short; common at all elevations - *E. arvense*

3' Sheath teeth 14 or more; stems wider in diameter; cone long; uncommon below 4000'. -

E. telmateia var. *braunii*

Equisetum arvense

Equisetum hyemale ssp. *affine*

Equisetum laevigatum

Equisetum telmateia var. *braunii*

Ericaceae

1 Plants lacking green entirely; mycoheterotrophic

2 Plants white or red and white striped

3 Plants red and white striped - *Allotropa virgata*

- 3' Plants white - *Pleuricospora fimbriolata*
- 2' Plants entirely red
 - 4 Plants shorter, stocky, deep red; long bracts between flowers - *Sarcodes sanguinea*
 - 4' Plants tall, thin, pinkish-red; bracts between flowers absent - *Pterospora andromedea*
- 1' Plants with green leaves
 - 5 Small perennial herbs in forest understory, not woody except with *Gaultheria*
 - 6 Leaves cauline, alternate; flowers urn-shaped; petals fused - *Gaultheria*
 - 6' Leaves basal or whorled; flowers not urn-shaped; petals free
 - 7 Style fat, stout, button-like; leaves more or less whorled along stems - *Chimaphila*
 - 7' Style slender, long; leaves more or less basal
 - 8 Flowers on one side of arched stem; leaves always green; nectary present - *Orthilia secunda*
 - 8' Flowers on all sides of erect stem; leaves green or darker or absent; nectary absent - *Pyrola*
 - 5' Trees or shrubs, woody
 - 9 Bark reddish distally or throughout
 - 10 Tall tree; leaves large; berries fleshy - *Arbutus menziesii*
 - 10' Shrubs; leaves smaller; berries not fleshy - *Arctostaphylos*
 - 9' Bark not reddish
 - 11 Flowers urn- or bell-like
 - 12 Fruit a berry - *Vaccinium*
 - 12' Fruit a capsule
 - 13 Plant short; leaves small, scale-like and overlapping; flowers bell-shaped, emerging from leaf axils; open rocky montane habitats - *Cassiope mertensiana*
 - 13' Plant tall; leaves large; flowers urn-shaped, in spikes at branch tips; generally shady understory habitats - *Leucothoe davisiae*
 - 11' Flowers not urn- or bell-like
 - 14 Flowers white - *Rhododendron*
 - 14' Flowers purple-pink
 - 15 Leaves linear, needle-like - *Phyllodoce breweri*
 - 15' Leaves wider than linear, not needle-like - *Kalmia polifolia*

Allotropa

Allotropa virgata

Arbutus

Arbutus menziesii

Arctostaphylos

1 Leaves green; high elevations

- 2 Low shrub; creeping-sprawling - *A. nevadensis* ssp. *nevadensis*
- 2' Shrub; erect
 - 3 Twigs glandular near tips - *A. patula* ssp. *patula*
 - 3' Twigs non-glandular hairy near tips - *A. patula* ssp. *gankinii*
- 1' Leaves whiteish; low elevations
 - 4 Inflorescence with long, pointed, lanceolate bracts - *A. mewukka* ssp. *mewukka*
 - 4' Inflorescence with short, rounded, scale-like bracts
 - 5 Twigs densely glandular near tips - *A. viscida* ssp. *mariposa*
 - 5' Twigs glabrous or sparsely non-glandular hairy - *A. viscida* ssp. *viscida*

Arctostaphylos mewukka ssp. *mewukka*

Arctostaphylos nevadensis ssp. *nevadensis*

Arctostaphylos patula ssp. *gankinii*

Arctostaphylos patula ssp. *patula*

Arctostaphylos viscida ssp. *mariposa*

Arctostaphylos viscida ssp. *viscida*

Cassiope

Cassiope mertensiana

Chimaphila

- 1 Leaves small, dark colored and white veined - *C. menziesii*
- 1' Leaves large, green - *C. umbellata*

Chimaphila menziesii

Chimaphila umbellata

Gaultheria

- 1 Leaves large; inflorescence a raceme; flowers glandular; one known naturalized population in North Columbia Diggins complex - *G. shallon*
- 1' Leaves small; flowers 1 in axils; flowers glabrous; uncommon
 - 2 Sepals hairy; mid elevations - *G. ovatifolia*
 - 2' Sepals glabrous; high elevations - *G. humifusa*

Gaultheria humifusa

Gaultheria ovatifolia

Gaultheria shallon

Kalmia

Kalmia polifolia

Leucothoe

Leucothoe davisiae

Orthilia

Orthilia secunda

Phyllodoce

Phyllodoce breweri

Pleuricospora

Pleuricospora fimbriolata

Pterospora

Pterospora andromedea

Pyrola

1 Leaves absent - *P. aphylla*

1' Leaves present

2 Leaves conspicuously white-veined - *P. picta*

2' Leaves not conspicuously white-veined

3 Plants of dry habitats; leaves elliptic, glaucous - *P. dentata*

3' Plants of wet habitats; leaves rounded, green - *P. asarifolia* ssp. *asarifolia*

Pyrola aphylla

Pyrola asarifolia ssp. *asarifolia*

Pyrola dentata

Pyrola picta

Rhododendron

1 Flowers small, in rounded clusters; stamens 10; leaves small, evergreen - *R. columbianum*

1' Flowers large, in loose clusters; stamens 5; leaves large, deciduous - *R. occidentale*

Rhododendron columbianum

Rhododendron occidentale

Sarcodes

Sarcodes sanguinea

Vaccinium

1 Leaves evergreen; one known naturalized location in the North Columbia Diggins complex -

V. macrocarpon

1' Leaves deciduous; common

2 Stems green, angled - *V. shastense* ssp. *nevadense*

2' Stems not green, not angled

3 Leaf margin entire; calyx lobes as long as or longer than calyx tube in flower; flowers emerging from leafless older woody stems - *V. uliginosum* ssp. *occidentale*

3' Leaf margin not entire, sometimes margin serrations minute; calyx lobes absent in flower; flowers emerging from leaf axils of younger fleshy stems

4 Leaves generally glaucous; twigs glabrous; flowers wide - *V. deliciosum*

4' Leaves generally green; twigs generally with hairs; flowers narrow - *V. cespitosum*

Vaccinium cespitosum

Vaccinium deliciosum

Vaccinium macrocarpon

Vaccinium shastense ssp. *nevadense*

Vaccinium uliginosum ssp. *occidentale*

Euphorbiaceae

- 1 Plants mounded; gray-white colored; densely stellate-hairy - Croton setiger
 1' Plant habit various; not gray-white colored; not densely stellate-hairy - Euphorbia

Croton

Croton setiger

Euphorbia

- 1 Leaves alternate at base
 2 Perennial; stem hairy - *E. oblongata*
 2' Annual; glabrous
 3 Fruit distinctly wrinkled - *E. spathulata*
 3' Fruit smooth
 4 Fruit margins keeled; generally disturbed habitats - *E. peplus*
 4' Fruit margins not keeled; generally natural habitats - *E. crenulata*
 1' Leaves opposite at base
 5 Leaves long, pairs alternating in direction along stem; plants erect - *E. lathyris*
 5' Leaves short; all pairs oriented in same direction along stem; plants prostrate to ascending (more or less erect in *E. nutans*)
 6 White petal-like appendage absent; glands yellow, aging red; rare at far western end of county - *E. ocellata* ssp. *ocellata*
 6' White petal-like appendage present; glands red
 7 Flowers in dense clusters; plants more or less erect; rare at far western end of county - *E. nutans*
 7' Flowers generally 1 to few per node; plants prostrate to ascending
 8 Plants, fruit glabrous - *E. serpillifolia* ssp. *serpillifolia*
 8' Plants, fruit hairy
 9 Plants generally ascending; leaves without dark spot adaxially; petal-like appendage skinnier than gland - *E. serpillifolia* ssp. *hirtula*
 9' Plants generally prostrate; leaves with dark spot adaxially or not; petal-like gland appendage as wide or wider than gland - *E. maculata*

Euphorbia crenulata

Euphorbia lathyris

Euphorbia maculata

Euphorbia nutans

Euphorbia oblongata

Euphorbia ocellata ssp. *ocellata*

Euphorbia peplus

Euphorbia serpillifolia ssp. *hirtula*

Euphorbia serpillifolia ssp. *serpillifolia*

Euphorbia spathulata

Fabaceae

1 Trees, shrubs, and woody vines

2 Flowers white; tall thorny tree - *Robinia pseudoacacia*

2' Flowers red; vine - *Sesbania punicea*

2" Flowers pink, purple, or blue; shrubs or small trees

3 Leaves simple, rounded; flowers borne directly from bark, red-purple; small tree -

Cercis occidentalis

3' Leaves pinnately compound; inflorescence a spike; flowers small, deep purple; shrub

- *Amorpha californica* ssp. *californica*

3" Leaves palmately compound or simple and elongate, not rounded; shrubs

4 Flowers blue-purple; herbage silvery; plants not on gabbro - *Lupinus*

4' Flowers pinkish-purple; herbage green; plants on gabbro - *Pickeringia montana*

var. *montana*

2" Flowers yellow; shrubs

5 Thorny shrubs; branches stiff; leaves linear, stiff - *Ulex europaeus*

5' Unarmed shrubs; branches flexible; leaves wider than linear, flexible

6 Leaves all simple, generally so few that stems appear more or less leafless; stems smooth - *Spartium junceum*

6' At least some leaves compound; stems leafy and ribbed

7 All leaves trifoliate; calyx hairy; fruit hairy throughout - *Genista monspessulana*

7' Trifoliate and simple leaves mixed; calyx glabrous; fruit hairy only on margins

- *Cytisus scoparius*

1' Annual to perennial herbs and herbaceous vines

8 Leaves palmately compound or trifoliate

9 Leaves palmately compound; leaflets 4 or more

10 Inflorescence a raceme; generally elongate - *Lupinus*

10' Inflorescence a head-like umbel - *Trifolium lemmonii*

9' Leaves trifoliate; leaflets 3

11 Leaflet margin entire;

12 Leaves more or less leathery; plants large in all regards; plants in wet

habitats - Hoita

12' Leaves thin; plants small; plants in dry habitats - Acmispon

11' Leaflet margin toothed or wavy

13 Corolla persistent; covering fruit after flowering - Trifolium

13' Corolla deciduous; fruit exposed after flower

14 Fruit kidney-shaped or spirally coiled; flowers generally in short clusters -

Medicago

14' Fruit ovate, never coiled; flowers generally in elongate racemes -

Melilotus

8' Leaves pinnately compound

15 Leaflets generally 4-5

16 Leaves evenly compound; 2 leaflets at base of leaf, opposite each other - Lotus

corniculatus

16' Leaves oddly compound; generally 1 leaflet at base of leaf - Acmispon

15' Leaflets generally many, 6 or more

17 Leaf tip a tendril or bristle

18 Young leaves folded in bud - Vicia

18' Young leaves rolled in bud - Lathyrus

17' Leaf tip a leaflet

19 Flowers pink, generally striped darker; fruits 1-seeded, leathery; leaflets finely red-dotted adaxially - Onobrychis viciifolia

19' Flowers various colors; fruits many-seeded and/or papery; leaflets not red-dotted

20 Inflorescence a spike or raceme, or if umbel-like, plants of alpine habitats or small annuals at low to mid elevations - Astragalus

20' Inflorescence an umbel; plants perennial, not of alpine habitats

21 Fruit segmented, indehiscent; banner pink; wings and keel white; glabrous or nearly so; uncommon - Coronilla varia

21' Fruit not segmented, dehiscent; flowers not colored like above or if so, then plants conspicuously hairy; common

22 Flowers entirely yellow; wings overlapping at tips - Acmispon grandiflorus var. macranthus

22' Flowers not entirely yellow; wings spread apart - Hosackia

Acmispon

1 Inflorescence 1-flowered

2 Inflorescence peduncled, bracted

3 Calyx lobes much longer than tube; plants hairy - A. americanus var. americanus

3' Calyx lobes longer than or equal to tube; plants glabrous - A. parviflorus

2' Inflorescence not peduncled or inconspicuously so; not bracted

4 Calyx lobes equal to twice as long as tube; fruits more squat, 6-12mm long, 3-4mm wide; plants spreading hairy - A. brachycarpus

4' Calyx lobes a bit shorter to a bit longer than tube; fruits more elongate, 10-18mm

long, 2-3mm wide; plants strigose or spreading hairy - *A. wrangelianus*

1' Inflorescence 3+ flowered

5 Plants ascending to spreading; individual flowers large - *A. grandiflorus* var. *macranthus*

5' Plants sprawling to prostrate; individual flowers small

6 Herbage silvery-hairy; inflorescence head-like, dense - *A. argophyllus* var.

fremontii

6' Herbage sparsely short-hairy; inflorescence umbel-like, open - *A. decumbens* var.

decumbens

Acmispon americanus var. *americanus*

Acmispon argophyllus var. *fremontii*

Acmispon brachycarpus

Acmispon decumbens var. *decumbens*

Acmispon grandiflorus var. *macranthus*

Acmispon parviflorus

Acmispon wrangelianus

Amorpha

Amorpha californica var. *californica*

Astragalus

1 Small annuals of low to mid elevations at western end of county - *A. gambelianus*

1' Perennials typically of high elevations or found east of the crest

2 Fruits densely shaggy hairy, like cotton balls - *A. purshii* var. *tinctus*

2' Fruits not as above

3 Stem hairs branched; hair branches parallel to stems - *A. canadensis* var. *brevidens*

3' Stem hairs not branched

4 Fruit speckled and striped

5 Plants in alpine habitats at the crest; fruit base stalked - *A. whitneyi* var.

lenophyllus

5' Plants in sagebrush scrub in the Truckee Basin; fruit base not stalked - *A.*

lentiginosus var. *lentiginosus*

4' Fruit not speckled and striped

6 Flowers with pink hues; inflorescence in a small, dense head; alpine - *A.*

austinae

6' Flowers white to cream; inflorescence larger, more lax; generally below alpine

7 Leaflets large, green; fruits hairy; generally disturbed habitats - *A. cicer*

7' Leaflets smaller, often glaucous; fruits glabrous; generally not in disturbed habitats - *A. bolanderi*

Astragalus austiniae

Astragalus bolanderi

Astragalus canadensis var. *brevidens*

Astragalus cicer

Astragalus gambelianus

Astragalus lentiginosus var. *floribundus*

Astragalus purshii var. *tinctus*

Astragalus whitneyi var. *lenophyllus*

Cercis

Cercis occidentalis

Coronilla

Coronilla varia

Cytisus

Cytisus scoparius

Genista

Genista monspessulana

Hoita

1 Leaflets pointed at tips - *H. macrostachya*

1' Leaflets rounded - *H. orbicularis*

Hoita macrostachya

Hoita orbicularis

Hosackia

1 Flowers yellow and white

2 - Banners reflexing near the extent of the calyx; herbage generally hairy; above 4500', common - *H. oblongifolia* var. *oblongifolia*

2' - Banners extending well beyond calyx before reflexing; herbage generally glabrous, sometimes with sparse hairs; below 5500', rare - *H. pinnata*

1' Flowers pink/purple and white

3 Plants low; herbage densely hairy - *H. incana*

3' Plants tall; herbage glabrous or sparsely hairy - *H. crassifolia* var. *crassifolia*

Hosackia crassifolia var. *crassifolia*

Hosackia incana

Hosackia oblongifolia var. *oblongifolia*

Hosackia pinnata

Lathyrus

1 All leaves with 2 leaflets

2 Flowers deep red - *L. sphaericus*

2' Flowers pink to purple or white

3 Inflorescence many-flowered; flowers large; common - *L. latifolius*

3' Inflorescence 1-2 flowered; flowers medium-sized; uncommon

4 Fruit glabrous; Inflorescence axis extended beyond flower - *L. angulatus*

4' Fruit hairy; inflorescence axis not extended beyond flower - *L. hirsutus*

1' At least some leaves with more than 2 leaflets

5 Flowers purple

6 Stems winged - *L. jepsonii* var. *californicus*

6' Stems angled, not winged - *L. nevadensis* var. *nevadensis*

5' Flowers white with purple veins, aging orange

7 Leaflets generally linear; flowers few - *L. lanszwertii* var. *lanszwertii*

7' Leaflets oval; flowers many

8 Calyx glabrous; common - *L. sulphureus* var. *sulphureus*

8' Calyx hairy; rare - *L. sulphureus* var. *argillaceus*

Lathyrus angulatus

Lathyrus hirsutus

Lathyrus jepsonii var. californicus

Lathyrus lanszwertii var. lanszwertii

Lathyrus latifolius

Lathyrus nevadensis var. nevadensis

Lathyrus sphaericus

Lathyrus sulphureus var. argillaceus

Lathyrus sulphureus var. sulphureus

Lotus

Lotus corniculatus

Lupinus

1 Annuals

2 Flowers not blue or white

3 Flowers yellow, rarely white; roadsides - *L. microcarpus* var. *densiflorus*

3' Flowers pink and yellow; various habitats - *L. stiversii*

2' Flowers blue and/or white

4 Flowers spiraled

5 Plants small, leaflets shorter and wider; flowers few; on lava caps - *L. congdonii*

5' Plants much taller; leaflets long and narrow; flowers many; not on lava caps - *L.*

benthamii

4' Flowers whorled

6 Pedicels longer than 3mm

7 Leaves fleshy; leaflets wide - *L. succulentus*

7' Leaves not fleshy; leaflets narrow - *L. nanus*

6' Pedicels shorter than 3mm

8 Fruits 6mm wide or less; keels ciliate - *L. bicolor*

8' Fruits 6mm wide or more; keels glabrous - *L. pachylobus*

1' Perennials

9 Plants woody at base; shrubs or subshrubs - *L. albifrons* var. *albifrons*

9' Plants herbaceous

10 Plants low, generally matted or tufted

11' Inflorescence bracts early deciduous

12 Plants small, mat-forming; keel glabrous - *L. breweri* var. *breweri*

12' Plants taller, tufted; keel ciliate - *L. grayi*

11' Inflorescence bracts persistent, conspicuous

- 13 Inflorescence head-like, not exceeding all leaves - *L. lepidus* var. *lobbii*
- 13' Inflorescence elongate, exceeding all leaves
 - 14 Stems with obvious cauline leaves - *L. lepidus* var. *confertus*
 - 14' All leaves clustered towards base and all basal or appearing so - *L.*

lepidus var. *sellulus*

- 10' Plants generally erect, not matted or tufted

- 15 Calyx distinctly spurred

- 16 Herbage green; wing with patch of hair near tip - *L. arbustus*

- 16' Herbage silvery; wing glabrous - *L. argenteus* var. *heteranthus*

- 15' Calyx not spurred

- 17 Banner back hairy

- 18 Flowers yellow or orangey - *L. angustiflorus*

- 18' Flowers blue, pink, or white

- 19 Leaves green; keel margin glabrous - *L. apertus*

- 19' Leaves silvery; keel margin hairy - *L. obtusilobus*

- 17' Banner back not hairy

- 20 Stipules green and some leaf-like - *L. fulcratus*

- 20' Stipules not leaf-like

- 21 Upper keel margin glabrous

- 22 Leaves adaxially glabrous; wet habitats - *L. polyphyllus* var. *burkei*

- 22' Leaves adaxially hairy; dry habitats - *L. albicaulis*

- 21' Upper keel margin ciliate

- 23 Leaves basal and cauline

- 24 Leaves adaxially glabrous; wet habitats - *L. polyphyllus* var.

burkei

- 24' Leaves adaxially hairy; dry habitats - *L. nevadensis*

- 23' Leaves all cauline

- 25 Leaves silvery hairy - *L. argenteus* var. *meionanthus*

- 25' Leaves green, sparsely hairy or glabrous - *L. latifolius* var.

latifolius

Lupinus albicaulis

Lupinus albifrons var. *albifrons*

Lupinus andersonii ●

Lupinus angustiflorus

Lupinus apertus

Lupinus arbustus

Lupinus argenteus var. *heteranthus*

Lupinus argenteus var. meionanthus

Lupinus benthamii

Lupinus bicolor

Lupinus breweri var. breweri

Lupinus congdonii

Lupinus fulcratus

Lupinus grayi

Lupinus latifolius var. latifolius

Lupinus lepidus var. confertus

Lupinus lepidus var. lobbii

Lupinus lepidus var. sellulus

Lupinus microcarpus var. densiflorus

Lupinus nanus

Lupinus nevadensis

Lupinus obtusilobus

Lupinus pachylobus

Lupinus polyphyllus var. burkei

Lupinus stiversii

Lupinus succulentus

Medicago

1 Flowers purple - M. sativa

1' Flowers yellow

2 Fruit not spiraled - M. lupulina

2' Fruit spiraled

3' Fruit never prickly; leaves with conspicuous spot on each leaflet - *M. arabica*

3' Fruit usually prickly; leaves lacking spots - *M. polymorpha*

Medicago arabica

Medicago lupulina

Medicago polymorpha

Medicago sativa

Melilotus

1' Flowers white - *M. albus*

1' Flowers yellow

2' Flowers larger; fruit ridged - *M. officinalis*

2' Flowers smaller; fruit tubercled or net-veined - *M. indicus*

Melilotus albus

Melilotus indicus

Melilotus officinalis

Onobrychis

Onobrychis viciifolia

Pickeringia

Pickeringia montana var. *montana*

Robinia

Robinia pseudoacacia

Sesbania

Sesbania punicea

Spartium

Spartium junceum

Trifolium

1 Involucre bracts generally fused for greater than 1mm of its length, generally forming cup or bowl around base of inflorescence; inflorescence not sessile above the 1-2 uppermost leaves

2 Calyx inflated in fruit; inflorescence in fruit spheric, fuzzy - *T. fragiferum*

2' Calyx not inflated in fruit

3 Involucre cup-like

4 Calyx lobe length less than 1/2 tube length, not bristle-tipped - *T. microdon*

4' Calyx lobe length more than 1/2 tube length, bristle-tipped

5 Calyx lobes entire or nearly so - *T. microcephalum*

5' At least some calyx lobes forked - *T. cyathiferum*

3' Involucre wheel-shaped

6 Perennial herb; involucre generally 2-3 cm wide - *T. wormskioldii*

6' Annual; involucre less than 2 cm wide

7 Calyx lobes as long as or a bit shorter than tube; calyx tube splitting between upper lobes

8 Flower 8mm or shorter; involucre cut more than 1/2 to base; inflorescence to 10mm wide, 5-15 flowered - *T. oliganthum*

8' Flower 9mm or longer; involucre cut less than 1/2 to base; inflorescence generally 12-30mm wide, often 15 flowered or more

9 Calyx glandular-hairy or bumpy, occasionally glabrous in age, lobes generally entire; leaflets sharply serrate, longer marginal teeth 1 mm - *T. obtusiflorum*

9' Calyx glabrous, not bumpy, lobes entire or 3-toothed; leaflets serrate, marginal teeth shorter than 1 mm - *T. willdenovii*

7' Calyx lobes generally longer than tube; calyx tube not splitting between upper lobes

10 Inflorescence less than 1cm wide, 1-5 flowered; corolla 3.5-9mm long - *T. variegatum* var. *geminiflorum*

10' Inflorescence 1-1.5cm wide, 5-10 flowered, corolla 6-10mm long - *T. variegatum* var. *variegatum*

10'' Inflorescence 1.5-3cm wide, 10+ flowered, corolla 9-17mm long - *T. appendiculatum*

1' Involucre bracts absent, free, or fused less than 1mm; inflorescence sessile or nearly so above 1-2 reduced leaves or leaf-like stipules or not

11 Leaflets 3-9 but at least some leaves with more than 3 leaflets - *T. lemmonii*

11' Leaflets 3

12 Inner flowers sterile, without petals, forming bur; plant prostrate or creeping - *T. subterraneum*

12' All flowers fertile, with petals, not forming bur; plant prostrate or creeping or not

13 Calyx or corolla distinctly inflated in fruit

14 Inflorescence in fruit not spheric; corolla inflated, purple, white-tipped - *T.*

depauperatum var. depauperatum

14' Inflorescence in fruit spheric; calyx inflated, white or pink, fuzzy to woolly

15 Perennial; all parts larger; inflated calyx white - *T. fragiferum*

15' Annual; all parts smaller; inflated calyx pink veined - *T. tomentosum*

13' Neither calyx nor corolla inflated in fruit

16 Flowers yellow

17 Flowers small, weakly striate; inflorescence small, with 10 or fewer

flowers - *T. dubium*

17' Flowers larger, distinctly striate; inflorescence larger, with 20 or more

flowers - *T. campestre*

16' Flowers not yellow

18 Flowers generally 1-5 per inflorescence

19 Rhizomes present; plant mat-forming, not from taproot - *T.*

monanthum ssp. *monanthum*

19' Rhizomes absent; plant not mat-forming, from taproot - *T.*

monanthum ssp. *parvum*

18' Flowers 5 or more per inflorescence

20 Pedicels 1-6mm, flowers generally becoming reflexed

21 Inflorescence axis extended beyond reflexed flowers appearing as a bristle at the top of the inflorescence

22 Calyx lobes ciliate - *T. ciliolatum*

22' Calyx lobes not ciliate

23 Inflorescence axis forked; plants of high elevations - *T.*

productum

23' Inflorescence axis not forked; plants of low elevations

24 Inflorescence axillary on very short peduncles; banner

tip notched - *T. cernuum*

24' Inflorescence terminal and axillary, on long peduncles;

banner tip entire - *T. bifidum*

21' Inflorescence axis not extended beyond reflexed flowers

25 Flowers white; plants creeping and rooting along stems - *T.*

repens

25' Flowers pink, purple, or two-toned; plants not creeping and

rooting along stems

26 Leaves all basal except 1 pair cauline; corolla 10-17mm in

length; east side of crest - *T. beckwithii*

26' Leaves all cauline; corolla 5-11mm in length; widespread -

T. hybridum

20' Pedicels shorter than 2mm, flowers not becoming reflexed

27 Inflorescence sessile at end of stem or in leaf axils, hemispheric;

plants glabrous or nearly so - *T. glomeratum*

27' Inflorescence peduncled or immediately above 1-2 reduced

leaves, spheric or generally elongate; plants hairy

28 Inflorescence sessile above a pair of reduced leaves, stipules,

or both

pink - *T. hirtum* 29 Calyx lobes densely hairy, much longer than tube; flowers

flowers pink or reddish purple 29' Calyx lobes sparsely hairy, about equal in length to tube;

pratense 30 Flowers reddish purple; inflorescence widely ovate - *T.*

striatum 30' Flowers pink; inflorescence narrowly cylindrical - *T.*

28' Inflorescence peduncled

31 Corolla barely, if at all, exceeding calyx

squat and oval shaped; leaflets wider than linear, shorter - *T. albopurpureum*

long and linear - *T. angustifolium* 32' Flowers pink; inflorescence much elongated; leaflets

31' Corolla obviously exceeding calyx

much elongate and cylindric; cultivated or naturalized in grasslands and disturbed places, typically at low elevations - *T. incarnatum*

of mountain meadows - *T. longipes* ssp. *hansenii* 33' Perennial herb; flowers white to purple; plants typically

Trifolium albopurpureum

Trifolium angustifolium

Trifolium appendiculatum

Trifolium beckwithii

Trifolium bifidum

Trifolium campestre

Trifolium cernuum

Trifolium ciliolatum

Trifolium cyathiferum

Trifolium depauperatum var. *depauperatum*

Trifolium dubium

Trifolium fragiferum

Trifolium glomeratum

Trifolium hirtum

Trifolium hybridum

Trifolium incarnatum

Trifolium lemmonii

Trifolium longipes ssp. *hansenii*

Trifolium microcephalum

Trifolium microdon

Trifolium monanthum ssp. *monanthum*

Trifolium monanthum ssp. *parvum*

Trifolium obtusiflorum

Trifolium oliganthum

Trifolium pratense

Trifolium productum

Trifolium repens

Trifolium striatum

Trifolium subterraneum

Trifolium tomentosum

Trifolium variegatum var. *geminiflorum*

Trifolium variegatum var. *variegatum*

Trifolium willdenovii

Trifolium wormskioldii

Ulex

Ulex europaeus

Vicia

- 1 Flowers single or in small clusters of 2-4; peduncle absent or very short
 - 2 Calyx tube 5.5mm or shorter; calyx lobes 4.5mm or shorter - *V. sativa* ssp. *nigra*
 - 2' Calyx tube 6mm or longer; calyx lobes 5mm or longer - *V. sativa* ssp. *sativa*
- 1' Inflorescence a raceme; 1 to generally many, peduncled
 - 3 Flowers few; 1-9; white to lavender or blue-purple
 - 4 Flowers small; white to pale lavender; fruit to 1.5cm in length; disturbed places; uncommon - *V. tetrasperma*
 - 4' Flowers large; banner typically blue-purple to lavender with white wings; fruit to 3cm in length; woodland; occasional - *V. americana* var. *americana*
 - 3' Flowers many; 10+; deep purple
 - 5 Plants densely hairy distally - *V. villosa* ssp. *villosa*
 - 5' Plants sparsely to not hairy distally - *V. villosa* ssp. *varia*

Vicia americana var. *americana*

Vicia sativa ssp. *nigra*

Vicia sativa ssp. *sativa*

Vicia tetrasperma

Vicia villosa ssp. *varia*

Vicia villosa ssp. *villosa*

Fagaceae

- 1 Fruit covering surrounding fruit; shrub; leaf undersides yellow, margins entire - *Chrysolepis*
- 1' Fruit covering only near stem attachment (with acorn cap); trees or shrubs; leaf undersides not yellow; margins entire or serrate
 - 2 Acorn cap with long linear projections - *Notholithocarpus*
 - 2' Acorn cap with scales, tubercles, or fuzz - *Quercus*

Chrysolepis

Chrysolepis sempervirens

Notholithocarpus

1 Shrub at full size, less than 15ft high; common - *N. densiflorus* var. *echinoides*

1' Tree at full size, greater than 15ft high; uncommon - *N. densiflorus* var. *densiflorus*

Notholithocarpus densiflorus var. *densiflorus*

Notholithocarpus densiflorus var. *echinoides*

Quercus

1 Leaves deciduous

2 Leaf lobes each with thin projecting point; plants of low to high elevations - *Q. kelloggii*

2' Leaf lobes more or less rounded, lacking thin projecting point; plants of low elevations

3 Small tree; often on gabbro; acorn caps remaining on stems - *Q. garryana* var.

semota

3' Large tree; generally not on gabbro; acorn caps falling with acorns

4 Leaf lobes shallow; leaves with bluish cast; common - *Q. douglasii*

4' Leaf lobes deep; leaves green; uncommon at lowest elevations - *Q. lobata*

1' Leaves evergreen

5 Shrubs to small trees

6 Low sprawling shrubs at high elevations; leaf margins flat, entire or with small teeth -

Q. vacciniifolia

6' Large shrubs on ultramafic soils; leaf margins curled under, generally toothed - *Q.*

durata var. *durata*

6" Small trees at low elevations; often thicket forming; leaf margins flat; distinctly spiny-toothed - *Q. berberidifolia*

5' Large trees

7 Leaf undersides green, not very much lighter colored than upper surface; acorn caps without yellow-orange powder; becoming more common at lower elevations - *Q. wislizeni*

7' Leaf undersides whitish, very much lighter than upper surface; acorn caps with yellow-orange powder; becoming more common towards mid elevations - *Q. chrysolepis*

Quercus berberidifolia

Quercus chrysolepis

Quercus douglasii

Quercus durata var. *durata*

Quercus garryana var. *semota*

Quercus kelloggii

Quercus lobata

Quercus wislizeni

Quercus vacciniifolia

Garryaceae

Garrya

1 Leaf undersides hairy, whitish; fruit densely hairy - *G. flavescens*

1' Leaf underside glabrous, green; fruit glabrous to sparsely hairy - *G. fremontii*

Garrya flavescens

Garrya fremontii

Gentianaceae

1 Flowers yellow - *Cicendia quadrangularis*

1' Flowers white (*G. newberryi* var. *tiogana* rarely pale blue)

2 Plants erect; leaves silver-margined; plants of dry habitats at low to mid elevations - *Frasera albicaulis* var. *nitida*

2' Plants generally sprawling to decumbent; leaves not silver-margined; plants of wet meadows in high elevations - *Gentiana newberryi* var. *tiogana*

1" Flowers blue

3 Corolla sinus with narrow appendage; flowers large, wide; stems generally many branched at base - *Gentiana calycosa*

3' Corolla sinus lacking such an appendage; flowers small, narrow; stems generally simple, sometimes few-branched - *Gentianopsis simplex*

1''' Flowers pink or rose

4 Corolla with fringes at mouth - *Gentianella amarella* ssp. *acuta*

4' Corolla lacking fringes

5 Stigmas fan-shaped; stem generally branched below inflorescence; generally few-flowered; inflorescence generally not flat-topped - *Zeltnera*

5' Stigmas rounded; stem generally not branched below inflorescence; generally many flowered; inflorescence more or less flat-topped - *Centaurium tenuiflorum*

Centaurium

Centaurium tenuiflorum

Cicendia

Cicendia quadrangularis

Frasera

Frasera albicaulis var. *nitida*

Gentiana

1 Flowers deep blue; plants generally of rocky habitats - *G. calycosa*

1' Flowers white or rarely pale blue; plants of high elevation meadows - *G. newberryi* var. *tiogana*

Gentiana calycosa

Gentiana newberryi var. *tiogana*

Gentianella

Gentianella amarella ssp. *acuta*

Gentianopsis

Gentianopsis simplex

Zeltnera

1 Lowest flower sessile in axis of inflorescence branches - *Z. muhlenbergii*

1' Lowest flower pedicelled in axis of inflorescence branches - *Z. venusta*

Zeltnera muhlenbergii

Zeltnera venusta

Geraniaceae

1 Stamens 10; leaves palmately lobed or palmately compound, more or less rounded in overall shape - Geranium

1' Stamens 5; leaves pinnately dissected or palmately lobed; elongated in overall shape - Erodium

Erodium

1 Leaves lobed, oblong; petals overlapping at base

2 One sepal with two red margins, unlike others; seed with transverse ridges; flowers radial - E. botrys

2' All sepals similar; seed with pit present; flowers bilateral but subtly so - E. brachycarpum

1' Leaves pinnately dissected; petals not overlapping at base

3 Leaves smaller; stems usually reddish; glands absent from pit on seed - E. cicutarium

3' Leaves larger; stems usually whitish; glands present in pit on seed - E. moschatum

Erodium botrys

Erodium brachycarpum

Erodium cicutarium

Erodium moschatum

Geranium

1 Perennial herb from thick caudex

2 Petals large, white with purple veins, hairy at base - G. richardsonii

2' Petals small, reddish-purple, glabrous - G. core-core

1' Annual or biennial herbs from thin roots

3 Leaves palmately compound; herbage strongly smelling

4 Anthers purplish - G. robertianum

4' Anthers yellow - G. purpureum

3' Leaves palmately lobed; herbage not strongly smelling

5 Mericarp wrinkled, glabrous; leaves shallowly lobed or crenate when mature - G. molle

5' Mericarp smooth, hairy; leaves deeply lobed

6 Leaf dissections linear or nearly so when mature, generally acute-tipped; flowers pink to reddish purple; seeds 0.6mm or shorter; common - G. dissectum

6' Leaf dissections wider when mature, generally obtuse-tipped; flowers light pink; seeds 1mm long or so; uncommon - G. carolinianum

Geranium carolinianum

Geranium core-core

Geranium dissectum

Geranium molle

Geranium purpureum

Geranium richardsonii

Geranium robertianum

Grossulariaceae

Ribes

1 Flowers yellow

2 Hypanthium as long as wide; below 5000'; far eastern edge of county - *R. velutinum*

2' Hypanthium longer than wide; sub- or alpine habitats - *R. lasianthum*

1' Flowers red, pink, or white

3 Stems without spines

4 Flowers deep pink; sepals erect; leaves glabrous adaxially; fruit blue - *R. nevadense*

4' Flowers light pink; sepals reflexed or spreading; leaves generally glandular; fruit blue, black, or red

5 Hypanthium 2x longer than wide or more; fruit red - *R. cereum* var. *cereum*

5' Hypanthium less than 2x longer than wide; fruit black or blue - *R. viscosissimum*

3' Stems with spines

6 Flowers many per inflorescence; sub- or alpine - *R. montigenum*

6' Flowers few per inflorescence; below subalpine

7 Calyx deep red, long; styles glabrous; all elevations - *R. roezlii* var. *roezlii*

7' Calyx greenish, short; styles with hairs; higher elevations - *R. inerme* var. *inerme*

Ribes cereum var. *cereum*

Ribes inerme var. *inerme*

Ribes lasianthum

Ribes montigenum

Ribes nevadense

Ribes roezlii var. roezlii

Ribes velutinum

Ribes viscosissimum

Haloragaceae

Myriophyllum

1 Leaflets dense; midrib wider than leaflets; leaves emergent - *M. aquaticum*

1' Leaflets not dense; midrib and leaflets more or less equal in width; only flowers emergent

2 Leaflets few; internodes long; plants hold shape when lifted out of water - *M. sibiricum*

2' Leaflets many; internodes short; plants collapse when lifted out of water - *M. spicatum*

Myriophyllum aquaticum

Myriophyllum sibiricum

Myriophyllum spicatum

Heliotropiaceae

Heliotropium

Heliotropium europaeum

Hydrangeaceae

Philadelphus

Philadelphus lewisii

Hydrocharitaceae

1 Flowers submerged; peduncles short, barely extending from leaf axil - *Najas guadalupensis* ssp. *guadalupensis*

1' Flowers floating to slightly emergent; peduncles long

2 Petals 8-10mm, longer than sepals; leaves 1.5-4cm in length, 2-5mm wide - *Egeria densa*

2' Petals 5mm or shorter, equal to sepals; leaves shorter than 1.5cm, less than 3mm wide -
Elodea

Egeria

Egeria densa

Elodea

1 Mid-stem leaves 2-5mm wide, tip obtuse to acute - *E. canadensis*

1' Mid-stem leaves 2mm wide or skinnier; tip acute - *E. nuttallii*

Elodea canadensis

Elodea nuttallii

Najas

Najas guadalupensis ssp. *guadalupensis*

Hydrophyllaceae

1 Inflorescence 1 flowered

2 Annual; leaves variously lobed and divided - *Nemophila*

2' Perennial; leaves entire, simple, undivided - *Hesperochiron*

1' Inflorescence many flowered

3 Leaves cauline, opposite - *Draperia systyla*

3' Leaves basal or cauline and alternate

4 Annual or perennial; inflorescence ball-like or elongate; inflorescence held above leaves; if perennial, ball-like, and inflorescence held above leaves, then leaves dissected only at base; leaves not mottled white; taprooted - *Phacelia*

4' Perennial; leaves mostly basal; inflorescence ball-like, held above or below leaves; leaves dissected throughout; leaves often mottled white; rhizomatous - *Hydrophyllum*

Draperia

Draperia systyla

Hesperochiron

1 Flower tube and throat yellow; flowers more or less rotate, shallow - *H. pumilus*

1' Flower tube and throat white: flowers funnel-shaped - *H. nanus*

Hesperochiron nanus

Hesperochiron pumilus

Hydrophyllum

1 Inflorescence held above leaves - *H. occidentale*

1' Inflorescence held below leaves, near ground - *H. alpestre*

Hydrophyllum alpestre

Hydrophyllum occidentale

Nemophila

1 Flowers large

2 Corolla lobes entirely blue to near base, center white - *N. menziesii* var. *menziesii*

2' Corolla lobes with blue spot at tip, primarily white with dark veins - *N. maculata*

1' Flowers small

3 Flower with dark veins, dots

4 Leaf deeply lobed; lobes 5-9; widespread - *N. pedunculata*

4' Leaf shallowly lobed; lobes 3-5; 4000' and above - *N. spatulata*

3' Flower without dark veins, dots

5 Flowers barely longer than calyx; leaves without white spot - *N. parviflora* var.

austinae

5' Flowers generally twice as long as calyx; leaves frequently with small white spot on lobes - *N. heterophylla*

Nemophila heterophylla

Nemophila maculata

Nemophila menziesii var. *menziesii*

Nemophila parviflora var. *austinae* ☉

Nemophila pedunculata

Nemophila spatulata

Phacelia

1 Annual

2 Leaves all deeply lobed to compound; low elevations around rocks and boulders - *P. cicutaria* var. *cuticaria*

2' Leaves, at least some, entire

3 When in fruit, corollas persistent and enclosing fruit; stamens exerted

4 Leaves all entire; flowers more or less rotate to slightly bell-shaped - *P. quickii*

4' Lowest leaves usually shallowly lobed, flowers bell-shaped

5 Flowers deep purple; flowers bell-shaped - *P. marcescens*

5' Flowers white or light blue; flowers narrowly bell-shaped - *P. stebbinsii*

3' When in fruit, corollas deciduous

6 Stamens included - *P. vallicola*

6' Stamens exerted

7 Flowers deeply purple, generally paler in center; east side of the crest

8 Plants decumbent or erect; leaves elliptic or wider; seeds 4 or less per fruit

- *P. humilis* var. *humilis*

8' Plants erect; leaves linear or a little wider; seeds 6 or more per fruit - *P.*

linearis

7' Flowers white or pale throughout

9 Plants tall; inflorescence elongate; flowers large; rare - *P. purpusii*

9' Plants short; inflorescence congested; flowers very small; common at mid

to high elevations - *P. racemosa*

1' Perennial

10 Stems erect

11 Stamens hairy - *P. procera*

11' Stamens glabrous

12 Cauline leaves compound; leaflets toothed; plant many branched - *P.*

ramosissima

12' Cauline leaves simple; plant not branched - *P. heterophylla* ssp. *virgata*

10' Stems spreading to sprawling

13 Leaves mostly cauline; flowers widely bell-shaped - *P. hydrophyloides*

13' Leaves mostly basal (sometimes withered at flower); flowers narrowly bell-shaped

14 Basal leaf segments more than 7 - *P. imbricata* var. *imbricata*

14' Basal leaves entire or segments fewer than 5

15 Plants short, mat-forming; typically found at or above the tree-line in alpine habitats - *P. hastata* var. *compacta*

15' Plants not short, not mat-forming; typically found in conifer forests or otherwise below tree-line

16 Basal leaves typically present at flower, generally entire but sometimes with few small lobes; cauline leaves few to none; calyx lobes not glandular - *P. hastata* var. *hastata*

16' Basal leaves typically withered at flower, generally compound, rarely entire; cauline leaves few to many; calyx lobes generally glandular - *P. mutabilis*

Phacelia cicutaria var. *cicutaria*

Phacelia hastata var. *compacta*

Phacelia hastata var. *hastata*

Phacelia heterophylla ssp. *virgata*

Phacelia humilis var. *humilis*

Phacelia hydrophyloides

Phacelia imbricata var. *imbricata*

Phacelia linearis

Phacelia marcescens

Phacelia mutabilis

Phacelia procera

Phacelia purpusii

Phacelia quickii

Phacelia racemosa

Phacelia ramosissima

Phacelia stebbinsii ●

Phacelia vallicola

Hypericaceae

Hypericum

- 1 Flowers small; petals shorter than 5mm in length; fruit chambers 1
 - 2 Plants prostrate; above 1500' elevation; common - *H. anagalloides*
 - 2' Plants erect; below 1500' elevation; rare - *H. mutilum* ssp. *mutilum*
- 1' Flowers larger; petals longer than 5mm; fruit chambers 3
 - 3 Shrub - *H. calycinum*

3' Herbaceous perennial or rhizomatous ground cover

4 Leaves large and elongate; flowers large; petals 10-15mm; stand-forming low ground cover - *H. concinnum*

4' Leaves smaller and elliptic; flowers smaller; rarely longer than 10mm; occasionally patch forming but generally taller and clumped

5 Leaves with small perforations when held up to light; habitat variable, often disturbed, common at all elevations - *H. perforatum* ssp. *perforatum*

5' Leaves lacking perforations; marshes, meadows, wet places; uncommon at mid elevations or higher - *H. scouleri*

Hypericum anagalloides

Hypericum calycinum

Hypericum concinnum

Hypericum mutilum ssp. *mutilum*

Hypericum perforatum ssp. *perforatum*

Hypericum scouleri

Iridaceae

1 Flowers pink, attached and usually held close to ground - *Romulea rosea*

1' Flowers not pink, attached well above ground, held up on distinct stems

2 Petals smaller, skinnier than sepals, often colored differently; ovary elongate, large - *Iris*

2' Petals and sepals same size, shape, color; ovary short, small - *Sisyrinchium*

Iris

1 Flowers bright yellow; plants very tall, to 6ft; riparian habitats - *I. pseudacorus*

1' Flowers blue; plants not very tall, to 2ft; habitats vernal wet or dry; east side of crest - *I. missouriensis*

1" Flowers white to pale yellow; plants short, to 2ft but generally shorter; generally dry habitats; west side of crest

2 Ovary directly below flower throat, not hidden by bracts - *I. hartwegii*

2' Ovary hidden in bracts; long section of bare flower tube between throat and ovary - *I. macrosiphon*

Iris hartwegii

Iris macrosiphon

Iris missouriensis

Iris pseudacorus

Romulea

Romulea rosea

Sisyrinchium

1 Flowers yellow

2 Flowers large; stems wider than 2mm; below 4000' - *S. californicum*

2' Flowers small, stems 2mm wide or less; above 5000' - *S. elmeri*

1' Flowers blue

3 Leaves cauline and basal - *S. bellum*

3' Leaves basal only

4 Inflorescence bracts equal; alkaline habitats; rare - *S. halophilum*

4' Inflorescence bracts unequal; various habitats - *S. idahoense* var. *occidentale*

Sisyrinchium bellum

Sisyrinchium californicum

Sisyrinchium elmeri

Sisyrinchium halophilum

Sisyrinchium idahoense var. *occidentale*

Isoetaceae

Isoetes

1 Plants found below 5000'; on drying land

2 Leaves rigid and easily broken; female spores 0.4mm diameter or larger- *I. nuttallii*

2' Leaves flexible; female spores to 0.4mm diameter - *I. orcuttii*

1' Plants found above 5000'; submerged in bodies of water

3 Female spores distinctly spined - *I. echinospora*

3' Female spores not spined

4 Leaf flexible; female spores to 0.5mm diameter - *I. bolanderi*

4' Leaf rigid and easily broken; female spores 0.5mm diameter or larger - *I. occidentalis*

Isoetes bolanderi

Isoetes echinospora

Isoetes nuttallii

Isoetes occidentalis

Isoetes orcuttii

Juglandaceae

Juglans

"The Juglans Situation"

In our county, we have *Juglans* expressing in two ways. We have large trunked, large leaved trees which have usually been purposefully planted and we have small, skinny, narrow leaved trees which are never far from human influence but have a much more wild look and behavior to them. If you use the key below, you'll arrive at names for these forms which are imperfect. We have collections of *Juglans* in the county but none go beyond genus. The collectors didn't feel confident putting a name on their collections. And likewise, you and I shouldn't feel confident either. Here's why.

The large trees are one thing. They're usually planted, sometimes persisting from old homesteads. These are easy to spot and they are the classic English walnut, *J. regia*. The problem is that below ground on these trees the rootstock is of the California native species *J. hindsii* or of hybrid plants derived from crosses between *J. regia* and *J. hindsii*. This is because the English walnut is susceptible to several root diseases which the native shows resistance towards. The problem for botanists is that this situation has rendered *Juglans* identification very difficult. Historic stands of *J. hindsii* predating our meddling are very rare and do not occur anywhere near our county. So, we have plants which resemble them but are not them. This can be because the rootstock grew new *hindsii*-like shoots after the plants were cut. Or, it is a hybrid heavy in *hindsii* genes. Maybe it is a true *hindsii*! But in that case, it would have been planted. I'm sure I'm leaving much out and oversimplifying. This is a highly complex, highly contentious matter. But the fact of the matter is, we do not have native *J. hindsii* here. But lacking a better name for the trees here, I and the key below continue to refer to the spindly native-looking *Juglans* as *J. hindsii*. Short of genetic testing, there's no real way to

know how "pure" any given tree is, one way or the other.

1 Leaf margins serrate; leaflets skinny, 11 or more - *J. hindsii*

1' Leaf margins entire; leaflets wide, fewer than 11 - *J. regia*

Juglans hindsii ☉

Juglans regia ☉

Juncaceae

1 Leaves glabrous; seeds numerous per fruit - *Juncus*

1' Leaves hairy; seeds 3 per fruit - *Luzula*

Juncus

This genus is incomplete. **Bolded** species names are confirmed in the county. Names not bolded may not actually be present in county but have been documented as occurring here.

To make things a bit easier, I've split the *Juncus* into six groups.

Key to groups

1 Annuals; plants generally small and inconspicuous - Group 1

1' Perennials; plants larger

2 Inflorescences lateral - Group 2

2' Inflorescences terminal

3 Leaves with hollow cylindrical leaves - Group 3

3' Leaves not hollow and/or not cylindrical

4 Leaves flat, parallel to stem, iris-like - Group 4

4' Leaves not flat or not parallel to stem

5 Leaves wiry; bractlets 2 below each flower - Group 5

5' Leaves grass-like, flat but held perpendicular to stem; bracelets 1 below each flower - Group 6

Group 1: small annuals

With the exception of older, larger *J. bufonius* each of these is very obviously an annual. They are very small and easy to overlook.

1 Flowers scattered along stems

2 Sepals 4-10mm long - **J. bufonius var. bufonius**

- 2' Sepals 2-4mm long - **J. bufonius var. occidentalis**
- 1' Flowers 1 or in a terminal cluster
 - 3 Inflorescence bracts longer than inflorescence - **J. capitatus**
 - 3' Inflorescence bracts absent, inconspicuous, or at least shorter than inflorescence
 - 4 Anthers longer than filaments
 - 5 Fruit long, linear, much longer than perianth - **J. digitatus**
 - 5' Fruit squat, roundish, generally as long as perianth - **J. triformis**
 - 4' Anthers shorter than filaments
 - 6 Inflorescence bracts absent - *J. hemiendytus* var. *abjectus*
 - 6' Inflorescence bracts present
 - 7 Inflorescence bracts rounded - **J. hemiendytus var. hemiendytus**
 - 7' Inflorescence bracts acute to acuminate
 - 8 Perianth parts 4 - *J. tiehmii*
 - 8' Perianth parts 6
 - 9 Flowers 2-3 per stem; fruit, perianth dark red in age - *J. kelloggii*
 - 9' Flowers 1 per stem; fruit, perianth pale green to pale red in age, perianth midvein tips dark red - *J. luciensis*

Group 2: Perennials with lateral inflorescences

Technically they only appear to have lateral inflorescences. The inflorescence bract of the following species is much longer than the inflorescence and appears to be a continuation of the stem.

- 1 Rhizomes long, creeping; stems in loose colonies
 - 2 Blades well developed on some upper sheaths, longer than 5cm, stem-like - **J. mexicanus**
 - 2' Blades absent or shorter than 1cm, not stem-like - **J. balticus ssp. ater**
- 1' Rhizomes short; stems cespitose, in dense tufts like a bunchgrass
 - 3 Stamens 6
 - 4 Inflorescence with more than 10 flowers - *J. patens*
 - 4' Inflorescence with fewer than 6 flowers
 - 5 Plants of wet habitats; fruit notched or truncate; leaf blades absent or vestigial - **J. drummondii**
 - 5' Plants of dry habitats; fruit acute or acuminate; leaf blades longer than 2cm, stem-like - **J. parryi**
 - 3' Stamens 3
 - 6 Sheath-like lower leaves dark colored at the top - **J. effusus ssp. pacificus**
 - 6' Sheath-like lower leaves green or pale brown at the top
 - 7 Plants of high elevations; perianth parts spreading from fruit - **J. exiguus**
 - 7' Plants of low elevations; perianth parts appressed to fruit - **J. effusus ssp. solutus**

Group 3: Perennials with terminal inflorescences and cylindrical leaves

This group has leaves which are rolled but not wiry. They are hollow and have crosswalls

which can be seen if the leaves are split open or even sometimes can be seen inside when the leaves are held up to light.

1 Most or all flowers with 3 stamens - **J. acuminatus**

1' Most or all flowers with 6 stamens

2 Anthers shorter than or equal to filaments in length

3 Inflorescence clusters more than 5; fruit exceeding perianth; inflorescence bulblets occasionally present; stem occasionally rooting at nodes - **J. articulatus ssp. articulatus**

3' Inflorescence clusters 1-3; fruit generally equaling or not exceeding perianth; inflorescence bulblets never present, stem not rooting at nodes - **J. mertensianus**

2' Anthers longer than filaments

4 Inflorescence clusters 1-3

5 Perianth white to pink or green - **J. chlorocephalus**

5' Perianth brown-black - **J. mertensianus**

4' Inflorescence clusters more than 5

6 Petals blunt, tips hooded - **J. articulatus ssp. articulatus**

6' Petals acute to acuminate

7 Fruit longer than perianth; fruit gradually tapered to beak - **J. dubius**

7' Fruit equaling or shorter than perianth; fruit abruptly narrowed to beak - **J.**

nevadensis var. nevadensis

Group 4: Perennials with flat, wide, iris-like leaves

Plants in this group are easy to recognize for its leaves, which might be confused for something in *Iridaceae*, if not for the *Juncus* flowers. The stem and leaves are all oriented in one plane.

1 Stamens 3 - **J. ensifolius**

1' Stamens 6

2 Perianth parts dark brown to nearly black - **J. macrandrus**

2' Perianth parts green, red, or light brown

3 Perianth parts green with red tips - **J. xiphioides**

3' Perianth parts light brown or green, lacking red colorations

4 Fruit squat, abruptly beaked - *J. saximontanus*

4' Fruit elongate, gradually beaked - **J. oxymeris**

Group 5: Perennials with wiry leaves and with 2 bracelets subtending each flower

This group has solid rounded leaves which lack any crosswalls.

1 Perianth parts unequal, sepals longer than petals; fruit equaling perianth - *J. trilocularis*

1' Perianth parts equal; fruit smaller than perianth

2 Fruit chambers 3 - **J. confusus**

2 Fruit chambers 1

- 3 Leaf sheath appendages to 1mm long; wet habitats - **J. occidentalis**
 3' Leaf sheath appendages 2-5mm long; dry or wet habitats - **J. tenuis**

Group 6: Perennials with grass-like leaves and
 with 1 bractlet subtending each flower

The remainders found here should all have flat leaves which are held away from the stems in another plane, much like grass leaves.

- 1 Stamens 3; known only from the North Columbia Diggins - **J. marginatus**
 1' Stamens 6; widespread
 2 Perianth to 3.5mm long - *J. covillei*
 2' Perianth 4mm or longer
 3 Seeds slender with 1-2 long appendages - **J. howellii**
 3' Seeds plump, appendages absent or only as short points
 4 Leaf sheath appendages absent or obscure, pointed, shorter than 1mm - **J. orthophyllus**
 4' Leaf sheath appendages well developed, rounded, longer than 1mm - *J. longistylis*

Juncus acuminatus

Juncus articulatus ssp. articulatus

Juncus balticus ssp. ater

Juncus bufonius var. bufonius

Juncus bufonius var. occidentalis

Juncus capitatus

Juncus chlorocephalus

Juncus confusus

Juncus covillei

Juncus digitatus

Juncus drummondii

Juncus dubius

Juncus effusus ssp. pacificus

Juncus effusus ssp. solutus**Juncus ensifolius****Juncus exiguus**

Juncus hemiendytus var. abjectus

Juncus hemiendytus var. hemiendytus**Juncus howellii**

Juncus kelloggii

Juncus longistylis

Juncus luciensis

Juncus macrandrus**Juncus marginatus****Juncus mertensianus****Juncus mexicanus****Juncus nevadensis var. nevadensis****Juncus occidentalis****Juncus orthophyllus****Juncus oxymenis****Juncus parryi**

Juncus patens

Juncus saximontanus

Juncus tenuis

Juncus tiehmii

Juncus triformis

Juncus trilocularis

Juncus xiphioides**Luzula**

- 1 Inflorescence very open and well-spaced, generally interrupted throughout; heads many
 - 2 Inflorescence branches at right angles; perianth parts reflexed at tips - *L. divaricata*
 - 2' Inflorescence branches not at right angles; perianth parts appressed to erect throughout - *L. parviflora*
- 1' Inflorescence dense or clustered, little interrupted if at all; heads few
 - 3 Inflorescence somewhat spike-like; heads clustered; inflorescence interrupted near base, if at all; no heads on elongated stalks - *L. spicata* ssp. *spicata*
 - 3' Inflorescence with heads clustered at base of inflorescence with few on elongated stalks held above the rest
 - 4 Leaf tips acute to acuminate, not rounded - *L. subcongesta*
 - 4' Leaf tips rounded and thickened
 - 5 Plants with long horizontal rhizomes; stems lacking bulbous bases - *L. cascadenis*
 - 5' Plants caespitose; stem bases often bulbous
 - 6 Tepals pale colored, if dark colored, then anthers shorter than 1mm and styles shorter than 1mm - *L. comosa* var. *laxa*
 - 6' Tepals dark brown to black; anthers 1mm or longer; styles 1mm or longer - *L. macrantha*

Luzula cascadenis

Luzula comosa var. *laxa*

Luzula divaricata

Luzula macrantha

Luzula parviflora

Luzula spicata ssp. *spicata*

Luzula subcongesta

Juncaginaceae

Triglochin

1 Annual; perianth parts 1 or none; plants bisexual or not; stamens 1 on male/bisexual plants; carpels 1 on female/bisexual plants; far western end of county - *T. scilloides*

1' Perennial; perianth parts 6; plants bisexual; stamens and carpels 6; far eastern end of county - *T. maritima*

Triglochin maritima

Triglochin scilloides

Lamiaceae

1 Annual

2 Flowers blue purple; stamens extremely exerted, strongly curved; herbage odor strong, of vinegar or turpentine - *Trichostema*

2' Flowers variously pink (occasionally purple in *Pogogyne zizyphoroides*); stamens inserted or slightly exerted, not or slightly curved; herbage odor strong or not, if strong, then minty

3 Plants generally small; inflorescence a dense head with hairy spatulate bracts throughout; drying wet places - *Pogogyne zizyphoroides*

3' Plants generally larger; inflorescence bracted only at base or with wider bracts throughout; dry or disturbed habitats

4 Herbage odor strong, minty; stamens slightly exerted - *Monardella*

4' Herbage odor subtle or absent; stamens included- *Lamium*

1' Perennial

5 Woody shrub - *Lepechinia calycina*

5' Herb

6 Flowers spike- or head-like, sometimes interrupted but always terminal

7 Herbage distinctly hairy

8 Flower clusters with 12 or fewer flowers - *Stachys*

8' Flower clusters with more than 12 flowers - *Pycnanthemum californicum*

7' Herbage glabrous to sparsely hairy

9 Herbage lemon scented - *Melissa officinalis*

9' Herbage sage scented - *Salvia sonomensis*

9'' Herbage not strongly scented - *Prunella*

9''' Herbage mint scented

10 Plants typically of open dry habitats; inflorescence head-like - *Monardella*

10' Plants typically of permanently or vernal wet habitats

11 Plants clumped; flowers bilateral; inflorescence spike-like - *Agastache*

urticifolia

11' Plants rhizomatous; flowers radial or nearly so; inflorescence variously

shaped - *Mentha*

6' Flowers in axils, seldom to terminal ends

- 12 Flowers radial or nearly so
- 13 Herbage odor subtle to absent - *Lycopus*
- 13' Herbage odor strongly mint-like - *Mentha*
- 12' Flowers bilateral
- 14 Flowers few in axils; calyx entire - *Scutellaria*
- 14' Flowers many, whorled; calyx lobed - *Marrubium vulgare*

Agastache

Agastache urticifolia

Lamium

1 Flower tube long, well exerted from calyx; leaves, bracts green to tips; leaves sessile, clasping - *L. amplexicuale*

1' Flower tube short; barely exerted from calyx; leaves, bracts often purple at distal ends; leaves petiolate - *L. purpureum*

Lamium amplexicuale

Lamium purpureum

Lepechinia

Lepechinia calycina

Lycopus

1 Leaf margin teeth large; calyx lobes long, pointed; low elevations - *L. americanus*

1' Leaf margin teeth small; calyx lobes short; blunt to acute; high elevations - *L. uniflorus*

Lycopus americanus

Lycopus uniflorus

Marrubium

Marrubium vulgare

Melissa

Melissa officinalis

Mentha

- 1 Flowers all terminal, spike- or head-like
 - 2 Inflorescence elongated, spike-like - *M. spicata*
 - 2' Inflorescence rounded, head-like - *M. aquatica*
- 1' Flowers in axillary whorls
 - 3 Flowers hairy - *M. pulegium*
 - 3' Flowers not hairy - *M. canadensis*

Mentha aquatica

Mentha canadensis

Mentha pulegium

Mentha spicata

Monardella

- 1 Annual; leaves long and lance-linear; corolla generally purple spotted
 - 2 Flowers purple; bracts green or purple, not white - *M. breweri* ssp. *lanceolata*
 - 2' Flowers white; bracts white at least at margins, veins green - *M. candicans*
- 1' Perennials, generally shrubby; leaves ovate-elliptic; corolla not purple spotted
 - 3 Plants of high elevations and east of crest; flowers pink or white
 - 4 Flowers dark pink; east end of county - *M. rubella*
 - 4' Flowers white or very pale pink; mountains - *M. ovata* ssp. *pallida*
 - 3' Plants of low to mid elevations, west of crest; flowers purple
 - 5 Flower cluster 1 per stem; stems glabrous or nearly so; leaf abaxially evenly minutely puberulent; all hairs very short - *M. sheltonii*
 - 5' Flower cluster 1-6 per stem; stem hairy, some long; leaf abaxially unevenly hairy with some long to woolly - *M. villosa* ssp. *villosa*

Monardella breweri ssp. *lanceolata*

Monardella candicans

Monardella ovata ssp. *pallida*

Monardella rubella

Monardella sheltonii

Monardella villosa ssp. *villosa*

Pogogyne

Pogogyne zizyphoroides

Prunella

1 Cauline leaves much longer than wide - *P. vulgaris* var. *lanceolata*

1' Cauline leaves not much longer than wide - *P. vulgaris* var. *vulgaris*

Prunella vulgaris var. *lanceolata*

Prunella vulgaris var. *vulgaris*

Pycnanthemum

Pycnanthemum californicum

Salvia

Salvia sonomensis

Scutellaria

1 Flowers white - *S. californica*

1' Flowers blue-purple

2 Plants of wet habitats; tall in stature; rare - *S. galericulata*

2' Plants of dry habitats; short in stature; uncommon

3 Leaves spatulate; stem and leaves with spreading hairs to 3mm long; tubers present
- *S. tuberosa*

3' Leaves lanceolate; stem and leaves with curled or appressed hairs no longer than
0.5mm; tubers absent - *S. siphocampyloides*

Scutellaria californica

Scutellaria galericulata

Scutellaria siphocampyloides

Scutellaria tuberosa

Stachys

1 Upper corolla lobes 2mm long or less; below 1500' - *S. stricta*

1' Upper corolla lobes longer than 2mm; above 1500'

2 Leaf base wedge-shaped; plant silky to the touch - *S. ajugoides*

2' Leaf base rounded, truncate, or cordate; plant rough to the touch - *S. rigida* var. *rigida*

Stachys ajugoides

Stachys rigida var. *rigida*

Stachys stricta

Trichostema

1 Plants small; leaves elliptic - *T. oblongum*

1' Plants taller; leaves lanceolate

2 Leaves dense, more or less sessile; internodes short; common - *T. lanceolatum*

2' Leaves spread out, petiolate; internodes long; rare - *T. simulatum*

Trichostema lanceolatum

Trichostema oblongum

Trichostema simulatum

Lauraceae

Umbellularia

Umbellularia californica var. *californica*

Lentibulariaceae

Utricularia

1 Ultimate leaf segments more than 30; lower lip longer than upper; bladder glands of two sizes; X-shaped - *U. macrorhiza*

1' Ultimate leaf segments 7-22; lower lip shorter than or equal to upper; bladder glands of equal sizes, X-shaped - *U. gibba*

1" Ultimate leaf sections fewer than 6; lower lip 1/2 the length of upper lip; bladder glands of two sizes, pointing in same direction - *U. minor*

Utricularia gibba

Utricularia macrorhiza

Utricularia minor

Liliaceae

1 Sepals and petals dissimilar in size, shape, color - Calochortus

1' Sepals and petals similar in size, shape, color

2 Leaves basal - Erythronium

2' Leaves cauline

3 Plants branched; branches spreading; flowers pendant below leaves at branch tips; fruit an orange berry - Prosartes hookeri

3' Plants typically unbranched; plants erect; flowers pendant or not, above leaves; fruit a capsule

4 Plants smaller; flowers pendant, mottled brown, mottled red, or yellow; leaves whorled or alternate, generally fewer than 6 per whorl - Fritillaria

4' Plants larger; flowers pendant or not; orange or red-orange or white, usually spotted; leaves whorled, more than 12 per whorl - Lilium

Calochortus

1 Flowers nodding, closed - C. albus

1' Flowers facing upwards, open

2 Flowers yellow

3 Flowers large; plants tall; petals hairy only at nectary; in open habitats, grasslands, oak savannahs, western edge of county - C. luteus

3' Flowers small; plants short; petals hairy everywhere except nectary; in typically shady habitats; oak forests, chaparral; to mid elevations - C. monophyllus

2' Flowers white, pink, or purple

4 Flowers white to purple with variable colorful patches, chevrons, streaks, and speckles; plants of oak savannahs, grasslands; low elevations - C. superbus

4' Flower color various but with minimal ornamentation; plants of conifer forests or open high elevation habitats

5 Flowers large; anthers sagittate, white; open high elevation habitats - C. leichtlinii

5' Flowers small; anthers not sagittate, blue to purple; typically shady forested habitats

6 Petals densely hairy - C. coeruleus

6' Petals not hairy

7 Nectary obvious, crescent shaped, dark purple; fruit erect - C. nudus

7' Nectary inconspicuous; fruit nodding - C. minimus

Calochortus albus

Calochortus coeruleus

Calochortus leichtlinii

Calochortus luteus

Calochortus minimus

Calochortus monophyllus

Calochortus nudus

Calochortus superbus

Erythronium

1 Plants of high elevations; leaves not mottled - *E. purpurascens*

1' Plants of low elevations; leaves mottled - *E. multiscapoideum*

Erythronium multiscapoideum

Erythronium purpurascens

Fritillaria

1 Flowers yellow; east side of crest; bell-shaped - *F. pudica*

1' Flowers red, speckled, tubular - *F. recurva*

1" Flowers variously marbled colors of brown, red, yellow, green; generally bell-shaped

2 High elevations and east side of crest - *F. atropurpurea*

2' Low to mid elevations on west side of crest

3 Flower color variable but all individuals in a given population uniform in their flower coloration; flowers bell-shaped, usually lacking any red coloration; perianth parts straight to flared at tips; female flower parts always present; common - *F. micrantha*

3' Individual plants in a given population highly variable in their coloration compared to other individuals; flowers slightly more tubular or with more red colors; perianth parts flared to recurved at tips; female flower parts often absent; rare - *F. eastwoodiae*

Fritillaria atropurpurea

Fritillaria eastwoodiae

Fritillaria micrantha

Fritillaria pudica

Fritillaria recurva

Lilium

1 Flowers white - *L. washingtonianum* ssp. *washingtonianum*

1' Flowers orange

2 Flowers erect; high elevations - *L. parvum*

2' Flowers nodding; mid to high elevations

3 Dry habitats - *L. humboldtii* ssp. *humboldtii*

3' Wet habitats - *L. pardalinum* ssp. *pardalinum*

Lilium humboldtii ssp. *humboldtii*

Lilium pardalinum ssp. *pardalinum*

Lilium parvum

Lilium washingtonianum ssp. *washingtonianum*

Prosartes

Prosartes hookeri

Limnanthaceae

1 Sepals 3; Petals 3, shorter than sepals; flowers small; plants sprawling - *Floerkea proserpinacoides*

1' Sepals 4-5; Petals 5, longer than sepals; flowers larger; plants not sprawling - *Limnanthes*

Floerkea

Floerkea proserpinacoides

Limnanthes

1 Sepals densely hairy; fruit ridged - *L. alba* ssp. *alba*

1' Sepals hairless or sparsely hairy; fruit smooth or tubercled - *L. alba* ssp. *versicolor*

Limnanthes alba ssp. *alba*

Limnanthes alba ssp. *versicolor*

Linaceae

1 Flowers small; styles and stigmas 3 - *Hesperolinon micranthum*

1' Flowers larger; styles and stigmas 5 - *Linum*

Hesperolinon

Hesperolinon micranthum

Linum

1 Flowers small, pale blue - *L. bienne*

1' Flowers large, rich blue - *L. lewisii* var. *lewisii*

Linum bienne

Linum lewisii var. *lewisii*

Linderniaceae

Lindernia

Lindernia dubia

Linnaeaceae

Linnaea

Linnaea borealis var. *longiflora*

Loasaceae

Mentzelia

1 Plant very tall; flowers large - *M. laevicaulis* var. *laevicaulis*

1' Plant shorter; flowers small

2 Seeds 1mm or less in width or length; fruit narrowly cylindrical, straight to slightly curved; cells on seed faces minute; upper and lower leaves toothed or entire; flowers tending more yellow; flower bracts various - *M. dispersa*

2' Seeds 1-2mm in width and length; fruit cone-like; straight to slightly curved; cells on seed faces tubercle-like; lower leaves lobed; upper leaves lobed; petals tending more orange; flower bracts with 3-7 lobes/teeth - *M. veatchiana*

2" Seeds 1-1.5mm in width or length; fruit cone-like; generally strongly curved; cells on seed faces tubercle-like; lower leaves lobed; upper leaves lobed or entire; flowers tending more yellow; flower bracts with 3 lobes/teeth or entire - *M. albicaulis*

Mentzelia albicaulis

Mentzelia dispersa

Mentzelia laevicaulis var. *laevicaulis*

Mentzelia veatchiana

Lycopodiaceae

Lycopodiella

Lycopodiella inundata

Lythraceae

1 Leaves lobed at base - *Ammannia coccinea*

1' Leaves tapered to base, unlobed - *Lythrum*

Ammannia

Ammannia coccinea

Lythrum

1 Calyx shallow; plants sprawling over ground on lake margins and other drying ground, rooting at nodes - *L. portula*

1' Calyx long; plants generally erect or if sprawling, not rooting at nodes

2 Plants large, erect; flowers many per axil - *L. salicaria*

2' Plants small, erect or sprawling; flowers 1 per axil - *L. hyssopifolia*

Lythrum hyssopifolia

Lythrum portula

Lythrum salicaria

Malvaceae

1 Shrub - Fremontodendron

1' Herb

2 Flowers red - *Modiola caroliniana*

2' Flowers not red

3 Uppermost leaves palmately lobed deeply; habitat various - *Sidalcea*

3' Uppermost leaves shallowly or not lobed; disturbed habitats - *Malva*

Fremontodendron

Fremontodendron californicum

Malva

1 Calyx not enclosing fruit; petals equal in length to calyx lobes - *M. parviflora*

1' Calyx enclosing fruit; petals longer than calyx lobes

2 Calyx bracts linear - *M. neglecta*

2' Calyx bracts wide - *M. nicaeensis*

Malva neglecta

Malva nicaeensis

Malva parviflora

Modiola

Modiola caroliniana

Sidalcea

1 Plants with large, wide, leaf-like conspicuous stipules; rare - *S. stipularis*

1' Plants with inconspicuous stipules or at least not leaf-like and not very wide

2 Inflorescence a dense spike; plants of mountain meadows - *S. oregana* ssp. *spicata*

2' Inflorescence not dense or not a spike; habitats various

3 Leaves and plants very large; stems hollow at base; plants of streamsides; rare - *S.*

gigantea

3' Leaves and plants not particularly large; stems solid throughout; plants of dry habitats or mountain meadows

4 Annual plants of grassy places at low elevations; upper leaves narrowly lobed, finger-like - *S. hartwegii*

4' Perennials of forested areas or mountain meadows; leaf lobes wide

5 Plants rhizomatous; 2000-3000' or thereabouts - *S. asprella* ssp. *asprella*

5' Plants not rhizomatous; higher elevations

6 Lowest leaves unlobed, crenate - *S. reptans*

6' Lowest leaves lobed

7 Leaves mostly cauline; leaf lobes generally 5, entire or shallowly toothed; common in mid to high elevations - *S. glaucescens*

7' Leaves mostly basal; leaf lobes generally 7, deeply toothed; rare at far east end of county - *S. multifida*

Sidalcea asprella ssp. *asprella*

Sidalcea gigantea

Sidalcea glaucescens

Sidalcea hartwegii

Sidalcea multifida

Sidalcea oregana ssp. *spicata*

Sidalcea reptans

Sidalcea stipularis

Marsileaceae

Marsilea

1 Tooth on sporangium case acute, 0.5-1.5mm; stalk fused to case for greater than 1mm - *M. vestita* ssp. *vestita*

1' Tooth on sporangium case absent or obtuse and shorter than 0.5mm; stalk fused to case for less than 1mm - *M. oligospora*

Marsilea oligospora

Marsilea vestita ssp. *vestita*

Melanthiaceae

1 Flowers 1; leaves 3 - Trillium

1' Flowers many; leaves many

2 Leaves wide; conspicuously veined - *Veratrum californicum* var. *californicum*

2' Leaves linear; veins inconspicuous

3 Leaves tough, persistent - *Xerophyllum tenax*

3' Leaves not tough, whole plant winter deciduous - *Toxicoscordion*

Toxicoscordion

1 Inflorescence a panicle, upper flowers often single - *T. paniculatum*

1' Inflorescence a raceme - *T. venenosum* var. *venenosum*

Toxicoscordion paniculatum

Toxicoscordion venenosum var. *venenosum*

Trillium

"The Trouble with Trillium"

Trillium are such a mess here. There are records for the four species I list below and my key resembles that of FNANM. This is because *T. kurabayashii* is recognized by that resource but not by Jepson. Using this key, all of these forms are indeed here. *T. albidum* is safely a part of the flora. Classic *T. angustipetalum*, with its very narrow, linear petals is almost undoubtedly here. But then there are the other two. Using and trusting the FNANM key, both of these taxa occur here. But their distributional models indicate that only *T. kurabayashii* ought to be here. Certainly, the two species closely resemble each other. Both have similar coloration and petal shape. Now here's where things get complicated. Jepson treats *T. kurabayashii* as a synonym of *T. angustipetalum* and also lists the range of *T. chloropetalum* as coastal and absent from the Sierra. So easy, right? All of our purple flowered plants are *T. angustipetalum*. Except this morphologically distinct form is very abundant here and it defies the description of *T. angustipetalum* powerfully. Range maps can be deceiving and overreliance on them can be detrimental. Our area is known to commonly harbor coastal disjuncts. The insinuation that *T. chloropetalum* is solely coastal is not entirely sound in theory. Similarly, *T. kurabayashii* is mostly known from the far North Coast area and Klamaths in California but then skips the Cascades and Lassen region, extending down to us, before passing into solidly *T. angustipetalum* south of Placer County. This map is based on very few local specimens, a persistent problem for our flora. Conclusions are being drawn from very few data points and this can lead to considerable confusion. It could be that our county presents a great mixing

ground of Trillium genetics and this could account for the multitude of messy variabilities we see in our plants. But certainly, this genus needs a much closer look here. For now, the key below gives a good method to separate the various forms we have. And when someone finally undertakes a robust study of our plants, it may warrant some serious edits to this key.

1 Petals white and ovary green, no purple colorations - *T. albidum*

1' Flowers with purple colorations on some or all parts, white morphs occasional but then usually only a few in a population of otherwise purple flowered plants

2 Stamens twice as long as pistils - *T. chloropetalum*

2' Stamens not twice as long as pistils

3 Leaf tips acuminate; leaves distinctly marbled, sessile or minutely petioled, somewhat glossy; petals oblanceolate, 2cm wide or more - *T. kurabayashii*

3' Leaf tips obtuse; leaves not marbled or slightly so, sessile, not glossy; petals linear, 1.5 cm wide or less - *T. angustipetalum*

Trillium albidum

Trillium angustipetalum

Trillium chloropetalum

Trillium kurabayashii ☉

Veratrum

Veratrum californicum var. *californicum*

Xerophyllum

Xerophyllum tenax

Menyanthaceae

Menyanthes

Menyanthes trifoliata

Molluginaceae

Mollugo

Mollugo verticillata

Montiaceae

1 Stigmas 2 - Calyptridium

1' Stigmas 3 or more

2 Flowers deep magenta colored, without stripes - Calandrinia menziesii

2' Flowers white or light pink, striped or not

3 Cauline leaves 2, free or fused into disc below flowers - Claytonia

3' Cauline leaves greater than 2 or absent

4 Inflorescence one-sided; fruit valved; leaves generally not rosetted; cauline leaves many; petals almost always 5, rarely 3 - Montia

4' Inflorescence not one-sided; fruit circumscissile; leaves rosetted or if not, then cauline leaves in a whorl of 2-5; petals 4-many - Lewisia

Calandrinia

Calandrinia menziesii

Calyptridium

1 Flowers and leaves distributed along flowering stems; petals 3; stamens; rare - C. monandrum

1' Flowers head-like at tips of flowering stems; leaves in basal rosette; petals 4; stamens 3; common

2 Flowering stems typically 1, terminal - C. umbellatum

2' Flowering stems typically many, axillary - C. monospermum

Calyptridium monandrum

Calyptridium monospermum

Calyptridium umbellatum

Claytonia

1 Perennial herb of high elevations

2 Plant erect; leaves cauline, typically 2, opposite, lanceolate; forest understory habitats - C. lanceolata

2' Plant rosetted; leaves basal, many, wider than lanceolate; open alpine habitats; rare - C. megarhiza

1' Annual herbs; widespread

3 Basal leaves linear

4 Herbage blue-green; cauline leaf disc small, rarely absent; rare - *C. exigua* ssp. *exigua*

4' Herbage green; cauline leaf disc large

5 Flowers small, anthers small, generally yellowish, maturing at the same time as style and remaining close - *C. parviflora* ssp. *parviflora*

5' Flowers large, anthers large, generally pink-purple, maturing before style and spreading with age - *C. parviflora* ssp. *grandiflora*

3' Basal leaves elliptic to deltate

6 Plants obviously rosetted; leaves more or less prostrate; herbage often with deep red coloration - *C. rubra* ssp. *rubra*

6' Plants not obviously rosetted; leaves more or less erect; herbage green, sometimes blushed pink - *C. perfoliata* ssp. *perfoliata*

Claytonia exigua ssp. *exigua*

Claytonia lanceolata

Claytonia megarhiza

Claytonia parviflora ssp. *grandiflora*

Claytonia parviflora ssp. *parviflora*

Claytonia perfoliata ssp. *perfoliata*

Claytonia rubra ssp. *rubra*

Lewisia

1 Leaves all cauline, usually 3, whorled; plants of wet places at mid to high elevations - *L. triphylla*

1' Leaves mostly or all basal

2 Leaves strongly serrate; of cliff faces in river canyons - *L. cantelovii*

2' Leaves not serrate; habitats various

3 Plants of open dry lava caps; flowers very large, sessile - *L. kelloggii*

3' Plants not of lava caps; flowers smaller, peduncled

4 Plants of open, rocky subalpine to alpine habitats, sepals gland-toothed; leaves usually shorter than or equaling inflorescence - *L. longipetala*

4' Plants of edge habitats, typically of forests and meadows; sepals not gland-toothed; leaves usually exceeding inflorescence - *L. nevadensis*

Lewisia cantelovii

Lewisia kelloggii

Lewisia longipetala

Lewisia nevadensis

Lewisia triphylla

Montia

1 Perennial

2 Flowering stems sprawling with leafy bulblets at nodes - *M. parviflora*

2' Plants compact, leaves opposite along stems, not clustered; bulblets absent - *M.*

chamissoi

1' Annual

3 Leaves wide, deltate or nearly so; plants open and strongly sprawling - *M. diffusa*

3' Leaves linear to lanceolate; plants generally compact in form and not sprawling

4 Plants large in all respects; leaves linear; petals conspicuous, more or less equal - *M.*

linearis

4' Plants typically very small; leaves lanceolate; petals usually inconspicuous, unequal -

M. fontana

Montia chamissoi

Montia diffusa

Montia fontana

Montia linearis

Montia parviflora

Moraceae

1 Fruit large, wrinkly; leaves pinnately veined, margins entire; large, single trunk trees -

Maclura pomifera

1' Fruit small, segmented; leaves palmately veined with toothed margins; large, single trunk trees - *Morus alba*

1" Fruit medium sized, smooth; leaves palmately veined with toothed margins; small to medium sized, multi-trunked trees - *Ficus carica*

Ficus

Ficus carica

Maclura

Maclura pomifera

Morus

Morus alba

Myrsinaceae

Lysimachia

1 Leaves whorled; stems woody - L. latifolia

1' Leaves not whorled; stems not woody

2 Flowers yellow

3 Plants trailing; leaves rounded; plants of wet places at low elevations - L. nummularia

3' Plants erect; leaves elongate, acute; plants of lake margins at high elevations - L.

thysiflora

2' Flowers not yellow

4 Plants generally inconspicuous, delicate annuals of blue oak woodlands; calyx exceeding corolla - L. minima

4' Plants not inconspicuous, robust annuals of disturbed places at low elevations; calyx not exceeding corolla - L. arvensis

Lysimachia arvensis

Lysimachia latifolia

Lysimachia minima

Lysimachia nummularia

Lysimachia thysiflora

Namaceae

1 Flowers purple, large, tubular - Eriodictyon

1' Flowers white, small, not tubular - Nama densa var. densa

Eriodictyon

1 Tall rhizomatous shrub, glabrous - *E. californicum*
 1' Herb, hairy - *E. lobbii*

Eriodictyon californicum

Eriodictyon lobbii

Nama

Nama densa var. *densa*

Nartheciaceae

Narthecium

Narthecium californicum

Nymphaceae

Nuphar

Nuphar polysepala

Oleaceae

1 Leaf pinnately-compound; fruit a samara; deciduous - *Fraxinus*
 1' Leaf simple; fruit a berry; evergreen - *Olea europea*

Fraxinus

1 Petals present; flowers bisexual; small tree; leaflets small, glabrous - *F. dipetala*
 1' Petals absent; flowers unisexual; small to large tree; leaflets larger, often hairy - *F. latifolia*

Fraxinus dipetala

Fraxinus latifolia

Olea

Olea europaea

Onagraceae

1 Petals 2 - *Circaea alpina* ssp. *pacifica*

1' Petals more than 2

2 Sepals persistent after flowering - *Ludwigia*

2' Sepals deciduous after flowering

3 Sepals erect; seeds with tuft of hairs (absent in some *Epilobium*)

4 Petals entire; stamens equal in length - *Chamerion angustifolium* ssp. *circumvagum*

4' Petals notched; stamens in two unequal whorls - *Epilobium*

3' Sepals reflexed; seeds without tuft of hairs

5 Stigma four-lobed when mature

6 Flowers yellow - *Oenothera*

6' Flowers various shades of red, white, and purple, not yellow - *Clarkia*

5' Stigma hemispheric

7 Perennial; leaves basal, rosetted - *Taraxia*

7' Annual; leaves cauline

8 Flowers yellow; rare - *Neoholmgrenia andina*

8' Flowers white to pink; common - *Gayophytum*

Chamerion

Chamerion angustifolium ssp. *circumvagum*

Circaea

Circaea alpina ssp. *pacifica*

Clarkia

1 Fruit small and more or less round; 1-2 seeds per fruit - *C. heterandra*

1' Fruit elongate; many seeds per fruit

2 Corolla not bowl-shaped

3 Petals notched at tip - *C. biloba* ssp. *brandegeae*

3' Petals not notched at tip

4 Petals long, abruptly swollen in width only at tips; sepals remaining fused in flower - *C. unguiculata*

4' Petals short, abruptly swollen in width near base; sepals becoming free in flower

5 Petals often spotted; pollen blue; common - *C. rhomboidea*

5' Petals lacking spots; pollen yellow; rare - *C. stellata*

2' Corolla bowl-shaped

6 Buds pendant

7 Stigma exerted beyond anthers - *C. arcuata*

7' Stigma not exerted beyond anthers - *C. gracilis* ssp. *gracilis*

6' Buds erect

8 Stigma not exerted beyond anthers - *C. purpurea* ssp. *quadrivulnera*

8' Stigma exerted beyond anthers

9 White and pink parts of petals highly contrasting with more or less clear margin between zones of color; hypanthium green; red spot on petal widest at middle, not reaching petal margin - *C. williamsonii*

9' White and pink parts of petals not highly contrasting, showing a gradient between zones of color; hypanthium green or red; red spot on petal widest distally, often reaching margin of petal - *C. purpurea* ssp. *viminea*

Clarkia arcuata

Clarkia biloba ssp. *brandegeae*

Clarkia gracilis ssp. *gracilis*

Clarkia heterandra

Clarkia purpurea ssp. *quadrivulnera*

Clarkia purpurea ssp. *viminea*

Clarkia rhomboidea

Clarkia stellata

Clarkia unguiculata

Clarkia williamsonii

Epilobium

1 Taprooted annuals

2 Seed hair absent

3 Basal branches prostrate or decumbent - *E. campestre*

3' Basal branches ascending or absent

4 Fruit beaked - *E. torreyi*

4' Fruit not beaked - *E. densiflorum*

- 2' Seed hair present
 - 5 Stems wiry, tall in conducive environments; glandular distally - *E. brachycarpum*
 - 5' Stems not wiry, never tall; non-glandular
 - 6 Flowers white or pink, generally larger; seeds netted; leaves lanceolate to ovate - *E. minutum*
 - 6' Flowers always white, generally smaller; seeds papillate; leaves linear to lanceolate - *E. ravenii*
- 1' Caudexed perennials
 - 7 Flowers tubular, red; plants almost shrubby - *E. canum* ssp. *latifolium*
 - 7' Flowers large, purple, plants more or less mat-forming; subalpine to alpine habitats - *E. obcordatum*
 - 7" Flowers white or pink, small
 - 8 Plants glabrous
 - 9 Stolons short and scaly; pedicels to 25mm long - *E. glaberrimum* ssp. *glaberrimum*
 - 9' Stolons thread-like; pedicels 20mm or longer - *E. oregonense*
 - 8' Plants variously hairy but often only as lines of hairs on stems
 - 10 Stem and inflorescence glandular
 - 11 Flowers white to pink; petals 2-6mm long; inflorescence open, not very leafy - *E. ciliatum* ssp. *ciliatum*
 - 11' Flowers pink or darker; petals 4-14mm; inflorescence dense, leafy - *E. ciliatum* ssp. *glandulosum*
 - 10' Stem not glandular; inflorescence glandular
 - 12 Fruit glabrous - *E. anagallidifolium*
 - 12' Fruit hairy
 - 13 Sepals 2.8mm long or less; inflorescence nodding - *E. hallianum*
 - 13' Sepals 3mm long or more; inflorescence not nodding - *E. hornemannii* ssp. *hornemannii*

Epilobium anagallidifolium

Epilobium brachycarpum

Epilobium campestre

Epilobium canum ssp. *latifolium*

Epilobium ciliatum ssp. *ciliatum*

Epilobium ciliatum ssp. *glandulosum*

Epilobium densiflorum

Epilobium glaberrimum ssp. *glaberrimum*

Epilobium hallianum

Epilobium hornemannii ssp. *hornemannii*

Epilobium minutum

Epilobium obcordatum

Epilobium oregonense

Epilobium ravenii

Epilobium torreyi

Gayophytum

1 Fruit highly irregularly knobby due to roughly half of seeds being aborted - *G. heterozygum*

1' Fruit knobby or not but not irregularly so and with all or most seed maturing

2 Fruit cylindrical - *G. diffusum* ssp. *parviflorum*

2' Fruit flat

3 Petals to 1.5mm long; largest stamens to 0.7mm long; lateral fruit valves staying attached - *G. humile*

3' Petals 1.3-1.8mm long; largest stamens 0.8mm long or generally longer; all fruit valves becoming free - *G. racemosum*

Gayophytum diffusum ssp. *parviflorum*

Gayophytum heterozygum

Gayophytum humile

Gayophytum racemosum

Ludwigia

1 Petals absent; flowers small in leaf axils; sepals 4; stamens 4; leaves opposite - *L. palustris*

1' Petals 5-6; flowers large and showy; sepals 5-6; stamens 10-12; leaves alternate - *L. hexapetala*

Ludwigia hexapetala

Ludwigia palustris

Neoholmgrenia

Neoholmgrenia andina

Oenothera

1 Leaves basal, rosetted; leaves pinnately lobed - *O. flava*

1' Leaves cauline; plant tall and erect; leaves entire - *O. elata* ssp. *hirsutissima*

Oenothera elata ssp. *hirsutissima*

Oenothera flava

Taraxia

1 Leaves deeply pinnately lobed - *T. tanacetifolia*

1' Leaves entire or very shallowly toothed - *T. subacaulis*

Taraxia subacaulis

Taraxia tanacetifolia

Ophioglossaceae

1 Plants small; usually of wet habitats, meadows; rare - *Botrychium*

1' Plants larger; usually of dry habitats, forest understories, occasionally in wet habitats; common - *Sceptridium multifidum*

Botrychium

Honestly, I hesitate to even provide a key here. *Botrychium* are not well understood in the county. There are no collections of any species. Below are the three we have records on CNDDDB for. All are rare, protected plants. But surprisingly, the common species *B. simplex* has not yet been found here. I expect it to turn up eventually. The three species treated here all have the leaf split between the trophophore (leaf-like half) and sporophore (fertile half) happen above ground, whereas *B. simplex* has that split happen at ground level or below ground. The odds of additional species of *Botrychium* being found here are high and so do not utilize this key as an exhaustive reference. The Jepson Manual treatment is not great either. I would recommend checking to see if you have *B. simplex* using the character above and if it isn't *simplex*, you have a rare species and really ought to contact an expert for ID. These are

absolutely not easy plants to identify for oneself. Additionally, they do not show up each year and you can do harm to the plants by collecting samples haphazardly. The best course of action is to take a GPS pin and contact an expert to visit the site with you. But for what it's worth...

1 Lower pinnae spreading; pinnae texture thin - *B. crenulatum*

1' Lower pinnae ascending; pinnae texture thick

2 Lower pinnae base converging at 150 degrees or more; pinnae touching to overlapping -
B. neolunaria

2' Lower pinnae base converging at 120 degrees or less; pinnae well spread, sometimes touching - *B. ascendens*

Botrychium ascendens ●

Botrychium crenulatum ●

Botrychium neolunaria ●

Sceptridium

Sceptridium multifidum

Orchidaceae

1 Herbage lacking green

2 Herbage white - *Cephalanthera austini*

2' Herbage red or yellow - *Corallorhiza*

1' Herbage green

3 Flowers not entirely white or green, typically with red to purple coloration

4 Lower lip swollen into inflated pouch - *Cypripedium fasciculatum*

4' Lower lip not swollen into inflated pouch - *Epipactis gigantea*

3' Flowers white or green

5 Flowers distinctly spiraled around stem - *Spiranthes*

5' Flowers not distinctly spiraled

6 Basal leaves conspicuously white veined - *Goodyera oblongifolia*

6' Basal leaves not white veined

7 Lower lip pointed out away from stem, notched; cauline leaves 2, opposite at mid stem - *Listera convallarioides*

7' Lower lip pointing downwards or reflexed, entire; cauline leaves absent or more than 2 alternating along stem

8 Culine leaves absent - *Piperia*

8' Culine leaves present - *Platanthera*

Cephalanthera

Cephalanthera austiniae

Corallorhiza

1 Herbage red; lower lip striped - *C. striata*

1' Herbage red or yellow; lower lip spotted or plain - *C. maculata* ssp. *occidentalis*

Corallorhiza maculata ssp. *occidentalis*

Corallorhiza striata

Cypripedium

Cypripedium fasciculatum

Epipactis

Epipactis gigantea

Goodyera

Goodyera oblongifolia

Listera

Listera convallarioides

Piperia

1 Spurs very short, more or less only as long as peduncle

2 Lateral petals linear, long; spur tapered to point - *P. leptopetala*

2' Lateral petals wider than linear short; spur blunt - *P. unalascensis*

1' Spurs longer than peduncle

3 Spur more or less straight - *P. transversa*

3' Spur strongly curved

4 Lateral petals linear, long - *P. leptopetala*

4' Lateral petals wider than linear, short - *P. elongata*

Piperia elongata

Piperia leptopetala

Piperia transversa

Piperia unalascensis

Platanthera

1 Flowers white - *P. dilatata* var. *leucostachys*

1' Flowers green - *P. sparsiflora*

Platanthera dilatata var. *leucostachys*

Platanthera sparsiflora

Spiranthes

1 Upper and lateral perianth parts swept upwards leaving only labellum pointing down; tips of upper perianth parts touching - *S. romanzoffiana*

1' Flower star-like with 6 divergent points, perianth parts well-spread

2 Spiral tight, flower facing significantly different direction from flowers above and below; typically lower elevations - *S. porrifolia*

2' Spiral lax, flower facing only slightly in different direction from flowers above and below; typically higher elevations - *S. perexilis*

Spiranthes perexilis

Spiranthes porrifolia

Spiranthes romanzoffiana

Orobanchaceae

1 Herbage lacking green

2 Plant not resembling pinecone; variously colored; bracts small - *Aphyllon*

2' Plant resembling purple pinecone; bracts large - *Kopsiopsis strobilacea*

1' Herbage with green

3 Uppermost leaves opposite - *Bellardia viscosa*

3' Uppermost leaves alternate or leaves basal

4 Anther sacs 1 per stamen - *Triphysaria*

4' Anther sacs 2 per stamen

5 Upper corolla beaked - *Castilleja*

- 5' Upper corolla hooded
- 6 Anther sacs equal - Pedicularis
- 6' Anther sacs unequal
 - 7 Inflorescence a spike; branches few to none - Orthocarpus
 - 7' Inflorescence not spike-like; flowers 1 or small clusters at branch tips; highly branched - Cordylanthus

Aphyllon

- 1 Flowers single, often in troops in wet places, purple and yellow, rarely white; typically parasitizing Sedum or Micranthes - *A. purpureum*
- 1' Flowers clustered; generally dry habitats
 - 2 Flowers white, sometimes purple-tinged
 - 3 Plants of wet habitats at high elevations; plants smaller - *A. californicum* ssp. *grayanum*
 - 3 Plants of dry habitats at low elevations; plants larger - *A. californicum* ssp. *jepsonii*
 - 2' Flowers deeply purple or yellow
 - 4 Parasitizing *Artemisia tridentata*
 - 5 Flowers red-purple; stems low - *A. corymbosum*
 - 5' Flowers yellowish with purple tints; stems not as low - *A. fasciculatum*
 - 4' Parasitizing other plants
 - 6 Parasitizing *Eriodictyon* or *Phacelia*; common - *A. franciscanum*
 - 6' Parasitizing *Holodiscus discolor*; rare - *A. pinorum*
 - 6'' Parasitizing *Galium*; rare - *A. epigalium* ssp. *epigalium*

Aphyllon californicum ssp. *grayanum*

Aphyllon californicum ssp. *jepsonii*

Aphyllon corymbosum

Aphyllon epigalium ssp. *epigalium*

Aphyllon fasciculatum

Aphyllon franciscanum

Aphyllon pinorum

Aphyllon purpureum

Bellardia

Bellardia viscosa

Castilleja

- 1 Bracts generally red-tipped, occasionally yellow, if yellow then pouch not 3-lobed
 - 2 Inflorescence hairs branched; leafy axillary shoots absent; calyx lobe tips acute to acuminate - *C. pruinosa*
 - 2' Inflorescence hairs not branched or if some hairs branched then leafy axillary shoots present and calyx lobe tips acute, obtuse, or rounded
 - 3 Calyx lobe deeply cut 2/3rds calyx length with corolla curving out lower calyx sinus - *C. subinclusa* ssp. *subinclusa*
 - 3' Calyx lobe cut 1/4-1/2 calyx length
 - 4 Plants not glandular-hairy or if inflorescence glandular hairy, then corolla adaxially shaggy hairy
 - 5 Leaves generally lobed or occasionally not; plants generally of low to mid elevations - *C. affinis* ssp. *affinis*
 - 5' Leaves entire; tall plants of wet places at high elevations - *C. miniata* ssp. *miniata*
 - 4' Plants glandular-hairy below inflorescence or throughout; corolla adaxially puberulent
 - 6 Plants glandular hairy below inflorescence; leaf margins not wavy - *C. peirsonii*
 - 6' Plants glandular hairy throughout; leaf margins generally wavy
 - 7 Leaves with 3 lobes; red fir forests and above - *C. applegatei* ssp. *pallida*
 - 7' Leaves entire; below red fir forests - *C. applegatei* ssp. *pinetorum*
- 1' Bracts purple or white-tipped, or bracts all one color but not red; pouch 3-lobed
 - 7 Bracts purple tipped
 - 8 Annual; plants of low elevations - *C. exserta* ssp. *exserta*
 - 8' Perennial; plants of high elevations - *C. lemmonii*
 - 7' Bracts white tipped
 - 9 Perennial; plants of sub- and alpine elevations - *C. nana*
 - 9' Annuals; plants of low to mid elevations
 - 10 Stigma included; inflorescence narrow - *C. attenuata*
 - 10' Stigma exserted; inflorescence wider - *C. lineariloba*
 - 7' Bracts green-tipped
 - 11 Perennial; plants of sub- and alpine elevations - *C. pilosa*
 - 11' Annuals; plants below subalpine
 - 12 Stigma exserted; flowers larger; inflorescence wider; tending to the west side of the crest - *C. lacera*
 - 12' Stigma included; flowers smaller; inflorescence narrow; tending to the east side of the crest - *C. tenuis*

Castilleja affinis ssp. *affinis*

Castilleja applegatei ssp. *pallida*

Castilleja applegatei ssp. *pinetorum*

Castilleja attenuata

Castilleja exserta ssp. *exserta*

Castilleja lacera

Castilleja lemmonii

Castilleja lineariloba

Castilleja miniata ssp. *miniata*

Castilleja nana

Castilleja peirsonii

Castilleja pilosa

Castilleja pruinosa

Castilleja subinclusa ssp. *subinclusa*

Castilleja tenuis

Cordylanthus

1 Outer bracts entire - *C. tenuis* ssp. *tenuis*

1' Outer bracts 3-lobed

2 Corolla without maroon; stem long hairy; generally in oak woodland and not on serpentine - *C. pilosus* ssp. *trifidus*

2' Corolla with maroon; stem not long hairy; on ultramafics - *C. tenuis* ssp. *viscidus*

Cordylanthus pilosus ssp. *trifidus*

Cordylanthus tenuis ssp. *tenuis*

Cordylanthus tenuis ssp. *viscidus*

Kopsiopsis

Kopsiopsis strobilacea

Orthocarpus

1 Flowers yellow - *O. luteus*

1' Flowers purple/white - *O. cuspidatus* ssp. *cryptanthus*

Orthocarpus cuspidatus ssp. *cryptanthus*

Orthocarpus luteus

Pedicularis

1 Flowers yellow; inflorescence held close to ground - *P. semibarbata*

1' Flowers not yellow; inflorescence held well above ground

2 Inflorescence not spike-like; leaves toothed, not lobed - *P. racemosa*

2' Inflorescence spike-like; leaves deeply lobed

3 Flowers red - *P. densiflora*

3' Flowers white/pink/purple

4 Flowers lighter colored; inflorescence hairy - *P. attollens*

4' Flowers darker colored; inflorescence glabrous - *P. groenlandica*

Pedicularis attollens

Pedicularis densiflora

Pedicularis groenlandica

Pedicularis racemosa

Pedicularis semibarbata

Triphysaria

1 Flowers very small, inconspicuous, to 7mm long but generally smaller - *T. pusilla*

1' Flowers larger, more than 8mm long, typically longer

2 Herbage not purple - *T. versicolor* ssp. *faucibarbata*

2' Herbage purple - *T. eriantha* ssp. *eriantha*

Triphysaria eriantha ssp. *eriantha*

Triphysaria pusilla

Triphysaria versicolor ssp. faucibarbata

Oxalidaceae

Oxalis

- 1 Flowers pink-purple - *O. articulata* ssp. *rubra*
- 1' Flowers yellow
 - 2 Annual; roots fibrous; fruits and flowers small - *O. micrantha*
 - 2' Perennial; taprooted; fruits and flowers larger
 - 3 Plants rooting at nodes; hairs appressed - *O. corniculata*
 - 3' Plants not rooting at nodes; hairs spreading - *O. pilosa*

Oxalis articulata ssp. *rubra*

Oxalis corniculata

Oxalis micrantha

Oxalis pilosa

Paeoniaceae

Paeonia

Paeonia brownii

Papaveraceae

- 1 Flowers not radial
 - 2 Plants shrub-like - *Corydalis caseana* ssp. *caseana*
 - 2' Plants herbaceous - *Dicentra*
- 1' Flowers radial
 - 3 Flowers yellow or orange
 - 4 Plants tall, shrubby - *Dendromecon rigida*
 - 4' Plants small, herbs - *Eschscholzia*
 - 3' Flowers white or white with yellow portions
 - 5 Flowers, plants large; herbage prickly - *Argemone munita*
 - 5' Flowers, plants small; herbage not prickly
 - 6 Plants glabrous - *Meconella californica*
 - 6' Plants distinctly hairy - *Platystemon californicus*

Argemone

Argemone munita

Corydalis

Corydalis caseana ssp. caseana

Dendromecon

Dendromecon rigida

Dicentra

1 Flowers many; lateral petals short, barely or not recurved; resembling heart; plants rhizomatous; typically shady, wet to dry habitats - *D. formosa* ssp. *formosa*
 1' Flowers few; lateral petals long, strongly recurved, resembling cow's head; plants not rhizomatous; typically open rocky habitats - *D. uniflora*

Dicentra formosa ssp. *formosa*

Dicentra uniflora

Eschscholzia

1 Flower with distinct ring at base of flower - *E. californica*
 1' Flower lacking such a ring
 2 Cauline leaves present - *E. caespitosa*
 2' Cauline leaves absent - *E. lobbii*

Eschscholzia caespitosa

Eschscholzia californica

Eschscholzia lobbii

Meconella

Meconella californica

Platystemon

Platystemon californicus

Parnassiaceae

Parnassia

1 Petals with fringe at base - *P. fimbriata*

1' Petals entire - *P. palustris*

Parnassia fimbriata

Parnassia palustris

Phrymaceae

1 Calyx longer than pedicel - *Diplacus*

1' Calyx shorter than pedicel - *Erythranthe*

Diplacus

1 Flowers yellow or orange

2 Annual herb; herbage usually with strong odor, not sticky - *D. mephiticus*

2' Shrub; herbage usually odorless; very sticky

3 Flowers light orange; corolla lobes large; leaves glabrous below; common - *D. grandiflorus*

3' Flowers deep orange; corolla lobes small; leaves hairy below; rare - *D. aurantiacus*

1' Flowers pink or purple

4 Lower corolla lobes absent; rare - *D. douglasii*

4' Lower corolla lobes present

5 Stem absent or so short as to not be noticeable; plants of lava caps - *D. angustatus*

5' Stem present

6 Stigma included

7 Corolla tube 6-8mm long; flowers extremely small and plants inconspicuous -

D. leptaleus

7' Corolla tube longer than 8mm

8 Corolla throat typically lacking yellow coloration; lower corolla lobe pointing down; calyx ribs darker in color; calyx lobes acute or acuminate - *D. layneae*

8' Corolla throat with two yellow lines; lower corolla lobe projecting forward; calyx ribs not darker in color; calyx lobes obtuse - *D. torreyi*

6' Stigma exerted or reaching corolla mouth

9 Leaves minutely puberulent; hairs shorter than 0.3mm - *D. jepsonii*

9' Leaves hairy, at least on margins; hairs 0.7mm or longer

10 Plant not strongly smelling; leaves generally ovate, often purple abaxially;
common at low to mid elevations - *D. kelloggii*

10' Plant strongly smelling; leaves generally lanceolate, green abaxially;
occasional at mid to high elevations and east side of crest - *D. mephiticus*

Diplacus angustatus

Diplacus aurantiacus

Diplacus douglasii

Diplacus grandiflorus

Diplacus jepsonii

Diplacus kelloggii

Diplacus layneae

Diplacus leptaleus

Diplacus mephiticus

Diplacus torreyi

Erythranthe

1 Flowers bi-colored, upper lobes white, lower lobes yellow - *E. bicolor*

1' Flowers bright red; corolla lobes reflexed - *E. cardinalis*

1" Flowers pink

2 Plants extremely small and inconspicuous in all characters; annual - *E. breweri*

2' Plants large, robust; perennial - *E. erubescens*

1''' Flowers all yellow

3 Calyx lobes unequal

4 Annual; roots fibrous

5 Stems glabrous or sparsely hairy but not glandular - *E. microphylla*

5' Stems glandular just above nodes

6 Leaves prominently toothed; common at low to mid elevations - *E. nasuta*

6' Leaves entire or hardly toothed; rare in the alpine - *E. howaldiae*

4' Perennial; rhizomes or stolons present

7 Plants of wet habitats below subalpine habitats; generally taller and with many
flowers per stem - *E. guttata*

7' Plants of wet habitats at subalpine elevations; generally shorter and with fewer flowers per stem

8 Leaves non-glandular hairy, typically wider; tending to more shady, sheltered habitats - *E. corallina*

8' Leaves glabrous to glandular hairy, typically more narrow; tending to more exposed, open habitats - *E. tilingii*

3' Calyx lobes all equal

9 Perennial; rhizomes or stolons present

10 Leaves mostly cauline, glandular; stems elongate; calyx often hairy - *E. moschata*

10' Leaves basal, rosetted, non-glandular; stems not elongate; calyx glabrous - *E. primuloides*

9' Annual; roots fibrous

11 Calyx tube long hairy; plants slimy to the touch

12 Leaves widely lanceolate; wet habitats, lake, stream margins - *E. floribunda*

12' Leaves ovate; in our area, seemingly exclusive to cracks in southern facing rock faces at low elevations - *E. geniculata*

11' Calyx tube glabrous or puberulent; plants not slimy

13 Flowers blunt and stubby, barely exerted from calyx

13 Upper leaves sessile; calyx not greatly enlarged in fruit - *E. suksdorfii*

13' Upper leaves petioled; calyx greatly enlarged in fruit - *E. breviflora*

13' Flowers not as above, well-exserted from calyx

14 Basal rosette present - *E. pulsiferae*

14' Basal rosette absent - *E. bicolor*

Erythranthe bicolor

Erythranthe breviflora

Erythranthe breweri

Erythranthe cardinalis

Erythranthe corallina

Erythranthe erubescens

Erythranthe floribunda

Erythranthe geniculata

Erythranthe guttata

Erythranthe howaldiae

Erythranthe microphylla

Erythranthe moschata

Erythranthe nasuta

Erythranthe primuloides

Erythranthe pulsiferae

Erythranthe suksdorfii

Erythranthe tilingii

Phytolaccaceae

Phytolacca

Phytolacca americana var. americana

Pinaceae

1 Cones with mouse-tail bract - Pseudotsuga menziesii var. menziesii

1' Cones lacking mouse-tail bract

2 Leaves in bundles or if single, then rounded in cross-section - Pinus

2' Leaves single, flat in cross-section

3 Cones pendant on branches; leaves with persistent leaf bases - Tsuga mertensiana

3' Cones pointing up on branches; leaves without persistent leaf bases - Abies

Abies

1 Leaf with white bands on underside - A. magnifica var. magnifica

1' Leaf without white bands on underside - A. concolor

Abies concolor

Abies magnifica var. magnifica

Pinus

1 Needles 1 per fascicle - *P. monophylla*

1' Needles 2 per fascicle - *P. contorta* ssp. *murrayana*

1" Needles 3 per fascicle

2 Cones borne directly on main branches well below branch tips; persistent many years - *P. attenuata*

2' Cones generally borne at branch tips; deciduous yearly

3 Cones extremely large and heavy; needles distinctly blue-gray; trunk often leaning; sparse in branching habit; low elevations to dry slopes at mid elevations - *P. sabiniana*

3' Cones small to medium sized, not particularly heavy; needles usually green; trunk often straight; often dense in branching habit; medium to high elevations, occasionally at low elevations

4 Cones not prickly, generally larger; bark smelling of vanilla, typically furrowed and gray-brown; common on east side of crest, occasional on west side - *P. jeffreyi*

4' Cones prickly, generally smaller; bark not smelling of vanilla, typically flaking, red-brown, "puzzle-pieced"; extremely common on west side of crest, less so on east side and below 2000' on western slope - *P. ponderosa*

1''' Needles 5 per fascicle

5 Plants of mid to high elevations; cones extraordinarily long; very tall at maturity; trunks straight - *P. lambertiana*

5' Plants of alpine and subalpine elevations; cones short; usually medium sized; trunks often gnarled by wind and snowload

6 Seed cone never opening without animal intervention; needles stiff, dark green, bundles generally held close, curved; rare - *P. albicaulis*

6' Seed cone opening when mature; needles flexible, glaucous, bundles generally spreading, straight; common at elevation - *P. monticola*

Pinus albicaulis

Pinus attenuata

Pinus contorta ssp. *murrayana*

Pinus jeffreyi

Pinus lambertiana

Pinus monophylla

Pinus monticola

Pinus ponderosa

Pinus sabiniana

Pseudotsuga

Pseudotsuga menziesii var. *menziesii*

Tsuga

Tsuga mertensiana

Plantaginaceae

1 Plants aquatic; with floating rosette or not; flowers inconspicuous in submerged leaf axils; occasionally stranded on land and then stems trailing - *Callitriche*

1' Plants not aquatic; if emergent then stems erect

2 Flowers rotate or appearing so

3 Petals not membranous, blue and/or white colored, in loose spikes or in leaf axils -

Veronica

3' Petals membranous or inconspicuous or absent, in dense terminal spikes - *Plantago*

2' Flowers distinctly tubular or two-lipped

4 Flowers spurred

5 Stems sprawling - *Kickxia elatine*

5' Stems not sprawling

6 Flowers yellow or yellow and white; herbage glabrous - *Linaria dalmatica* ssp.

dalmatica

6' Flowers blue, purple, or white; herbage densely hairy - *Antirrhinum*

4' Flowers not spurred

7 Shrubs; woody at base; often with long wiry stems; staminode present; fertile filament bases densely hairy - *Keckiella*

7' Herbs or subshrubs; not woody at base except in a few *Penstemon*; staminode absent or if present, then fertile filament bases glabrous

8 Central lobe on lower lip much reduced so corollas appear four-lobed -

Collinsia

8' Corolla five-lobed

9 Tall herbs; flowers pink to white, large; corolla floor conspicuously spotted - *Digitalis purpurea*

9' Generally small herbs to medium sized subshrubs; flowers variously sized and colored but not conspicuously spotted

10 Small annual herbs; flowers white with yellow throats; wet or drying habitats - *Gratiola ebracteata*

10' Generally medium sized perennial herbs to subshrubs; flower color various; generally dry habitats or meadows - *Penstemon*

Antirrhinum

1 All flowers subtended by wiry branches - *A. vexillocalyculatum* ssp. *intermedium*

1' Upper flowers not subtended by branches; branches fleshy or wiry

2 Flower veins same color as corolla; lower lip hairs sparse, rounded; upper corolla lobes long - *A. leptaleum*

2' Flower veins contrasting in color with corolla; lower lip hairs dense; cylindrical; upper corolla lobes short - *A. cornutum*

Antirrhinum cornutum

Antirrhinum leptaleum

Antirrhinum vexillocalyculatum ssp. *intermedium*

Callitriche

1 Fruits round, generally unwinged; flowers 2 per pair of leaves - *C. heterophylla*

1' Fruits generally longer than wide, but not by much, winged from middle to top or unwinged; flowers often 3 per pair of leaves, sometimes 2 - *C. palustris*

Callitriche heterophylla

Callitriche palustris

Collinsia

1 Plants large; flowers large, densely whorled; lower pedicels shorter than calyx

2 Flowers bi-colored purple and white; leaves green - *C. heterophylla*

2' Flowers white and mottled or lined; leaves mottled - *C. tinctoria*

1' Plants small; flowers small; lower pedicels longer than calyx

3 Calyx lobe tips blunt

4 Lateral corolla lobes longer than lower lobe by 1mm or more - *C. torreyi* var. *wrightii*

4' Lateral corolla lobes not longer than lower lobe or longer by less than 1mm - *C.*

torreyi var. *torreyi*

3' Calyx lobe tips acute to acuminate

5 Lower corolla lobes generally blue; upper corolla lobes not speckled; filaments and lower corolla lobe glabrous; calyx lobes not widely spreading in fruit - *C. parviflora*

5' Lower corolla lobes generally pink-purple; upper corolla lobes speckled; upper filaments and lower corolla lobe sparsely hairy; calyx lobes widely spreading in fruit - *C. sparsiflora* var. *collina*

Collinsia heterophylla

Collinsia parviflora

Collinsia sparsiflora var. *collina*

Collinsia tinctora

Collinsia torreyi var. *torreyi*

Collinsia torreyi var. *wrightii*

Digitalis

Digitalis purpurea

Gratiola

Gratiola ebracteata

Keckiella

1 Flowers red - *K. corymbosa*

1' Flowers not red

2 Upper corolla lip shorter than flower tube; flowers small - *K. lemmonii*

2' Upper corolla lip longer than flower tube; flowers large

3 Calyx glandular hairy - *K. breviflora* var. *breviflora*

3' Calyx glabrous - *K. breviflora* var. *glabrisepala*

Keckiella breviflora var. *breviflora*

Keckiella breviflora var. *glabrisepala*

Keckiella corymbosa

Keckiella lemmonii

Kickxia

Kickxia elatine

Linaria

Linaria dalmatica ssp. *dalmatica*

Penstemon

- 1 Flowers bright red, very long and narrow - *P. eatonii* var. *eatonii*
- 1' Flowers deep rosy pink; anthers woolly - *P. newberryi* var. *newberryi*
- 1" Flowers white, sometimes with brown upper lip
 - 2 Upper corolla lip white - *P. deustus* var. *deustus*
 - 2' Upper corolla lip brown
 - 3 Leaves lanceolate - *P. deustus* var. *pedicellatus*
 - 3' Leaves ovate to round - *P. deustus* var. *suffrutescens*
- 1''' Flowers blue to purple
 - 4 Flowers whorled or densely clustered
 - 5 Plants of wet montane meadows; flowers not glandular - *P. rydbergii* var. *oreocharis*
 - 5' Plants of rocky subalpine habitats; flowers glandular - *P. heterodoxus* var. *heterodoxus*
 - 4' Flowers not whorled or densely clustered
 - 6 Anther sacs dehiscing full length; corolla throat closed; rare - *P. personatus*
 - 6' Anther sacs not dehiscing full length; corolla throat open
 - 7 Anther sacs opening from end furthest away from filament attachment - *P. speciosus*
 - 7' Anther sacs opening from end closest to filament attachment
 - 8 Staminode hairy - *P. gracilentus*
 - 8' Staminode glabrous
 - 9 Inflorescence glandular
 - 10 Herbage glaucous; plants of lava caps and other volcanic substrates; rare - *P. neotericus*
 - 10' Herbage green; plants of various habitats; common
 - 11 Corolla 21-35mm long; calyx 8-14mm long; staminode 17-19mm long; leaf bases truncate or tapered; nectar guides present or not - *P. laetus* var. *leptosepalus*
 - 11' Corolla 14-22mm long; calyx 3.5-6mm long; staminode 12-15mm long; leaf bases tapered; nectar guides absent - *P. roezlii*
 - 9' Inflorescence not glandular
 - 12 Upper leaves tapered to base, not clasping; stems minutely hairy - *P. heterophyllus* var. *purdyi*
 - 12' Upper leaves widest at base, clasping; stems glabrous
 - 13 Mid-cauline leaves linear - *P. azureus* ssp. *angustissimus*
 - 13' Mid-cauline leaves lanceolate - *P. azureus* ssp. *azureus*

Penstemon azureus ssp. *angustissimus*

Penstemon azureus ssp. *azureus*

Penstemon deustus var. *deustus*

Penstemon deustus var. *pedicellatus*

Penstemon deustus var. *suffrutescens*

Penstemon eatonii var. *eatonii*

Penstemon gracilentus

Penstemon heterodoxus var. *heterodoxus*

Penstemon heterophyllus var. *purdyi*

Penstemon laetus var. *leptosepalus*

Penstemon neotericus

Penstemon newberryi var. *newberryi*

Penstemon personatus

Penstemon roezlii

Penstemon rydbergii var. *oreocharis*

Penstemon speciosus

Plantago

1 Leaves generally strongly toothed; corolla tube hairy - *P. coronopus*

1' Leaves entire; corolla tube glabrous

2 Small annuals; leaves linear, thread-like

3 Plants of dry places, lava caps, and ultramafics; membranous petals conspicuous, all reflexed - *P. erecta*

3' Plants of drying wet places; membranous petals inconspicuous, 1 erect, 3 reflexed -

P. elongata

2' Herbaceous perennial; disturbed habitats; leaves wider than linear

4 Leaves lanceolate; inflorescence head-like - *P. lanceolata*

4' Leaves ovate or rounded; inflorescence spike-like - *P. major*

Plantago coronopus

Plantago elongata

Plantago erecta

Plantago lanceolata

Plantago major

Veronica

1 Racemes axillary

2 Leaves lanceolate; racemes alternate - *V. scutellata*

2' Leaves elliptic or ovate; racemes opposite

3 Leaves distinctly petioled; flowers typically fewer than 25 - *V. americana*

3' Leaves sessile or very short petioled; flowers typically more than 30 - *V.*

anagallis-aquatica

1' Racemes terminal or flowers solitary in leaf axils

4 Flowers white - *V. peregrina* ssp. *xalapensis*

4' Flowers blue or purple

5 Perennial herbs of high elevations; leaves elliptic to ovate, margins entire to serrate

6 Flowers pale blue with darker stripes; fruits squat; stems decumbent at base - *V.*

serpyllifolia ssp. *humifusa*

6' Flowers lavender, lacking stripes; fruits elongate; stems erect - *V. wormskjoldii*

5' Weedy annuals typically of low elevations; leaves ovate to round, margins coarsely serrate, crenate, or lobed

7 Sepals longer than or equal in length to petals

8 Leaves not lobed; flowers more or less sessile; sepals longer than petals - *V.*

arvensis

8' Leaves 3-5 lobed; flowers distinctly petioled; sepals and petals equal in length - *V. hederifolia*

7' Petals longer than sepals

9 Pedicels 2-5 as long as subtending bracts; glandular or not; calyx lobes rounded - *V. filiformis*

9' Pedicels as long as or a bit longer than subtending bracts; not glandular; calyx lobes acuminate - *V. perisica*

Veronica americana

Veronica anagallis-aquatica

Veronica arvensis

Veronica filiformis

Veronica hederifolia

Veronica peregrina ssp. *xalapensis*

Veronica persica

Veronica scutellata

Veronica serpyllifolia ssp. *humifusa*

Veronica wormskjoldii

Poaceae

To make things a bit easier, I've split the *Poaceae* into ten groups. There are several specialized terms you must know to work with the grasses. Grasses typically have clusters of flowers which are referred to as spikelets. At the spikelet base are the glumes. These are sterile and may or may not resemble the lemmas. They are sometimes absent but there are never more than 2 glumes. An upper and lower glume, determined by the order of attachment on the axis. The lower glume is the first attachment and the upper glume is attached just above that. Lemmas are above the glumes. There may be 1 to many lemmas in a spikelet. Most lemmas have a smaller to equally sized membranous flap called a palea. The palea covers the reproductive parts found in each fertile lemma. A floret refers to the unit comprising a lemma, palea (if present), and the reproductive parts. A sheath is the portion of the leaf which is wrapped around the stem and is differentiated from the blade. At the top of the sheath where the blade diverges is the collar. The collar sometimes has a membranous projection or ring of hairs called the ligule. Opposite the blade at the collar, some species have additional projections which often wrap around the stem to some degree called auricles.

Key to groups

- 1 At least some florets replaced by bulblets - *Poa bulbosa* ssp. *vivipara*
- 1' No florets replaced by bulblets
 - 2 Stem bases bulb- or corm-like - Group 1
 - 2' Stem bases not bulb- or corm-like
 - 3 Large robust perennials; generally taller than 6' - Group 2
 - 3' Plants perennial or not, large or not, but not taller than 6'
 - 4 Inflorescences not exceeding leaves - *Sporobolus schoenoides*
 - 4' Inflorescences exceeding leaves
 - 5 Spikelets 1-2 per inflorescence - Group 3
 - 5' Spikelets 3 or more per inflorescence
 - 6 Spikelets subtended by one or more bristles, sometimes hair-like - Group 4
 - 6' Spikelets not subtended by bristles
 - 7 At least some glumes or lemmas with 3-9 awns - Group 5
 - 7' All glumes and lemmas with 1-2 awns or awnless
 - 8 All spikelets sessile on an unbranched central axis - Group 6

- 8' At least some spikelets stalked and/or inflorescence branched
 - 9 Inflorescence branches whorled or digitate, without 2nd degree branching - Group 7
 - 9' Inflorescence with 2nd degree branching
 - 10 All spikelets 1-flowered or 2-flowered with only 1 fertile floret - Group 8
 - 10' All spikelets with 2 or more fertile florets
 - 11 Inflorescence spike- or head-like, generally dense when mature; inflorescence branches generally short and appressed, inconspicuous - Group 9
 - 11' Inflorescence open when mature, distinctly and obviously branched - Group 10

Group 1: Stem base bulb- or corm-like

- 1 Inflorescence branched; glumes winged
 - 2 Glumes winged - *Phalaris aquatica*
 - 2' Glumes not winged - *Poa bulbosa* var. *bulbosa*
- 1' Inflorescence unbranched; glumes wingless
 - 3 Leaf sheath open - *Arrhenatherum elatius*
 - 3' Leaf sheath closed to near top - *Melica*

Group 2: Large, robust perennials; generally taller than 6'

- 1 Leaves basal, bunching - *Cortaderia selloana*
- 1' Leaves well distributed along stems
 - 2 Inflorescence very large, plume-like; lemmas long-silky hairy; leaves 2-6cm wide - *Arundo donax*
 - 2' Inflorescence not very large, not plume-like; lemmas glabrous or sparsely hairy; leaves 1-2.5cm wide - *Phalaris arundinacea*

Group 3: Spikelets 1-2 per inflorescence

- 1 Awns twisted and usually bent - *Danthonia unispicata*
- 1' Awns not twisted or bent - *Brachypodium distachyon*

Group 4: Spikelets subtended by one or more bristles, sometimes hair-like

- 1 Bristles short stiff hairy; fruit without prominent hair tufts - *Setaria*
- 1' Bristles scabrous or long-hairy; fruit with prominent hair tufts - *Andropogon virginicus* var. *virginicus*

Group 5: At least some glumes or lemmas with 3-9 awns

- 1 Lower glume with 1 or no awn - *Aristida oligantha*
- 1' Lower glume with 3-9 awns
 - 2 Annual - *Aegilops triuncialis*
 - 2' Perennial - *Elymus multisetus*

Group 6: All spikelets sessile on unbranched central axis

- 1 Glumes 1 on lower florets - *Festuca*
- 1' Glumes 2 on all florets
 - 2 Spikelets embedded in pits - *Deschampsia bolanderi*
 - 2' Spikelets not embedded in pits
 - 3 Spikelets 2 or more per inflorescence node - *Elymus*
 - 3' Spikelets 1 per inflorescence node
 - 4 Lemmae keels ciliate - *Secale cereale*
 - 4' Lemmae keels not ciliate
 - 5 Auricles absent - *Brachypodium distachyon*
 - 5' Auricles present
 - 6 Annuals - *Triticum aestivum*
 - 6' Perennials - *Agropyron cristatum* ssp. *pectinatum*

Group 7: Inflorescence branches whorled or digitate, without 2nd degree branching

- 1 Upper glume 1-veined
 - 2 Glumes equal; florets 1 - *Cynodon dactylon*
 - 2' Glumes unequal; florets 2 or more - *Leptochloa fusca* ssp. *fascicularis*
- 1' Upper glume 3-5 veined
 - 3 Fertile floret hardened and rigid - *Paspalum distichum*
 - 3' Fertile floret membranous and flexible - *Digitaria*

Group 8: All spikelets 1 flowered or 2 flowered with only 1 fertile floret

- 1 Spikelets at each node 3 with 1 sessile and 2 stalked, sessile and stalked spikelets dissimilar - *Sorghum halpense*
- 1' Spikelets not as above
 - 2 Upper glume present; lower glume absent or inconspicuous - *Paspalum*
 - 2' Both glumes absent or shorter than 0.5mm
 - 3 Inflorescence open, branches long - *Leersia oryzoides*
 - 3' Inflorescence dense, spike-like - *Muhlenbergia schreberi*
 - 2" Both glumes present
 - 4 Glumes keeled and ciliate

Group 9: Inflorescence spike- or head-like, generally dense when mature; inflorescence branches short and appressed, inconspicuous

- 1 Spikelets 2-3 per inflorescence node
 - 2 Spikelets at one node all similar in size and shape - *Elymus*
 - 2' Spikelets at one node dissimilar in size or shape
 - 3 Inflorescence generally elongated; spikelets 3 per inflorescence node; central spikelet smaller than lateral spikelets, each with 1 floret - *Hordeum*
 - 3' Inflorescence generally short, head-like; spikelets 2 per node; 1 fertile spikelet with 1-5 florets and 1 sterile spikelet with 6-18 florets - *Cynosurus echinatus*
- 1' Spikelets 1 per inflorescence node
 - 3 Leaf tips prowed, boat shaped - *Poa*
 - 3' Leaf tips flat
 - 4 Terminal floret dissimilar in shape to other florets - *Melica*
 - 4' All florets similar in shape
 - 5 Inflorescence of dense head-like clusters
 - 6 Annuals; inflorescence not one-sided; spikelets long and narrow; glumes 6-12mm long - *Bromus*
 - 6' Perennials; inflorescence generally one-sided; spikelets not long and narrow; glumes 3-6mm long - *Dactylis glomerata*
 - 5' Inflorescences elongate
 - 7 Lemma awns absent - *Trisetum wolfii*
 - 7' Lemma awns present
 - 8 Lemmae awned at or below middle - *Deschampsia elongata*
 - 8' Lemmae awned near tip
 - 9 Glumes awned; inflorescence often appearing bristly - *Elymus*
 - 9' Glumes not awned
 - 10 Glumes unequal - *Trisetum*
 - 10' Glumes equal
 - 11 Glumes papery - *Melica*
 - 11' Glumes rigid - *Elymus*

Group 10: Inflorescence distinctly and obviously branched

- 1 Spikelets unisexual; plants dioecious
 - 2 Leaf tips prowed, boat-like - *Poa*
 - 2' Leaf tips flat
 - 3 Plants rhizomatous; inflorescence not or barely exceeding leaves - *Distichlis spicata*
 - 3' Plants caespitose; inflorescence well-exceeding leaves - *Festuca kingii*
- 1' Spikelets bisexual; plants monoecious
 - 4 Lemma veins 3, prominent

5 Inflorescence well-exserted from leaf sheath; lemmae not white between veins -
Eragrostis

5' Inflorescence often partially obscured by leaf sheath; lemmae white between veins -
Leptochloa fusca ssp. fascicularis

4' Lemma veins 5 or more, sometimes faint

6 Lemma awnless

7 Lemma veins equally spaced, parallel

8 Upper glume 1-veined - Glyceria

8' Upper glume 3-9-veined

9 Spikelets inflated, as long as wide; upper glume 3-9-veined; plants or
disturbed areas and grasslands of low elevations - Briza

9' Spikelets not inflated, generally longer than wide; upper glume 3-veined;
plants of wet habitats at high elevations - Torreyochloa

7' Lemma veins converging at tips

10 Leaf tips prowed, boat-shaped - Poa

10' Leaf tips flat

11 Uppermost florets vestigial; leaf sheaths closed - Melica

11' Uppermost florets not as above; sheaths open or closed

12 Leaf sheath closed - Bromus

12' Leaf sheath open - Festuca

6' Lemma awned (sometimes awnless in Avena sativa)

13 Glumes not longer than spikelet and enclosing all lemmae

14 Spikelet axis hairy, extended beyond upper florets - Trisetum

14' Spikelet axis generally glabrous, not extended beyond upper florets

15 Leaf sheath closed - Bromus

15' Leaf sheath open - Festuca

13' Glumes longer than spikelet and enclosing all lemmae

16 Spikelets 15mm or longer - Avena

16' Spikelets shorter than 15mm

17 Lemma awn at or near tip - Danthonia

17' Lemma awn at or below middle

18 Perennial - Deschampsia

18' Annual

19 Glumes 4-9mm long; spikelet axis extended beyond florets -
Deschampsia danthonioides

19' Glumes 2-3mm long; spikelet axis not extended beyond florets -
Aira caryophyllea

Aegilops

Aegilops triuncialis

Agropyron

Agropyron cristatum ssp. *pectinatum*

Agrostis

1 Rhizomes or stolons present

2 Plants stoloniferous

3 Ligule to 2mm long, generally wider than long; spikelets not crowded - *A. capillaris*

3' Ligule 2-5mm long, longer than wide; spikelets crowded, overlapping - *A. stolonifera*

2' Plants rhizomatous

4 Palea absent

5 Lemma tip minutely toothed; proximal leaf blade 1-6mm - *A. pallens*

5' Lemma tip acute; proximal leaf blade to 1mm wide - *A. variabilis*

4' Palea well developed

6 Inflorescence branches with spikelets on distal half; rhizomes slender - *A.*

capillaris

6' Inflorescence branches with spikelets throughout; rhizomes thick - *A. gigantea*

1' Rhizomes and stolons absent

7 Spikelets crowded and overlapping

8 Leaf blade less than 1mm wide, often inrolled - *A. variabilis*

8' Leaf blade wider than 2mm, flat

9 Proximal inflorescence branches 1-2cm long - *A. exarata*

9' Proximal inflorescence branches 2-5cm long - *A. pallens*

7' Spikelets well-spaced

10 Spikelets only on distal half of 1st degree branches, branched above middle

11 Palea 1/5-1/4 length of lemma - *A. oregonensis*

11' Palea absent or minute

12 Leaves basal and cauline; inflorescence 2x long as wide - *A. idahoensis*

12' Leaves mostly basal; inflorescence as long as wide - *A. scabra*

10' Spikelets distributed throughout; inflorescence branched from base

13 Palea well-developed

14 Inflorescence branches ascending to erect; above 5000' - *A. thurberiana*

14' Inflorescence branches spreading to ascending; disturbed habitats below

5000' - *A. gigantea*

13' Palea absent or minute

15 Leaf blade 1-6mm wide - *A. pallens*

15' Leaf blade less than 1mm wide - *A. variabilis*

Agrostis capillaris

Agrostis exarata

Agrostis gigantea

Agrostis idahoensis

Agrostis oregonensis

Agrostis pallens

Agrostis scabra

Agrostis stolonifera

Agrostis thurberiana

Agrostis variabilis

Aira

Aira caryophyllea

Alopecurus

1 Inflorescence 6mm wide or more; spikelets longer than 4mm, not counting awns; lemma awns bent, much exceeding floret; plants taller - *A. pratensis*

1' Inflorescence 6mm wide or less; spikelets shorter than 4mm, not counting awns; lemma awns straight, exceeding floret by less than 1mm; plants shorter - *A. aequalis* var. *aequalis*

Alopecurus aequalis var. *aequalis*

Alopecurus pratensis

Andropogon

Andropogon virginicus var. *virginicus*

Anthoxanthum

Anthoxanthum odoratum

Aristida

Aristida oligantha

Arrhenatherum

Arrhenatherum elatius

Arundo

Arundo donax

Avena

1 Callus glabrous - *A. sativa*

1' Callus hairy

2 Lemma tip with teeth 2mm or longer - *A. barbata*

2' Lemma tip with teeth 1.5mm or shorter - *A. fatua*

Avena barbata

Avena fatua

Avena sativa

Beckmannia

Beckmannia syzigachne

Brachypodium

Brachypodium distachyon

Briza

1 Spikelets large; 10mm or more in length - *B. maxima*

1' Spikelets small; 5mm or less in length - *B. minor*

Briza maxima

Briza minor

Bromus

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1 Spikelet strongly flattened; lemma strongly keeled

spreading

17 Lemma margin not densely hairy; lemma awn 5-7mm long;
inflorescence branches ascending to spreading - **B. orcuttianus**

17' Lemma margin densely hairy; lemma awn 3-5mm long;
inflorescence branches spreading to nodding - **B. ciliatus**

Bromus ciliatus

Bromus commutatus

Bromus diandrus

Bromus hordeaceus

Bromus inermis

Bromus laevipes

Bromus madritensis

Bromus orcuttianus

Bromus racemosus

Bromus rubens

Bromus secalinus

Bromus sitchensis var. carinatus

Bromus sitchensis var. marginatus

Bromus sterilis

Bromus suksdorfii

Bromus tectorum

Bromus vulgaris

Calamagrostis

1 Leaf blade 2mm wide or less; awns bent; callus hairs sparse - C. breweri

1' Leaf blade 3 to 8mm wide; awns straight; callus hairs dense - C. canadensis var. canadensis

Calamagrostis breweri

Calamagrostis canadensis var. *canadensis*

Cinna

Cinna latifolia

Cortaderia

Cortaderia selloana

Cynodon

Cynodon dactylon

Cynosurus

Cynosurus echinatus

Dactylis

Dactylis glomerata

Danthonia

1 Leaves, mature inflorescences ascending to erect; spikelets fewer than 3 but generally 1; internodes long hairy; generally in dry soils - *D. unispicata*

1' Leaves, mature inflorescences spreading, recurved, or nodding; spikelets 3-6; internodes glabrous or long hairy; generally in wet meadows

2 Upper leaves spreading or reflexed; inflorescence branches spreading to reflexed- *D. californica*

2' Upper leaves ascending; inflorescence branched ascending or erect - *D. intermedia* ssp. *intermedia*

Danthonia californica

Danthonia intermedia ssp. *intermedia*

Danthonia unispicata

Deschampsia

1 Spikelets sessile - *D. bolanderi*

1' Spikelets stalked

2 Annual; basal leaves not tufted - *D. danthonioides*

2' Perennial; basal leaves tufted

3 Inflorescence 1cm or wider; inflorescence branches spreading or drooping; basal leaf blade 1mm or wider - *D. cespitosa* ssp. *cespitosa*

3' Inflorescence more narrow; inflorescence branches ascending; basal leaf blade more or less 1mm - *D. elongata*

Deschampsia bolanderi

Deschampsia cespitosa ssp. *cespitosa*

Deschampsia danthonioides

Deschampsia elongata

Digitaria

1 Spikelets 2 per branch node; lower glume present - *D. sanguinalis*

1' Spikelets 3 per branch node; lower glume absent or vestigial - *D. ischaemum*

Digitaria ischaemum

Digitaria sanguinalis

Distichlis

Distichlis spicata

Echinochloa

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1 Inflorescence branches to 2cm, lacking 2nd degree branches; spikelets not awned at maturity; leaves often purple striped - *E. colona*

1' Inflorescence branches to 14cm, with 2nd degree branching but often inconspicuously so; spikelets awned at maturity; leaves not purple striped - ***E. crus-galli***

Echinochloa colona

Echinochloa crus-galli**Elymus**

1 Annual, but forming dense patches and persistent thatch; to about 1ft tall - E.

caput-medusae

1' Perennial herb, generally bunching or rhizomatous; generally taller, often much more so

2 Inflorescence axis breaking apart with seed drop

3 Glumes cleft into 3-9 awn-like divisions; auricles usually present - E. multisetus

3' Glumes entire or with 2-3 awn-like divisions; auricles often lacking

4 Glumes entire; lemma awns longer than glume awns - E. elymoides var.

californicus

4' Some glumes with 2-3 awn-like divisions; lemma awns shorter than glume awns -

E. elymoides var. elymoides

2' Inflorescence axis remaining intact after seed drop

5 Lemma awn 10-40mm

6 Lemma awn curving outward with age - E. sierrae

6' Lemma awn straight or wavy, but not curving outward

7 Spikelets 2 per node - E. glaucus ssp. glaucus

7' Spikelets 1 per node

8 Anthers 4-7mm long; inflorescence internodes 9mm or longer - E.

stebbinsii

8' Anthers 1-2.5mm long; inflorescence internodes 9mm or shorter - E.

trachycaulus ssp. trachycaulus

5' Lemma awn to 10mm or absent

9 Glumes generally awl-like, or if lanceolate, then not or inconspicuously veined, hard or tough textured, and awned or acute

10 Spikelets 1 per node - E. triticoides

10' Spikelets 2-7 per node

11 Stem node region densely pubescent; plants generally cespitose - E.

cinereus

11' Stem node region glabrous; plants rhizomatous - E. triticoides

9' Glumes flat, narrowly to broadly lanceolate, with 3-9 prominent veins, thin or if thickened, then tip obtuse

12 Glume tips rounded, obtuse to truncate, sometimes with a little blunt

projection

13 Plants rhizomatous; midvein of glume more prominent than lateral veins -

E. hispidus

13' Plants cespitose; midvein of glume and lateral veins equally prominent -

E. ponticus

12' Glume tips long and pointed and/or awned

14 Rhizomes present

15 Leaf blade 6mm wide or less; lemma hairy - E. lanceolatus ssp.

lanceolatus

15' Leaf blade 6mm wide or more; lemma glabrous - *E. repens*

14' Rhizomes absent

16 Anthers 4-7mm long; inflorescence internodes 9mm long or more - *E.*

stebbinsii

16' Anthers 1-2.5mm long; inflorescence internodes 9mm long or less - *E.*

trachycaulus ssp. *trachycaulus*

Elymus caput-medusae

Elymus cinereus

Elymus elymoides var. *californicus*

Elymus elymoides var. *elymoides*

Elymus glaucus ssp. *glaucus*

Elymus hispidus

Elymus lanceolatus ssp. *lanceolatus*

Elymus multisetus

Elymus ponticus

Elymus repens

Elymus sierrae

Elymus stebbinsii

Elymus trachycaulus ssp. *trachycaulus*

Elymus triticoides

Eragrostis

1 Lemma and glumes with crater-like glands - *E. cilianensis*

1' Lemma and glumes without glands

2 Fruit truncate on one or both sides, grooved on one side - *E. mexicana* ssp. *virescens*

2' Fruit tips rounded, smooth, not grooved

3 Palea deciduous; lower glume less than half the size of the lowest floret; lowest inflorescence branches whorled - *E. pilosa* var. *pilosa*

3' Palea persistent; lower glume more than half the size of the lowest floret;
inflorescence branches alternate or opposite but not whorled - *E. pectinacea* var. *pectinacea*

Eragrostis cilianensis

Eragrostis mexicana ssp. *virescens*

Eragrostis pectinacea var. *pectinacea*

Eragrostis pilosa var. *pilosa*

Festuca

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1 Inflorescence spike-like or sometimes sparingly branched; glume 1 except in uppermost spikelet

2 Glume shorter than rest of spikelet; lower lemma firmly membranous, flat to rounded at base - **F. perennis**

2' Glume longer than or equal to rest of spikelet; lower lemma becoming hard and thick at base - **F. temulenta**

1' Inflorescence panicle-like, branches dense and appressed to open and spreading, or raceme-like; glumes 2, lower sometimes minute

3 Plants dioecious; spikelets either staminate or pistillate; reduced, sterile pistils sometimes present - **F. kingii**

3' Plants bisexual; florets generally bisexual

4 Leaf blade with prominent claw-like or clasping basal auricles - **F. arundinacea**

4' Leaf blade without prominent claw-like, clasping basal auricles (inconspicuous flap-like auricles sometimes present)

5 Annual; stamen 1

6 Lowest inflorescence branches spreading or reflexed at maturity - **F.**

microstachys

6' Lowest inflorescence branches erect or appressed at maturity

7 Lower glume shorter than 2 mm, less than half the length of the upper glume, sometimes minute - **F. myuros**

7' Lower glume longer than 3 mm, half the length of the upper glume of longer - **F. bromoides**

5' Perennial herb; stamens 3

8 Leaf sheath closed, reddish in color, hairs downward-pointing - **F. rubra**

8' Leaf sheath open at least half its length, green, glabrous or hairy, hairs not downward-pointing

9 Spikelet axis fragile and florets easily separated; florets short-stalked - **F.**

subuliflora

9' Spikelet axis not fragile and florets not easily separated; florets sessile

10 Leaf blade generally 2-10mm wide, flat or rolled longitudinally

11 Lemma distinctly 5-veined, awned from between 2 short teeth - **F.**

elmeri

11' Lemma indistinctly veined, awn terminal - **F. subulata**

10' Leaf blade 2.5 mm wide or less, folded or rolled inward toward upper side

12 Lemma awns shorter than 2.5mm or absent

13 Plants green; sub- or alpine habitats - **F. viridula**

13' Plants glaucous; disturbed habitats, landscaping, roadsides at mid to low elevations - **F. filiformis**

12' Lemma awns 3-12mm long

14 Ovary tip glabrous; awn shorter than lemma body; leaf blade often glaucous or blue in color - **F. idahoensis**

14' Ovary tip hairy; awn generally longer than lemma body; leaf blade green - **F. occidentalis**

Festuca arundinacea

Festuca bromoides

Festuca elmeri

Festuca filiformis

Festuca idahoensis

Festuca kingii

Festuca microstachys

Festuca myuros

Festuca occidentalis

Festuca perennis

Festuca rubra

Festuca subulata

Festuca subuliflora

Festuca temulenta

Festuca viridula**Gastridium**

Gastridium phleoides

Glyceria

- 1 Spikelets short, ovate; inflorescence open; branches spreading - *G. elata*
- 1' Spikelets elongate, cylindrical; inflorescence narrow; branches appressed
 - 2 Lemma glabrous, veins sometimes sparsely scabrous - *G. borealis*
 - 2' Lemma obviously scabrous throughout - *G. declinata*

Glyceria borealis

Glyceria declinata

Glyceria elata

Holcus

Holcus lanatus

Hordeum

- 1 Auricles of upper leaves well-developed
 - 2 Palea of lower florets long hairy on lower half - *H. murinum* ssp. *glaucum*
 - 2' Palea of lower florets scabrous on lower half - *H. murinum* ssp. *leporinum*
- 1' Auricles of upper leaves absent or vestigial
 - 3 Glumes strongly divergent at maturity - *H. jubatum* ssp. *jubatum*
 - 3' Glumes staying straight with age
 - 4 Annual; inflorescence often partially obscured by leaf sheath at maturity - *H. marinum* ssp. *gussoneanum*
 - 4' Perennial; inflorescence fully exerted at maturity
 - 5 Leaf sheath densely hairy; leaf blade short and long hairy; stem slender - *H. brachyantherum* ssp. *californicum*
 - 5' Leaf sheath glabrous; leaf blade glabrous or sparsely short hairy; stem robust - *H. brachyantherum* ssp. *brachyantherum*

Hordeum brachyantherum ssp. *brachyantherum*

Hordeum brachyantherum ssp. *californicum*

Hordeum jubatum ssp. *jubatum*

Hordeum marinum ssp. *gussoneanum*

Hordeum murinum ssp. *glaucum*

Hordeum murinum ssp. *leporinum*

Leersia

Leersia oryzoides

Leptochloa

Leptochloa fusca ssp. *fascicularis*

Melica

1 Spikelets 1-2 per inflorescence branch; spikelets nodding; glumes deciduous; rocky subalpine habitats - *M. stricta*

1' Spikelets more than 2 per inflorescence branch at least on lower branches; spikelets generally not nodding, glumes persistent; habitats various

2 Lemma acuminate or awned

3 Awns 5mm or longer; lemma faces glabrous, lower margins sometimes hairy - *M. aristata*

3' Awns shorter than 4mm or absent; lemma faces hairy near base

4 Lemma awned, obtuse to mucronate; corms absent - *M. harfordii*

4' Lemma awn absent, strongly acuminate; corms present - *M. subulata*

2' Lemma rounded to acute, not awned

5 Sterile distal floret truncate at tip, very dissimilar to other florets; bulb-like corms absent

6 Bisexual florets 1-2 per spikelet; inflorescence generally thin; spikelets not very clustered; inflorescence often nodding – *M. torreyana*

6' Bisexual florets 3 or more per spikelet; inflorescence generally dense, more wide; inflorescence generally erect – *M. californica*

5' Sterile distal floret not truncate at tip, similar to other florets; bulb-like corms present

7 Bulb-like corm attached to rhizome with little stalk – *M. spectabilis*

7' Bulb-like corms sessile on rhizome

8 Floret stalk swollen when fresh, wrinkled when dry – *M. fugax*

8' Floret stalk not swollen when fresh, not wrinkled when dry

9 Sheath of basal leaf persistent; inflorescence branches appressed to ascending - *M. bulbosa*

9' Sheath of basal leaf fibrous and disintegrating; inflorescence branches spreading to reflexed - *M. geyeri*

Melica aristata

Melica bulbosa

Melica californica

Melica fugax

Melica geyeri

Melica harfordii

Melica spectabilis

Melica stricta

Melica subulata

Melica torreyana

Muhlenbergia

1 Lemma awn 1mm or longer

2 Glume veins apparent, longer than 0.5mm - *M. andina*

2' Glume veins absent or shorter than 0.5mm - *M. schreberi*

1' Lemma awn absent or shorter than 1mm

3 Inflorescence branches spreading - *M. asperifolia*

3' Inflorescence branches appressed

4 Rhizomes present - *M. richardsonis*

4' Rhizomes absent

5 Plants small, sometimes very much so; leaves shorter than 4cm - *M. filiformis*

5' Plants large; leaves longer than 5cm

6 Inflorescence to 15cm, loosely flowered - *M. jonesii*

6' Inflorescence to 60cm, densely flowered - *M. rigens*

Muhlenbergia andina

Muhlenbergia asperifolia

Muhlenbergia filiformis

Muhlenbergia jonesii

Muhlenbergia richardsonis

Muhlenbergia rigens

Muhlenbergia schreberi

Panicum

1 Stem and leaves glabrous - *P. dichotomiflorum* ssp. *dichotomiflorum*

1' Stem and leaves hairy

2 Main panicle simple at base; basal rosette not well formed; leaves gradually reducing in size from base - *P. capillare*

2' Main panicle branches forked at base; basal rosette well-formed; upper leaves abruptly smaller in size compared to basal leaves - *P. acuminatum* var. *fasciculatum*

Panicum acuminatum var. *fasciculatum*

Panicum capillare

Panicum dichotomiflorum ssp. *dichotomiflorum*

Paspalum

1 Inflorescence digitate; spikelets single; margins of upper glume glabrous - *P. distichum*

1' Inflorescence a raceme; spikelets paired; margins of upper glume long-hairy

2 Inflorescence branches many; spikelets shorter than 3mm - *P. urvillei*

2' Inflorescence branches few; spikelets 3mm or longer - *P. dilatatum*

Paspalum dilatatum

Paspalum distichum

Paspalum urvillei

Phalaris

1 Glume keels widely winged - *P. aquatica*

1' Glume keels not winged or inconspicuously so - *P. arundinacea*

Phalaris aquatica

Phalaris arundinacea

Phleum

1 Inflorescence short; sub- to alpine habitats, including in meadows found there; glume awn

2-3mm long - *P. alpinum*

1' Inflorescence longer; meadows at all elevations; glume awn shorter than 2mm - *P. pratense*

Phleum alpinum

Phleum pratense

Poa

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1 Annual or biennial

2 Callus glabrous - ***P. annua***

2' Callus with cobwebby hairs - ***P. bolanderi***

1' Perennial herb

3 Rhizomes or stolons present

4 Lower stem distinctly compressed, keeled - ***P. compressa***

4' Lower stem little or not compressed, not keeled

5 Sheath of upper stem-leaf closed nearly to top, blade longer than sheath - ***P.***

sierrae

5' Sheath of upper stem-leaf open at least 1/4 length, blade shorter than or equal to sheath

6 Callus glabrous; lemma glabrous or hairy; flowers often pistillate

7 Stem-leaf blades strongly reduced upward, uppermost less than 1/8 sheath length; lemma keel and marginal veins clearly hairy; plant densely cespitose - ***P. fendleriana***
ssp. longiligula

7' Stem-leaf blades generally longest at middle of stem, uppermost generally more than 1/5 sheath length; lemma glabrous to sparsely scabrous or keel and marginal veins sparsely hairy; plant loosely tufted - ***P. wheeleri***

6' Callus long-cobwebby; lemma keel and/or marginal veins hairy, glabrous between veins; flowers bisexual

8 Sheath open up to 3/4 length; plant with obvious rhizomes; stem not branching above base - ***P. pratensis ssp. pratensis***

8' Sheath generally open more than 3/4 length; stolons generally present; stem sometimes branching above base

9 Lower glume veins 3; lemma obviously hairy on keel and marginal veins - ***P. palustris***

9' Lower glume vein 1; lemma sparsely hairy on keel and rarely on

marginal veins - **P. trivialis ssp. trivialis**

3' Rhizomes and stolons absent

10 Stem base bulbous

11 Spikelets producing leafy bulblets - **P. bulbosa var. vivipara**11' Spikelets not producing leafy bulblets - **P. bulbosa var. bulbosa**

10' Stem base not bulbous

12 Callus cobwebby; lemma hairy on keel and often on marginal veins but not between veins

13 Lower glume veins 3; sheaths open 3/4 length or more

14 Ligule 1mm or longer, acute or rounded - **P. palustris**14' Ligule 0.5mm or shorter, truncate - **P. nemoralis**

13' Lower glume vein 1; sheaths open to 3/4 length

15 Anthers 1mm or shorter; inflorescence branches with flowers in top third; high montane to alpine - *P. leptocoma*15' Anthers longer than 1.3mm; some inflorescence branches with flowers from mid-length; low elevation - **P. trivialis ssp. trivialis**

12' Callus glabrous or at least not cobwebby; lemma often hairy between veins

16 Lemma obviously hairy at least on keel and marginal veins; flowers unisexual; sheath open 1/3 length; uppermost stem-leaf blade firm, often highly reduced - **P. fendleriana ssp. longiligula**

16' Lemma often glabrous or if obviously hairy on keel and marginal veins or between, then any of the following true: flowers bisexual, sheaths open more than 3/4 or less than 1/2 length; uppermost stem-leaf blade often thin and withering or not highly reduced

17 Spikelet lanceolate to narrowly ovate, little compressed; lemma weakly keeled

18 Lemma glabrous or sometimes scabrous, rarely sparsely short-hairy; ligule of sterile shoots and often stem shorter than 2mm, truncate, scabrous; leaf blade firm, retaining shape; inflorescence branches appressed - **P. secunda ssp. juncifolia**18' Lemma evenly short-hairy on keel and sides across base; ligule of sterile shoots and stem generally longer than 2mm, acute or acuminate, smooth or sparsely scabrous; leaf blade soft, soon withering; inflorescence branches appressed or spreading - **P. secunda ssp. secunda**

17' Spikelet ovate, obviously compressed; lemma obviously keeled to base

19 Lemma obviously hairy, subalpine or higher - *P. glauca* ssp. *rupicola*

19' Lemma often glabrous; various elevations

20 Plant no taller than 10cm; longest anthers no longer than 2 mm; upper glume generally longer or equal to first lemma; lemma sometimes sparsely short-hairy - *P. keckii*

20' Plant to 70cm tall; longest fertile anthers longer than 2mm; upper glume generally shorter than first lemma; lemma glabrous

21 Plant generally less than 30cm tall, base often decumbent; leaf blades of sterile stems generally more than 1.5mm wide, arched - **P. pringlei**

21' Plant 25-70cm, base rarely decumbent; leaf blades of sterile stems less than 1.5mm wide, erect

22 Inflorescence branches smooth; basal leaf tuft sparse;
flowers female; 1-2 stem nodes showing - *P. cusickii* ssp. *epilis*

22' Inflorescence branches scabrous; basal leaf tuft dense;
flowers male; 0-1 stem nodes showing, if 1 showing, barely so - ***P. cusickii* ssp. *cusickii***

Poa annua

Poa bolanderi

Poa bulbosa* var. *bulbosa

Poa bulbosa* var. *vivipara

Poa compressa

Poa cusickii* ssp. *cusickii

Poa cusickii ssp. *epilis*

Poa fendleriana* ssp. *longiligula

Poa glauca ssp. *rupicola*

Poa keckii

Poa leptocoma

Poa nemoralis

Poa palustris

Poa pratensis* ssp. *pratensis

Poa pringlei

Poa secunda* ssp. *juncifolia

Poa secunda* ssp. *secunda

Poa sierrae

Poa trivialis* ssp. *trivialis

Poa wheeleri

Polypogon

- 1 Glumes lacking awns - *P. viridis*
- 1' Glumes awned
 - 2 Lemmae lacking awns - *P. maritimus*
 - 2' Lemmae awned
 - 3 Annual; glumes lobed - *P. monspeliensis*
 - 3' Perennial; glumes not lobed
 - 4 Glume awn 1-4.5mm long - *P. interruptus*
 - 4' Glume awn 4-7mm long - *P. australis*

Polypogon australis

Polypogon interruptus

Polypogon maritimus

Polypogon monspeliensis

Polypogon viridis

Secale

Secale cereale

Setaria

- 1 Perennial, cespitose from short rhizomes; stems hard and swollen at base - *S. parviflora*
- 1' Annuals; stems not swollen at base
 - 2 Bristles below spikelet 1-3; upper glume equalling upper lemma; upper lemma smooth - *S. viridis*
 - 2' Bristles below spikelet 4-12; upper glume to half the size of the upper lemma; upper lemma strongly ridged - *S. pumila* ssp. *pumila*

Setaria parviflora

Setaria pumila ssp. *pumila*

Setaria viridis

Sorghum

Sorghum halepense

Sporobolus

1 Inflorescence not exceeding leaves, base enclosed in sheath - *S. schoenoides*

1' Inflorescence exceeding leaves, base not enclosed in sheath

2 Annual; small; inflorescences terminal and at most stem nodes; lemma leathery with beaked tips - *S. vaginiflorus*

2' Perennial; larger; inflorescences terminal, occasional at some stem nodes; lemma membranous, tip acute to obtuse - *S. cryptandrus*

Sporobolus cryptandrus

Sporobolus schoenoides

Sporobolus vaginiflorus

Stipa

This genus is incomplete. **Bolded** species names are confirmed in the county. Names not bolded may not actually be present in county but have been documented as occurring here.

1 Lemma margins in age strongly overlapping entire length, lemma body generally bumpy throughout, tip with crown; palea veins absent - ***S. pulchra***

1' Lemma margins in age generally not or only slightly overlapping over part of length, or strongly overlapping in some species with smooth lemmas; lemma bodies smooth proximally, tip with 1 or 2 lobes; palea 2-veined, at least proximally

2 Floret callus 1.7-6mm, sharp-pointed; awn 35-225mm - ***S. comata* var. *intermedia***

2' Floret callus 0.1-2mm, blunt- to sharp-pointed, awn 3-80mm

3 Florets 2.5 mm long or less; lemma glabrous - ***S. miliacea* var. *miliacea***

3' Florets 2.8 mm long or more; lemma hairy throughout or at least in proximal 3/4

4 Florets obovoid, length 3x width or less; lemma densely long-hairy at least in youth, awn early-deciduous - ***S. hymenoides***

4' Florets elongate-ellipsoid to fusiform, length 4x width or more; lemma hairy to densely hairy, if length less than 4x width then awn persistent and floret not densely long-hairy

5 Awns persistent, proximally densely long-hairy, at least some hairs 0.5-8mm in length

6 Distal leaves on stem with ligules 3mm or longer; lemma tip lobe 1, lobe approximately 0.1mm, thick, leathery - ***S. thurberiana***

6' Distal leaves on stem with ligules 3 mm or less; lemma tip lobes 2 or absent, lobes approximately 1mm, thin, membranous

7 Callus length to 0.7 mm; palea tip hairs approximately 1mm long; awn proximally with mixed-length hairs, longer hairs mixed with shorter - ***S. nevadensis***

7' Callus length 0.8mm or more; palea tip hairs shorter than 1mm; hairs similar to above or hairs of equal length or decreasing in length distally

8 Distal awn segment densely hairy; stem internodes glabrous; glumes generally purple - *S. occidentalis* var. *occidentalis*

8' Distal awn segment scabrous or glabrous, occasionally densely hairy at segment base; stem internodes glabrous to densely hairy; glumes generally green

9 Proximal 2 awn segments scabrous or densely hairy, hairs of mixed lengths; lemma tip hairs longer than proximal awn hairs - ***S. occidentalis* var. *californica***

9' Proximal 2 awn segments densely hairy, hairs gradually and evenly shorter towards 1st bend; lemma tip hairs equal in length to proximal awn hairs - ***S. occidentalis* var. *pubescens***

5' Awns persistent or not, proximally scabrous or with hairs shorter than 0.5mm

10 Glumes ovate to narrowly ovate, 3-6mm in length; lemma awn to 14mm long - *S. exigua*

10' Glumes narrowly lanceolate to lanceolate, 6mm or longer; lemma awn to 80mm long

11 Lemma tip 2-lobed, lobes to 3mm; palea longer than or equal to lemma, palea tip 2-lobed, veins extending into lobes - ***S. stillmanii***

11' Lemma tip not lobed or lobes shorter than 1.2mm; palea shorter than or equal to lemma, palea tip unlobed, palea veins ending before or at palea tip

12 Lemma tip lobes thick, stiff, approximately 0.1mm in length; florets compressed - ***S. lemmonii* var. *lemmonii***

12' Lemma tip lobes membranous, 0.1-1.2mm in length; florets not compressed

13 Lemma 1.3x palea length or less; palea tip hairs extending beyond tip; leaf blades 0.5-2mm wide - ***S. lettermanii***

13' Lemma 1.5x palea length or more; palea tip hairs not extending beyond tip; leaf blades 1.2-5mm wide - ***S. nelsonii* var. *dorei***

Stipa comata* var. *intermedia

Stipa exigua

Stipa hymenoides

Stipa lemmonii* var. *lemmonii

Stipa lettermanii

Stipa miliacea* var. *miliacea

Stipa nelsonii* var. *dorei

Stipa nevadensis**Stipa occidentalis var. californica**

Stipa occidentalis var. occidentalis

Stipa occidentalis var. pubescens**Stipa pulchra****Stipa stillmanii****Stipa thurberiana**

Torreyochloa

1 Inflorescence narrow, length 5-19x width, <1cm wide, branches erect to ascending; leaf blade 3.5-7mm wide - *T. erecta*

1' Inflorescence wider, length 1-6x width, 2-14cm wide, branches spreading to ascending; leaf blade 3.5-18mm wide - *T. pallida* var. *pauciflora*

Torreyochloa erecta

Torreyochloa pallida var. pauciflora

Trisetum

This genus is incomplete. **Bolded** species names are confirmed in the county. Names not bolded may not actually be present in county but have been documented as occurring here.

1 Lemma awn absent - **T. wolfii**

1' Lemma awn 4mm or more

2 Awns 7mm or more; inflorescence panicle-like; ovary hairy at tip

3 Spikelets to base of inflorescence branches; lower inflorescence branches ascending to erect; lower glume 3-5mm - **T. canescens**

3' Spikelets only at tips of inflorescence branches; lower inflorescence branches spreading; lower glume shorter than 3mm - *T. cernuum*

2' Awns 7mm or less; inflorescence spike-like; ovary glabrous at tip

4 Panicle interrupted; glumes 5.5mm or more - **T. projectum**

4' Panicle not interrupted; glumes 5mm or shorter - **T. spicatum**

Trisetum canescens

Trisetum cernuum

Trisetum projectum**Trisetum spicatum****Trisetum wolfii****Triticum**

Triticum aestivum

Ventenata

Ventenata dubia

Polemoniaceae

1 Leaves absent from stems but bracts subtending inflorescence fleshy and leaf-like -
Gymnosteris parvula

1' Leaves present on stems or at base

2 Leaves pinnately compound - Polemonium

2' Leaves not compound, leaves entire or lobed

3 Perennial

4 Leaves pinnately or palmately lobed - Ipomopsis

4' Leaves not lobed

5 Plant erect; rhizomatous; leaves thin, not needle-like - Phlox speciosa

5' Plant subshrub to cushion-like; leaves tough and needle-like

6 Plant subshrub, branched at base, erect; flowers white - Linanthus

6' Plant cushion-like, low; flowers white, pink, or purple - Phlox diffusa

3' Annual

7 Uppermost leaves opposite - Leptosiphon

7' Uppermost leaves alternate

8 Plant densely woolly, especially in inflorescence, rare at far eastern end of
county - Eriastrum wilcoxii

8' Plant not densely woolly

9 Corolla lobes similar in length to tube; leaves pinnately lobed; plants not
prickly - Gilia

9' Corolla lobes significantly shorter in length than tube; leaves pinnately
lobed or not; if corolla lobes similar in length to tube, then plants prickly

10 Calyx sinus keeled near tip, resembling the spout of a water pitcher -

Collomia

10' Calyx sinus not keeled

- 11 Flowers in dense more or less rounded terminal heads; plants prickly - *Navarretia*
- 11' Flowers single or in small clusters; plants not prickly
- 12 Leaves all lobed; corolla tube white or uniformly purple or rose-colored - *Allophyllum*
- 12' Leaves all entire or if upper leaves lobed, corolla tube not white nor uniformly purple or reddish
- 13 Leaves wider than linear; flowers pink or white, often with a darker red dot on each lobe, sessile or on short pedicel; petals often notched at tip - *Microsteris gracilis*
- 13' Leaves linear; flowers pink to lavender or white, on long pedicels; petals entire - *Navarretia*

Allophyllum

- 1 Flowers white - *A. integrifolium*
- 1' Flowers not white
 - 2 Flower tube reddish; lobes pink; leaves and leaf lobes widened - *A. divaricatum*
 - 2' Flower tube dark purple; lobes light or dark purple; leaves and leaf lobes linear - *A. gilioides* ssp. *violaceum*

Allophyllum divaricatum

Allophyllum gilioides ssp. *violaceum*

Allophyllum integrifolium

Collomia

- 1 Corolla lobes creamy orange-yellow - *C. grandiflora*
- 1' Corolla lobes white to pink
 - 2 Leaves variable but at least some lobed - *C. heterophylla*
 - 2' Leaves all entire
 - 3 Pollen blue; flowers generally in small axillary clusters of 2-3 - *C. tinctoria*
 - 3' Pollen white; flowers generally in large terminal cluster of 7-20, sometimes in distal leaf axils as well - *C. linearis*

Collomia grandiflora

Collomia heterophylla

Collomia linearis

Collomia tinctoria

Eriastrum

Eriastrum wilcoxii

Gilia

1 Inflorescence a dense rounded head

2 Corolla lobes skinny, about 1mm wide; calyx lobes erect to recurved, acute at tips; flowers tending smaller - *G. capitata* ssp. *mediomontana*

2' Corolla lobes wide, about 2mm wide; calyx lobes recurved, acuminate at tips; flowers tending larger - *G. capitata* ssp. *pedemontana*

1' Inflorescence open with flowers single to few

3 Common at low to mid elevations at western end of county; leaves not fleshy; corolla throat yellow with purple band near mouth - *G. tricolor* ssp. *diffusa*

3' Rare at far eastern end of county; leaves fleshy; corolla throat yellow with purple veins, purple at tube base but not near mouth - *G. brecciarum* ssp. *brecciarum*

Gilia brecciarum ssp. *brecciarum*

Gilia capitata ssp. *mediomontana*

Gilia capitata ssp. *pedemontana*

Gilia tricolor ssp. *diffusa*

Gymnosteris

Gymnosteris parvula

Ipomopsis

1 Small cushion-like subshrub in alpine habitats; leaves palmately lobed; flower tubes short; inflorescence ball-like; corolla blue to white - *I. congesta* ssp. *montana*

1' Erect perennial herb at high elevations; leaves pinnately lobed; flower tubes long; inflorescence open; corolla red to pink

2 Corolla white to lavender or pink; lobes speckled darker; stamens included - *I. tenuituba*

2' Corolla red; lobes occasionally speckled white; stamens exerted - *I. aggregata* ssp. *aggregata*

Ipomopsis aggregata ssp. *aggregata*

Ipomopsis congesta ssp. *montana*

Ipomopsis tenuituba

Leptosiphon

1 Leaves clustered at tips with few below clusters; flower tube much longer than lobes

2 Corolla lobes each with darker spot near mouth - *L. ciliatus*

2' Corolla lobes solidly colored - *L. bicolor*

1' Leaves well distributed along stem, not clustered; flower tube and lobes more or less equal in length

3 Flowers extremely small; barely exceeding calyx - *L. harknessii*

3' Flowers small perhaps, but not extremely so; well exceeding calyx

4 Filaments glabrous, attached above hairy ring inside corolla tube; corolla lobes without lines - *L. bolanderi*

4' Filaments hairy at base; hairy ring inside corolla tube absent; corolla lobes with lines

5 Branched at stem base; calyx membrane equal in width to calyx lobes - *L. filipes*

5' Branched above stem base; calyx membrane wider than calyx lobes - *L. liniflorus*

Leptosiphon bicolor

Leptosiphon bolanderi

Leptosiphon ciliatus

Leptosiphon filipes

Leptosiphon harknessii

Leptosiphon liniflorus

Linanthus

1 Herbs at low elevations - *L. dichotomus* ssp. *meridianus*

1' Small shrubs at high elevations - *L. pungens* ssp. *pulchriflorus*

Linanthus dichotomus ssp. *meridianus* ●

Linanthus pungens ssp. *pulchriflorus*

Microsteris

Microsteris gracilis

Navarretia

1 Flowers yellow - *N. breweri*

1' Flowers not yellow

2 Plants not prickly, barely recognizable as a *Navarretia*

3 Corolla tube glabrous; upper leaves lobed; calyx lobes acute - *N. linearifolia* ssp. *linearifolia*

3' Corolla tube glandular; upper leaves entire; calyx lobes acuminate

4 Corolla lobes blue or white; calyx densely glandular - *N. capillaris*

4' Corolla lobes pink; calyx glabrous or sparsely glandular

5 Corolla throat mostly yellow - *N. leptalea* ssp. *bicolor*

5' Corolla throat entirely purple - *N. leptalea* ssp. *leptalea*

2' Plants prickly

6 Flowers entirely deeply purple; inflorescence bract tips with many lobes - *N. pubescens*

6' Flowers variously colored but not entirely deep purple; inflorescence bract tips with 3 lobes or unlobed

7 Plant glandular at least in inflorescence

8 Corolla lobes and throat deep purple; corolla tube white with yellow at base; gabbro; rare - *N. "gabbro"*

8' Corolla lobes white, light purple, blue, or pink, not deep purple

9 Outer bracts with lobes in 2 planes

10 Bracts and upper leaves with distinctly widened axis - *N. mellita*

10' Bracts and upper leaves with narrow axis

11 Corolla lobes and tube similar in coloration - *N. aeroides*

11' Corolla lobes and tube different in coloration

12 Corolla tube and throat yellow, lobes white to light pink, aging to a deeper pink - *N. divaricata*

12' Corolla tube and throat deep purple, lobes much lighter - *N. torreyella*

9' Outer bracts with lobes in 1 plane

13 Corolla lobes narrow; inner inflorescence bracts not concave at base; generally in drying edges of wet habitats or vernal pools

14 Plants east of the crest; corolla tube not exerted - *N. leucocephala* ssp. *suksdorfii*

14' Plants low to mid elevations west of the crest; corolla tube exerted - *N. leucocephala* ssp. *leucocephala*

13' Corolla lobes ovate; inner inflorescence bracts concave at base; generally in dry habitats

15 Inflorescence bracts with several fine spines but not arranged as three diverging spines at tip - *N. tagetina*

15' Inflorescence bracts with three diverging lobes at tip

16 Plants erect; heads well-separated - *N. intertexta*
 16' Plants spreading; heads amassed in dense clusters - *N.*

propinqua

7' Plant not glandular

17 Inflorescence bract lobes in 1 plane

18 Flowers rose-purple; inflorescence bracts green; anthers well exerted -

N. filicaulis

18' Flowers light pink; inflorescence bracts white hairy at base; anthers

barely or not exerted - *N. crystallina*

17' Inflorescence bract lobes in 2 planes

19 Corolla tube and throat yellow, lobes white to light pink, aging to a deeper pink - *N. divaricata*

19' Corolla tube and throat deep purple, lobes much lighter - *N. torreyella*

Navarretia "gabbro"

Navarretia aeroides

Navarretia breweri

Navarretia capillaris

Navarretia crystallina

Navarretia divaricata

Navarretia filicaulis

Navarretia intertexta

Navarretia leptalea ssp. *bicolor*

Navarretia leptalea ssp. *leptalea*

Navarretia leucocephala ssp. *leucocephala*

Navarretia leucocephala ssp. *suksdorfii*

Navarretia linearifolia ssp. *linearifolia*

Navarretia mellita

Navarretia propinqua

Navarretia pubescens

Navarretia tagetina

Navarretia torreyella

Phlox

1 Plants mat forming; style much longer than stigmas - *P. diffusa*

1' Plants not mat forming, usually sprawling; style shorter than stigmas - *P. speciosa*

Phlox diffusa

Phlox speciosa

Polemonium

1 Plants of alpine habitats

2 Inflorescence ball-like - *P. eximium*

2' Inflorescence not ball-like - *P. pulcherrimum* var. *pulcherrimum*

1' Plants occurring below alpine habitats

3 Plants usually numerous in a patch, low growing; smaller in all regards; generally hairy; leaflets elliptic; generally found in forest understory - *P. californicum*

3' Plants usually single or few, tall and erect; larger in all regards; hairless to glandular-hairy distally; leaflets skinnier; generally found in meadows or along streams - *P. occidentale*

Polemonium californicum

Polemonium eximium

Polemonium occidentale

Polemonium pulcherrimum var. *pulcherrimum*

Polygalaceae

Rhinotropis

Rhinotropis cornuta var. *cornuta*

Polygonaceae

1 Ochrea absent

2 Involucres awned - Chorizanthe

2' Involucres not awned

3 Stamens 6; small annual herbs nestled under rocks at lowest elevations; leaves 2-lobed - *Pterostegia drymarioides*

3' Stamens 9; annual herbs to shrubs; generally open habitats; leaves entire - *Eriogonum*

1' Ochrea present

4 Leaves generally all basal; occasionally few highly reduced cauline leaves

5 Flowers greenish to yellow or red; leaves rounded; seeds winged; plants of rocky sub- to alpine habitats - *Oxyria digyna*

5' Flowers white; leaves elliptic; seeds not winged; plants of mountain meadows - *Bistorta bistortoides*

4' Cauline leaves well developed; habitat various

6 Perianth parts 6, in fruit enlarging into hard and veiny wings, more or less triangular - *Rumex*

6' Perianth parts 5 (occasionally 4 in *Persicaria*), not becoming winged

7 Leaves petioled; leaf bases truncate or cordate - *Fallopia*

7' Leaves petioled or not; if petioled, leaf bases tapered

8 Annual or subshrub and woody at base; if annual, plants small and tufted or stems thin and wiry; ochrea translucent, with two-lobes at tip early but often disintegrating with age - *Polygonum*

8' Annual to perennial herb, generally robust; ochrea opaque and not 2-lobed at tip

9 Plants of dry or mesic habitats at high elevations; if in mesic habitats, plants very tall and robust, perianth parts fused only at base, generally spreading at tips; corolla appearing more or less radial - *Aconogonon*

9' Plants of mesic or generally aquatic habitats at all elevations; perianth parts fused at base or more, generally erect at tips; corolla more or less bell-shaped - *Persicaria*

Aconogonon

1 Plants short, sprawling; flowers few, axillary; of open, dry, rocky sub- to alpine habitats - *A. davisiae*

1' Plants tall, robust; flowers many in terminal panicles; of mesic habitats and often roadsides at high elevations - *A. phytolaccifolium*

Aconogonon davisiae

Aconogonon phytolaccifolium

Bistorta

Bistorta bistortoides

Chorizanthe

1 Plants prostrate; herbage usually green and red; involucre lacking membranes between lobes - *C. polygonoides* var. *polygonoides*

1' Plants erect; herbage usually silvery hairy; involucre with prominent white and pink membranes between lobes - *C. membranacea*

Chorizanthe membranacea

Chorizanthe polygonoides var. *polygonoides*

Eriogonum

1 Annual

2 Involucre smooth, not ribbed, all or most peduncled

3 Leaves basal and cauline; peduncles often curved and reflexed but not abruptly so -

E. spergulinum var. *reddingianum*

3' Leaves all basal; peduncles abruptly and strongly reflexed

4 Outer perianth lobes fiddle-shaped - *E. cernuum*

4' Outer perianth lobes oval - *E. nutans* var. *glabratum*

2' Involucre angled or ribbed, all or most sessile and appressed to stem

5 Leaves elongate - *E. roseum*

5' Leaves round to kidney-shaped

6 Generally of higher elevations; substrate various; leaves all basal; involucre glabrous, all sessile - *E. vimineum*

6' Generally of lower elevations; often on serpentine; leaves all basal or basal and cauline; involucre sparsely tomentose, lower usually stalked - *E. luteolum* var. *pedunculatum*

1' Perennial

7 Flower stipe present

8 Flowers hairy

9 Inflorescence scapose; involucre 1; plants on east side of crest - *E. douglasii* var. *meridionale*

9' Inflorescence not scapose; involucre more than 1; plants of the western foothills - *E. tripodum*

8' Flowers glabrous

10 Flowering stems decumbent; leaves large and round - *E. lobbii*

10' Flowering stems erect; leaves elongate and/or small

11 Plants generally mat-forming

12 Inflorescences large; flowers white to cream; mid to high elevations - *E.*

ursinum var. ursinum

12' Inflorescences small; flowers yellow; high elevations

13 Leaves green and more or less glabrous adaxially, tomentose abaxially

- E. marifolium var. marifolium

13' Leaves grayish, tomentose on both sides - E. incanum

11' Plants shrubby

14 Plants limited to mid elevation lava cap habitats; flowers cream-colored; inflorescence head-like, not immediately subtended by a whorl of leafy bracts - E.

prattenianum var. prattenianum

14' Plants on various substrates; mid to high elevations; flowers bright yellow, often becoming red in age; inflorescence umbel-like, immediately subtended by a whorl of leafy bracts

15 Leaves glabrous on both surfaces; rare at the crest - E. umbellatum

var. torreyanum

15' Leaves hairy on one or both surfaces

16 Inflorescences simple; inflorescence branches without whorl of bracts in middle; leaves sparsely hairy on both surfaces, green abaxially; common - E.

umbellatum var. nevadense

16' Inflorescences often compound; inflorescence branches often with whorl of bracts at middle; leaves sparsely hairy above, densely white-hairy below - E.

umbellatum var. furcosum

7' Flower stipe absent

17 Plants mat-forming; high elevations

18 Stem glandular hairy - E. rosense var. rosense

18' Stem glabrous to hairy or tomentose, non-glandular

19 Leaf blades not much longer than 1 cm; stems and involucre short; alpine habitats - E. ovalifolium var. nivale

19' Leaf blades 1-6 cm long; stems and involucre longer; lower than alpine habitats - E. ovalifolium var. ovalifolium

17' Plants not mat-forming; all elevations

20 Involucre 1 per node (some often with 2 per node in E. nudum var. deductum)

21 Plants herbaceous

22 Flowers evenly distributed along flowering stems - E. wrightii ssp.

subscaposum

22' Flowers in forks of branches and/or at stem tips - E. nudum var.

deductum

21' Plants woody at base

23 Plants of alpine habitats; flowers in forks of sprawling branches - E.

microtheca var. ambiguum

23' Plants of low elevations at western end of county; flowers along erect branches - E. wrightii ssp. trachygonum

20' Involucre 2 or more per node, clustered

24 Perianth lobes in two sets of three where each set is dissimilar in shape - E. strictum var. anserinum

24' Perianth lobes all alike

25 Plants woody, shrubby - *E. fasciculatum* var. *fasciculatum*

25' Plants herbaceous

26 Leaves large, elongate, long-soft-hairy on both surfaces; uncommon

27 Stem and inflorescence glabrous - *E. elatum* var. *elatum*

27' Stem and inflorescence long-soft-hairy - *E. elatum* var. *villosum*

26' Leaves smaller, round to elliptic, tomentose abaxially, more or less glabrous adaxially; common

28 Stems hairy; inflorescence branches and involucre tomentose, sometimes sparsely so - *E. nudum* var. *oblongifolium*

28' Stems glabrous; inflorescence branches and involucre glabrous

29 Flowers hairy - *E. nudum* var. *pubiflorum*

29' Flowers glabrous - *E. nudum* var. *nudum*

Eriogonum cernuum

Eriogonum douglasii var. *meridionale*

Eriogonum elatum var. *elatum*

Eriogonum elatum var. *villosum*

Eriogonum fasciculatum var. *fasciculatum*

Eriogonum incanum

Eriogonum lobbii

Eriogonum luteolum var. *pedunculatum*

Eriogonum marifolium var. *marifolium*

Eriogonum microtheca var. *ambiguum*

Eriogonum nudum var. *deductum*

Eriogonum nudum var. *nudum*

Eriogonum nudum var. *oblongifolium*

Eriogonum nudum var. *pubiflorum*

Eriogonum nutans var. *glabratum*

Eriogonum ovalifolium var. *nivale*

Eriogonum ovalifolium var. *ovalifolium*

Eriogonum prattenianum var. *prattenianum*

Eriogonum rosense var. *rosense*

Eriogonum roseum

Eriogonum spergulinum var. *reddingianum*

Eriogonum strictum var. *anserinum*

Eriogonum tripodum

Eriogonum umbellatum var. *dumosum*

Eriogonum umbellatum var. *furcosum*

Eriogonum umbellatum var. *nevadense*

Eriogonum umbellatum var. *polyanthum*

Eriogonum umbellatum var. *torreyanum*

Eriogonum ursinum var. *ursinum*

Eriogonum vimineum

Eriogonum wrightii ssp. *subscaposum*

Eriogonum wrightii ssp. *trachygonum*

Fallopia

1 Leaf bases truncate; plants smaller in all regards - *F. japonica*

1' Leaf bases cordate; plants larger in all regards - *F. sachalinense*

Fallopia japonica

Fallopia sachalinense

Oxyria

Oxyria digyna

Persicaria

1 Perianth gland dotted

2 Perianth lobe margins red; fruit dull - *P. hydropiper*

2' Perianth lobe margins white; fruit shiny - *P. punctata*

1' Perianth not gland dotted

3 Perennial; rhizomatous or with stolons

4 Styles 2; inflorescence terminal, 1-2 - *P. amphibia*

4' Styles 3; inflorescence terminal and axillary, 2 or more - *P. hydropiperoides*

3' Annual; without rhizomes or stolons

5 Ocrea margins with long bristles; peduncle glands absent - *P. maculosa*

5' Ocrea margins without bristles or otherwise shorter than 1mm; stalked peduncle glands present - *P. lapathifolia*

Persicaria amphibia

Persicaria hydropiper

Persicaria hydropiperoides

Persicaria lapathifolia

Persicaria maculosa

Persicaria punctata

Polygonum

1 Plants subshrubs, woody at base; plants of sub- to alpine habitats - *P. shastense*

1' Plants herbaceous; habitats various

2 Stems ribbed; plants often prostrate; of disturbed habitats; anthers white or yellow

3 Stems ascending to erect, rarely prostrate; ocrea disintegrating to fibers; herbage and stems green; flowers congested at branch tips; perianth length 1.8x width or longer; perianth parts fused less than 40% of length; outer tepal veins branched, thickened - *P. aviculare* ssp. *aviculare*

3' Stems ascending to prostrate; ocrea disintegrating to fibers or completely; herbage and stems gray-green; flowers well-distributed, rarely congested at branch tips; perianth length 1.3x width or shorter; perianth parts fused less than 40% of length; outer tepal veins branched, thickened - *P. aviculare* ssp. *buxiforme*

3" Stems prostrate, rarely ascending; ocrea disintegrating completely; herbage and stems green or gray-green; flowers well-distributed, rarely congested at branch tips; perianth

width 1.5x width or longer; perianth parts fused 40% of length or more; outer tepal veins unbranched, not thickened - *P. aviculare* ssp. *depressum*

2' Stems angled but not ribbed; habit and habitat various; anthers pink or purple

4 Tips of perianth lobes acute to acuminate

5 Plants cushion-like, many branched; ochrea split into many thin fibers - *P. parryi*

5' Plants not cushion-like, erect, few branched or unbranched; ochrea split or not

6 Plants generally taller; stems few branched; inflorescence generally elongate; flowers generally exceeding subtending bracts at tips of branches; uncommon at mid-elevations - *P. californicum*

6' Plants generally short; stems unbranched; inflorescence generally dense; flowers generally exceeded by subtending bracts at tips of branches; common, generally at high elevations

7 Margins of bracts green - *P. polygaloides* ssp. *kelloggii*

7' Margins of bracts white - *P. polygaloides* ssp. *confertiflorum*

4' Tips of perianth lobed rounded

8 Pedicels reflexed - *P. douglasii*

8' Pedicels not reflexed

9 Flowers 2.5mm in length or less; leaves generally ovate, occasionally skinnier; ochrea persistent, entire or torn into wider teeth - *P. minimum*

9' Flowers 3mm in length or more; leaves skinnier than ovate; ochrea disintegrating into thin fibers

10 Flowers crowded towards branch tips; leaves linear or lanceolate - *P. spergulariforme*

10' Flowers spread out along stem in leaf axils and if terminal, not crowded there; leaves elliptic

11 Stem and ochrea scabrous; leaf margins minutely dentate; generally few or unbranched; leaf size and stature tending smaller - *P. sawatchense* ssp. *oblivium*

11' Stem and ochrea smooth; leaf margins smooth; generally branched; leaf size and stature tending larger - *P. sawatchense* ssp. *sawatchense*

Polygonum aviculare ssp. *aviculare*

Polygonum aviculare ssp. *buxiforme*

Polygonum aviculare ssp. *depressum*

Polygonum californicum

Polygonum douglasii

Polygonum minimum

Polygonum parryi

Polygonum polygaloides ssp. *confertiflorum*

Polygonum polygaloides ssp. *kelloggii*

Polygonum sawatchense ssp. *oblivium*

Polygonum sawatchense ssp. *sawatchense*

Polygonum shastense

Polygonum spergulariiforme

Pterostegia

Pterostegia drymarioides

Rumex

1 Most flowers unisexual; plants generally small

2 Most leaves hastate to sagittate at base; all elevations - *R. acetosella*

2' Leaves all tapered at base; high elevations - *R. paucifolius*

1' Most flowers bisexual; plants generally robust

3 Basal leaves absent

4 Perianth tubercles absent - *R. californicus*

4' Perianth tubercles present

5 Perianth tubercles only ever 1 per flower; inflorescence generally open, interrupted - *R. salicifolius*

5' Perianth tubercles 3 per flower on at least some flowers (check many flowers because often only one well-developed); inflorescence dense, generally not interrupted - *R. triangulivalvis*

3' Basal leaves present

6 Perianth lobe margin entire to irregularly small-toothed

7 Tubercle filling most of perianth lobe width; inflorescence open - *R. conglomeratus*

7' Tubercle filling less than half of perianth lobe width; inflorescence dense - *R.*

crispus

6' Perianth lobe margin noticeably toothed

8 Leaves large; leaf base cordate; perianth lobes generally narrow; inflorescence branches erect to ascending - *R. obtusifolius*

8' Leaves smaller; leaf base tapered to truncate; perianth lobes wide; inflorescence branches spreading - *R. pulcher*

Rumex acetosella

Rumex californicus

Rumex conglomeratus

Rumex crispus

Rumex obtusifolius

Rumex paucifolius

Rumex pulcher

Rumex salicifolius

Rumex triangulivalvis

Polypodiaceae

Polypodium

Polypodium calirhiza

Pontederiaceae

Eichhornia

Eichhornia crassipes

Portulacaceae

Portulaca

Portulaca oleracea

Potamogetonaceae

Potamogeton

1 Some leaves floating

2 Submersed leaves linear, less than 1cm wide

3 Submersed leaves with net-like band along midrib - P. epihydrus

3' Submersed leaves without net-like band along mid-rib - *P. natans*

2' Submersed leaves linear or generally wider, 1cm or wider

4 Submersed leaves very broad, curved back, folded at midrib - *P. amplifolius*

4 Submersed leaves not very broad, not curved back, not folded

5 Submersed leaves with 7-19 veins; leaf margins entire; fruit pedicelled - *P. alpinus*

5' Submersed leaves with 7-9 veins; leaf margins minutely serrate; fruit sessile - *P.*

gramineus

1' No leaves floating

6 Leaves lanceolate or elliptic

7 Leaf margins distinctly wavy, serrate throughout - *P. crispus*

7' Leaf margins generally not wavy, entire, or minutely serrate only at tip

8 Leaf base clasping - *P. praelongus*

8' Leaf base not clasping

9 Submersed leaves petioled - *P. nodosus*

9' Submersed leaves sessile

10 Submersed leaves with 7-19 veins; leaf margins entire; fruit pedicelled -

P. alpinus

10' Submersed leaves with 7-9 veins; leaf margins minutely serrate; fruit

sessile - *P. gramineus*

6' Leaves linear

11 Stipules fused to leaf blade for 1/4-1/2 stipule length - *P. robbinsii*

11' Stipules free or fused for less of the stipule length

12 Stems compressed; fruit large; winter buds absent; rhizomes present - *P.*

epihydus

12' Stems not compressed; fruit smaller; winter buds present; rhizomes absent

13 Fruit keeled - *P. foliosus* var. *foliosus*

13' Fruit not keeled - *P. pusillus*

Potamogeton alpinus

Potamogeton amplifolius ●

Potamogeton crispus

Potamogeton epihydus

Potamogeton foliosus var. *foliosus*

Potamogeton gramineus

Potamogeton natans

Potamogeton nodosus

Potamogeton praelongus

Potamogeton pusillus

Potamogeton robbinsii ●

Primulaceae

Primula

1 Plants of low elevations west of the crest - *P. hendersonii*

1' Plants of high elevations and east of the crest

3 Corolla lobes spreading, rounded - *P. suffrutescens*

3' Corolla lobes reflexed, pointed

4 Stem, pedicels, inflorescence bracts glandular - *P. jeffreyi*

4' Stem not glandular; pedicels and inflorescence bracts glabrous or sparsely glandular

- *P. tetrandra*

Primula hendersonii

Primula jeffreyi

Primula suffrutescens

Primula tetrandra

Pteridaceae

1 Plants with white or gold farina on one or both surfaces - *Pentagramma*

1' Farina absent

2 Plants of shady, wet or vernal wet habitats - *Adiantum*

2' Plants of open rocky habitats (occasionally from shady soil in forest understory in

Aspidotis californica)

3 Leaf segments small, bead-like; plants distinctly curly hairy - *Myriopteris gracillima*

3' Leaf segments not bead-like; plants not distinctly curly hairy

4 Plants with fronds of two kinds; fertile and infertile fronds markedly dissimilar; fertile fronds erect and held above spreading infertile fronds; plants of high elevations - *Cryptogramma*

4' Plants with fronds of one kind; all fronds more or less similar (somewhat dissimilar in *Aspidotis densa* but fertile and infertile fronds held at same length); widespread

5 Plants typically glaucous at maturity; rachis elongate with pinnae separated and not adjoined by sterile leaf tissue - *Pellaea*

5' Plants typically not glaucous to more or less glaucous in *A. densa*; rachis not elongate with pinnae more or less adjoined by sterile leaf tissue - *Aspidotis*

Adiantum

1 Leaf palmately branched; pinnae elongate - *A. aleuticum*

1' Leaf pinnately to alternately branched; pinnae more or less rounded to rhomboidal

2 Leaves summer deciduous; past year's leaves not brown and persistent at base of plant; common - *A. jordanii*

2' Leaves persistent through summer; past year's leaves brown and persistent at base of plant; rare - *A. capillus-veneris*

Adiantum aleuticum

Adiantum capillus-veneris

Adiantum jordanii

Aspidotis

1 Leaf segments wide; false indusia of curled-in teeth, habitat various; rare - *A. californica*

1' Leaf segments more or less linear; false indusia encompassing entire leaf margin; typically on serpentine or granite; common - *A. densa*

Aspidotis californica

Aspidotis densa

Cryptogramma

1 Past year's leaves persistent, brown and dried at base of plant; sterile leaves with sparse minute hairs - *C. acrostichoides*

1' Past year's leaves deciduous, only current year's leaves visible; sterile leaves completely glabrous - *C. cascadenis*

Cryptogramma acrostichoides

Cryptogramma cascadenis

Myriopteris

Myriopteris gracillima

Pellaea

1 Plants of low elevations

2 Pinnae ellipsoid, tips rounded - *P. andromedifolia*

2' Pinnae linear, tips mucronate - *P. mucronata* var. *mucronata*

1' Plants of high elevations

3 Pinnae not divided or lobed - *P. bridgesii*

3' Pinnae lobed or divided

4 Pinnae divisions linear, leaf 2-pinnately divided - *P. brachyptera*

4' Pinnae lobes 2, more or less rounded, leaf not divided - *P. breweri*

Pellaea andromedifolia

Pellaea brachyptera

Pellaea breweri

Pellaea bridgesii

Pellaea mucronata var. *mucronata*

Pentagramma

1 Leaf with white farina on both sides; rare - *P. pallida*

1' Leaf with white to gold farina only on underside, adaxially green; very common - *P. triangularis*

Pentagramma pallida

Pentagramma triangularis

Ranunculaceae

1 Vine - *Clematis*

1' Herb

2 Flower bilateral

3 Upper corolla hooded - *Aconitum columbianum* ssp. *columbianum*

3' Upper corolla not hooded - *Delphinium*

2' Flower radial

4 Plants small; leaves basal, linear - *Myosurus minimus*

4' Plants larger; leaves cauline and basal; variously shaped

5 Flowers spurred, red and yellow - *Aquilegia formosa*

5' Flowers not spurred, white, yellow, or lacking petals

6 Fruit a red fleshy berry - *Actaea rubra*

6' Fruit a follicle, dehiscent

7 Leaves simple; higher elevations - *Caltha leptosepala*

7' Leaves compound; lower elevations - *Enemion occidentale*

6'' Fruit an achene, indehiscent

8 Cauline leaves opposite - *Anemone*

8' Cauline leaves alternate

9 Petals absent; sometimes sepals colored white and appearing as petals; if white sepals present, stamens more or less equal to longer than sepal length; leaves compound - *Thalictrum*

9' Petals present; if petals absent then leaves simple; flowers yellow or white; stamens shorter than petals; leaves simple or compound - *Ranunculus*

Aconitum

Aconitum columbianum ssp. *columbianum*

Actaea

Actaea rubra

Anemone

1 Fruit long shaggy hairy with long plumose beak - *A. occidentalis*

1' Fruit shorter hairy with short glabrous beak - *A. drummondii* var. *drummondii*

Anemone drummondii var. *drummondii*

Anemone occidentalis

Aquilegia

Aquilegia formosa

Caltha

Caltha leptosepala

Clematis

1 Plants of wet habitats; flowers many, small; leaflets many - *C. ligusticifolia*

1' Plants of dry habitats; flowers few; large; leaflets few - *C. lasiantha*

Clematis lasiantha

Clematis ligusticifolia

Delphinium

1 Plants found in the foothills from western county line to 5000'

2 Fruit curved

3 Flowers blue, white, or pink; pedicels at maturity widely angled at attachment to stem; leaf lobes widest closer to tip; seeds bumpy - *D. gracilentum*

3' Flowers always blue; pedicels at maturity narrowly angled at attachment to stem; leaf lobes widest at middle; seeds smooth - *D. patens* ssp. *patens*

2' Fruit straight

4 Flowers small, longer than wide; flowers generally many per stem - *D. hansenii* ssp. *hansenii*

4' Flowers large, as long as wide; flowers generally relatively few per stem - *D. variegatum* ssp. *variegatum*

1' Plants found in the mountains above 5000' and/or east of the crest

5 Fruit curved

6 Leaf lobes 6 or more, narrow - *D. nutallianum*

6' Leaf lobes 5, wide - *D. gracilentum*

5' Fruit straight

7 Plants enormous; streamsides in the mountains - *D. glaucum*

7' Plants normal sized; dry habitats and mountain meadows

8 Many flowers per stem; generally of dry rocky habitats - *D. andersonii*

8' Few flowers per stem; generally of wet meadows - *D. depauperatum*

Delphinium andersonii

Delphinium depauperatum

Delphinium glaucum

Delphinium gracilentum

Delphinium hansenii ssp. *hansenii*

Delphinium nutallianum

Delphinium patens ssp. *patens*

Delphinium variegatum ssp. *variegatum*

Enemion

Enemion occidentale

Myosurus

Myosurus minimus

Ranunculus

1 Flowers white;

2 Plants of dry, rocky habitats - *R. andersonii*

2' Plants of wet habitats

3 Plants of waterfalls and steep seeps; no leaves thread-like - *R. hystriculus*

3' Plants floating in water or stranded on drying margins of bodies of water; submersed leaves thread-like

4 Uppermost leaves thread-like - *R. aquatilis* var. *diffusus*

4' Uppermost leaves not thread-like - *R. aquatilis* var. *aquatilis*

1' Flowers yellow

5 All leaves entire or minutely serrate, not lobed or divided

6 Plants creeping and rooting at nodes

7 Plants of low elevations; sepals 3 - *R. bonariensis* var. *trisepalus*

7' Plants of high elevations; sepals 5 - *R. flammula* var. *ovalis*

6' Plants not as above

8 Leaves ovate to elliptic - *R. alismifolius* var. *alismellus*

8' Leaves lanceolate

9 Leaf margins minutely serrate - *R. alismifolius* var. *alismifolius*

9' Leaf margins entire

10 Petals 8mm long or less - *R. alismifolius* var. *hartwegii*

10' Petals 10mm long or more - *R. alismifolius* var. *lemmonii*

5' All or some leaves distinctly toothed, lobed or divided

11 Plants creeping and rooting at nodes

12 Leaves deeply cut; uncommon weed in Grass Valley area - *R. repens*

12' Leaves shallowly toothed or lobed; east end of county - *R. cymbalaria*

11' Plants not as above

13 Leaves all basal; plants very small; in disturbed habitats near eastern border - *R.*

testiculatus

13' Plants with cauline leaves

14 Fruit lenticular

15 Basal leaves lobed or divided; alpine - *R. eschscholtzii* var. *oxynotus*

15' Basal leaves entire; some or all cauline leaves lobed; in sagebrush scrub -

R. glaberrimus var. *ellipticus*

14' Fruit flat

- 16 Fruit faces textured
 - 17 Petals short; fruit faces papillate - *R. hebecarpus*
 - 17' Petals larger; fruit spiny
 - 18 Leaves round, shallowly toothed - *R. muricatus*
 - 18' Leaves not round, deeply lobed - *R. arvensis*
 - 16' Fruit faces smooth
 - 19 Petals equaling sepals in length - *R. uncinatus*
 - 19' Petals longer than sepals
 - 20 Sepals spreading - *R. acris*
 - 20' Sepals reflexed
 - 21 Fruit straight at tip - *R. orthorhynchus* var. *orthorhynchus*
 - 21' Fruit curved or hooked at tip
 - 22 Plants of open wet places at low elevations; fruit beak 1.5x long as wide or less - *R. canus* var. *canus*
 - 22' Plants of forests at all elevations, including low elevation oak woodlands; fruit beak 2x as long as wide or more
 - 23 Petals 3mm wide or more; 5000' and below - *R. occidentalis* var. *occidentalis*
 - 23' Petals 2.5mm wide or less; 5000' and above - *R. occidentalis* var. *ultramontanus*
- Ranunculus acris*
- Ranunculus alismifolius* var. *alismellus*
- Ranunculus alismifolius* var. *alismifolius*
- Ranunculus alismifolius* var. *hartwegii*
- Ranunculus alismifolius* var. *lemmonii*
- Ranunculus andersonii*
- Ranunculus aquatilis* var. *aquatilis*
- Ranunculus aquatilis* var. *diffusus*
- Ranunculus arvensis*
- Ranunculus bonariensis* var. *trisepalus*
- Ranunculus canus* var. *canus*
- Ranunculus cymbalaria*

Ranunculus eschscholtzii var. oxynotus

Ranunculus flammula var. ovalis

Ranunculus glaberrimus var. ellipticus

Ranunculus hebecarpus

Ranunculus hystriculus

Ranunculus muricatus

Ranunculus occidentalis var. occidentalis

Ranunculus occidentalis var. ultramontanus

Ranunculus orthorhynchus var. orthorhynchus

Ranunculus repens

Ranunculus testiculatus

Ranunculus uncinatus

Thalictrum

1 Sepals white - T. sparsiflorum

1' Sepals greenish

2 Leaves glabrous; fruit with 1 rib per side - T. fendleri var. polycarpum

2' Leaves minutely glandular; fruit with 2-3 ribs per side - T. fendleri var. fendleri

Thalictrum fendleri var. fendleri

Thalictrum fendleri var. polycarpum

Thalictrum sparsiflorum

Rhamnaceae

1 Flowers showy, white or blue; fruit greenish with red when mature, often with horns -
Ceanothus

1' Flowers not showy, yellow or greenish; fruit not greenish when mature, spherical

2 Fruit black when mature; sepals thick, erect, keeled - Frangula

2' Fruit red or black when mature; sepals thin, spreading, not keeled - Rhamnus

Ceanothus

1 Ground-hugging prostrate to decumbent shrubs

2 Leaves wide, not leathery, distinctly hairy, veins sunken adaxially - *C. diversifolius*

2' Leaves small, leathery, more or less glabrous, veins not sunken

3 Plants usually matted; twigs not white; leaves prominently toothed; stems rooting at nodes - *C. prostratus* var. *prostratus*

3' Plants usually low but not matted; twigs white; leaves not or with few inconspicuous teeth at tips; stems not rooting at nodes - *C. arcuatus*

1' Shrubs to small trees

4 Flowers blue

5 Leaf margins entire, glands absent; stems generally green; often small trees - *C. integerrimus* var. *macrothyrsus*

5' Leaf margins toothed, with glands at tips; stems gray-white or brown; often small shrubs

6 Leaf undersides densely hairy but not tomentose; stems gray-white; common - *C. lemmonii*

6' Leaf undersides tomentose; stems brown; uncommon - *C. tomentosus*

4' Flowers white or pale lavender

7 Plants typically of low elevations

8 Leaves small; inflorescence rounded; stems gray-white - *C. cuneatus* var. *cuneatus*

8' Leaves large; inflorescence elongated; stems typically green - *C. integerrimus* var. *macrothyrsus*

7' Plants of high elevations

9 Stems thorny - *C. cordulatus*

9' Stems not thorny

10 Leaves large, shiny adaxially; twigs not white; generally large erect shrubs - *C. velutinus*

10' Leaves small, dull adaxially; twigs white; low mounding shrubs - *C. arcuatus*

Ceanothus arcuatus ●

Ceanothus cordulatus

Ceanothus cuneatus var. *cuneatus*

Ceanothus diversifolius

Ceanothus integerrimus var. *macrothyrsus*

Ceanothus lemmonii

Ceanothus prostratus var. prostratus

Ceanothus tomentosus

Ceanothus velutinus

Frangula

1 Leaves evergreen, thick, leathery, generally woolly-hairy - *F. californica* ssp. *tomentella*

1' Leaves deciduous, thin, glabrous or nearly so

2 Leaves very large; fruits with 3 seeds; typically streamsides - *F. purshiana* ssp. *annonifolia*

2' Leaves not very large; fruits with 2 seeds; generally dry habitats - *F. rubra*

Frangula californica ssp. *tomentella*

Frangula purshiana ssp. *annonifolia*

Frangula rubra

Rhamnus

1 Plants of low elevations; leaves small, spiny, leathery; common - *R. ilicifolia*

1' Plants of high elevations; leaves large; not spiny; thin; rare - *R. alnifolia*

Rhamnus alnifolia

Rhamnus ilicifolia

Rosaceae

1 Annual or Perennial herb

2 Petals absent

3 Leaves palmately lobed; plants extremely small; occasional in grassy places -

Aphanes occidentalis

3' Leaves pinnately compound; plants larger; disturbed habitats

4 Leaflets deeply divided, more than 1/2 length - *Poteridium annuum*

4' Leaflets shallowly divided, less than 1/2 length - *Poterium sanguisorba*

2' Petals present

5 Flowers red

6 Leaflets ovate to elliptic, toothed; flowers shallow; achenes smooth; marshy habitats; rare - *Comarum palustre*

- 6' Leaflets narrowly divided; flowers bottle-shaped; achenes feathery; dry habitats - *Geum triflorum* var. *ciliatum*
- 5' Flowers yellow or white
- 7 Leaves trifoliate to palmately compound
- 8 Fruits strawberry-like; plants often forming patches via stolons
- 9 Flowers white - *Fragaria*
- 9' Flowers yellow - *Potentilla indica*
- 8' Fruits not strawberry-like; plants not forming patches
- 10 Leaves trifoliate; stamens 5; plants prostrate; open sub- to alpine habitats
- *Sibbaldia procumbens*
- 10' Leaves trifoliate or palmately compound; stamens 10 or more; plant habit various, generally more or less erect; habitat various, frequently mountain meadows - *Potentilla*
- 7' Leaves compound
- 11 Fruits or hypanthium with many hooked bristles
- 12 Inflorescence a spike-like raceme; hypanthium with ring of hooks at distal end - *Agrimonia gryposepala*
- 12' Inflorescence an open cyme; fruits clustered; style in fruit elongate and hooked at tip - *Geum macrophyllum* var. *perincisum*
- 11' Fruits and hypanthium lacking hooked bristles
- 13 Styles fusiform - *Drymocallis*
- 13' Styles not fusiform - *Potentilla*
- 1' Trees, shrubs, and subshrubs, generally more or less woody at base
- 14 Leaves deeply lobed or compound, or if entire or shallowly lobed, then fruit an aggregate, raspberry-like
- 15 Styles 10 or more
- 16 Flowers yellow; thorns absent; shrub of sub- to alpine habitats - *Dasiphora fruticosa*
- 16' Flowers white or pink to reddish; thorns present (except in *Rubus parviflorus* and occasionally in *Rosa pisocarpa* var. *ahartii*)
- 17 Leaves pinnately compound; fruit a fleshy hip - *Rosa*
- 17' Leaves palmately compound with 3-5 leaflets or palmately lobed; fruit an aggregate, raspberry-like - *Rubus*
- 15' Styles 6 or fewer
- 18 Stems with thorns - *Crataegus monogyna*
- 18' Stems without thorns
- 19 Small trees of mid to high elevations; fruit fleshy; leaves pinnately compound; leaflets ovate; not strong smelling - *Sorbus*
- 19' Low, patch forming subshrub; common component of conifer forest understory; fruit not fleshy; leaves finely dissected into many small leaflets; strong smelling - *Chamaebatia foliolosa*
- 14' Leaves entire or shallowly lobed; fruit not raspberry-like
- 20 Fruit fleshy
- 21 Flowers emerging before leaves; inflorescence distinctly nodding; rare - *Oemleria*

cerasiformis

21' Flowers emerging after leaves or leaves evergreen; inflorescence not distinctly nodding

22 Leaves rounded to oval-shaped; margin teeth concentrated towards tips - Amelanchier

22' Leaves more or less elongate; margin teeth well distributed along leaf or margins entire

23 Stems thorny - *Pyracantha angustifolia*

23' Stems not thorny

24 Fruit a single-seeded drupe; bark typically with lenticels - *Prunus*

24' Fruit a many-seeded pome; bark lacking lenticels - *Heteromeles*

arbutifolia

20' Fruit not fleshy

25 Achene with long feathery appendage; petals absent - *Cercocarpus*

25' Fruits not as above; petals present

26 Flowers pink-purple - *Spiraea*

26' Flowers yellow - *Purshia tridentata* var. *tridentata*

26" Flowers white

27 Plants of dry habitats; flowers in pyramidal clusters - *Holodiscus*

27' Plants of wet habitats; flowers in rounded clusters - *Physocarpus*

capitatus

Agrimonia

Agrimonia gryposepala

Amelanchier

1 Leaves and twigs finely hairy; ovary hairy; styles 2-4; both sides of crest - *A. utahensis*

1' Leaves and twigs glabrous in age, occasionally sparsely hairy in flower; ovary glabrous; styles 4-5; east side of crest - *A. alnifolia* var. *pumila*

Amelanchier alnifolia var. *pumila*

Amelanchier utahensis

Aphanes

Aphanes occidentalis

Cercocarpus

1 Leaves narrowly lanceolate; east side of crest - *C. ledifolius* var. *intermontanus*

1' Leaves wedge-shaped; west side of crest - *C. betuloides* var. *betuloides*

Cercocarpus betuloides var. *betuloides*

Cercocarpus ledifolius var. *intermontanus*

Chamaebatia

Chamaebatia foliolosa

Comarum

Comarum palustre

Crataegus

Crataegus monogyna

Dasiphora

Dasiphora fruticosa

Drymocallis

1 Petals shorter than or equal to sepals

2 Flowers bright yellow; inflorescence bracts less than half the length of subtended branches - *D. glandulosa* var. *reflexa*

2' Flowers cream to pale yellow; inflorescence bracts about half the length of subtended branches - *D. glandulosa* var. *glandulosa*

1' Petals longer than sepals

3 Pedicels glandular; petals bright yellow - *D. lactea* var. *austiniae*

3' Pedicels non-glandular; petals cream or pale yellow

4 Stem base glandular; leaflet teeth toothed themselves - *D. hansenii*

4' Stem base non-glandular; leaflet teeth not toothed - *D. lactea* var. *lactea*

Drymocallis glandulosa var. *glandulosa*

Drymocallis glandulosa var. *reflexa*

Drymocallis hansenii

Drymocallis lactea var. *austiniae*

Drymocallis lactea var. *lactea*

Fragaria

1 Central leaflet tooth of terminal leaflet more or less equal in length to adjacent teeth; leaves sparsely hairy abaxially; low to mid elevations - *F. vesca*

1' Central leaflet tooth of terminal leaflet much smaller than adjacent teeth; leaves glabrous; mid to high elevations - *F. virginiana*

Fragaria vesca

Fragaria virginiana

Geum

1 Flowers red, nodding; petals erect; fruit aggregate of long feathery bristles - *G. triflorum* var. *ciliatum*

1' Flowers yellow; not nodding; petals spreading; fruit aggregate of short, hooked bristles - *G. macrophyllum* var. *perincisum*

Geum macrophyllum var. *perincisum*

Geum triflorum var. *ciliatum*

Heteromeles

Heteromeles arbutifolia

Holodiscus

1 Leaf margin teeth toothed themselves; leaf base truncate to rounded; leaves to 8cm - *H. discolor* var. *discolor*

1' Leaf margin teeth not toothed; leaf base tapered; leaves to 3cm

2 Leaf glands present and easily visible with magnification - *H. discolor* var. *glabrescens*

2' Leaf glands absent or obscured by hairs - *H. discolor* var. *microphyllus*

Holodiscus discolor var. *discolor*

Holodiscus discolor var. *glabrescens*

Holodiscus discolor var. *microphyllus*

Oemleria

Oemleria cerasiformis

Physocarpus

Physocarpus capitatus

Potentilla

1 Fruits fleshy, strawberry-like - *P. indica*

1 Fruits not as above

2 Leaves palmately compound

3 Leaflets 3

4 Petals longer than sepals

5 Leaflet teeth usually more than 7, unequal, shallowly cut - *P. flabellifolia*

5 Leaflet teeth usually 7, equal, deeply cut - *P. grayi*

4' Petals shorter than sepals

6 Plants obscurely glandular or glandless; stamens generally 15; fruit light-brown - *P. rivalis*

6' Plants glandular; stamens generally 10; fruit white - *P. biennis*

3' Leaflets 5 or more

7 Petals shorter than sepals - *P. rivalis*

7' Petals longer than sepals

8 Leaves mostly basal and persistent during flower; cauline leaves more or less spreading; plants deep green - *P. gracilis* var. *fastigiata*

8' Leaves cauline and basal; basal leaves often shriveled in flower; cauline leaves ascending, nearly appressed; plants light green - *P. recta*

2' Leaves pinnately compound (*P. bruceae* sometimes with shortened leaves which may appear palmate)

9 Flowers white

10 Filaments thread-like - *P. sericoleuca*

10' Filaments flattened

11 Flowers pink veined; petals large; typically wet habitats and meadows at high elevations - *P. douglasii* var. *parviflora*

11' Flowers not pink veined; petals small; typically dry habitats at mid to low elevations

12 Petals wider, shorter than sepals; inflorescence of generally 1 cluster; often on serpentine - *P. tilingii* var. *flavescens*

12' Petals narrow, as long or longer than sepals; inflorescence of 1-many clusters; generally on granitic or volcanic substrates - *P. tilingii* var. *tilingii*

9' Flowers yellow

13 Leaflets 5-15 per side; leaflet lobes linear

14 Plants of wet meadows east of the crest; inflorescence not head-like - *P. millefolia*

14' Plants of alpine habitats; inflorescence head-like - *P. gordonii* var. *ursinorum*

13' Leaflets 2-7 per side; leaflet lobes wider than linear

15 Leaves green - *P. drummondii*

15' Leaves white- or silver-hairy

16 Petiole generally shorter than leaf blade; leaves generally well-spread; leaflets more deeply cut - *P. breweri*

16' Petiole generally longer than leaf blade; leaves generally overlapping; leaflets more shallowly cut - *P. bruceae*

Potentilla biennis

Potentilla breweri

Potentilla bruceae

Potentilla douglasii var. *parviflora*

Potentilla drummondii

Potentilla flabellifolia

Potentilla gordonii var. *ursinorum*

Potentilla gracilis var. *fastigiata*

Potentilla grayi

Potentilla indica ☉

Potentilla millefolia

Potentilla recta

Potentilla rivalis

Potentilla sericoleuca

Potentilla tilingii var. *flavescens*

Potentilla tilingii var. *tilingii*

Poteridium

Poteridium annuum

Poterium

Poterium sanguisorba

Prunus

1 Inflorescence an elongate, typically pendant raceme; flowers 15+ - *P. virginiana* var. *demissa*

1' Inflorescence generally a short cluster or single; flowers 1-12

2 Fruit hairy

3 Small shrubs; rare at far eastern end of county - *P. andersonii*

3' Trees generally found at western end of county in areas of human influence - *P.*

dulcis

2' Fruit glabrous

4 Plants of med to high elevations; fruit small; common - *P. emarginata*

4' Plants of low to mid elevations; fruit large; occasional

5 Small trees to thicket forming shrubs; generally with thorns; flowers and leaves emerging simultaneously - *P. subcordata*

5' Tree, not thicket forming; thornless; flowers emerging before leaves - *P.*

cerasifera

Prunus andersonii

Prunus cerasifera

Prunus dulcis

Prunus emarginata

Prunus subcordata

Prunus virginiana var. *demissa*

Purshia

Purshia tridentata var. *tridentata*

Pyracantha

Pyracantha angustifolia

Rosa

- 1 Sepal margins prominently toothed
 - 2 Leaves and sepals glandular - *R. rubiginosa*
 - 2' Leaves and sepals non-glandular - *R. canina*
- 1' Sepal margins more or less entire
 - 3 Sepals deciduous in fruit - *R. gymnocarpa* ssp. *gymnocarpa*
 - 3' Sepals persistent in fruit
 - 4 Tip of terminal leaflet more or less truncate; low growing and thicket forming - *R. bridgesii*
 - 4' Tip of terminal leaflet rounded to acute; thicket forming or not but typically not low growing
 - 5 Flowers 3-30; leaf hairs glandular or not, at least some to 1mm long; leaflets widest at or below middle; low elevations near the western border of county - *R. californica*
 - 5' Flowers 1-3; leaf hairs non-glandular, at least some to 1mm long; leaflets widest at or below middle; generally high elevations west side of crest - *R. pisocarpa* ssp. *ahartii*
 - 5'' Flowers 1-12; leaf hairs glandular or not or hairs absent, if present, very short and velvety; leaflets widest at or above middle; generally east side of crest - *R. woodsii* var. *ultramontana*

Rosa bridgesii

Rosa californica

Rosa canina

Rosa gymnocarpa ssp. *gymnocarpa*

Rosa pisocarpa ssp. *ahartii*

Rosa rubiginosa

Rosa woodsii var. *ultramontana*

Rubus

- 1 Leaves palmately lobed; stems without thorns - *R. parviflorus*
- 1' Leaved palmately compound; stems with thorns
 - 2 Leaflets 3
 - 3 Leaf undersides not tomentose - *R. ursinus*
 - 3' Leaf underside tomentose
 - 4 Stems trailing; thorns few, slender; rare - *R. glaucifolius*
 - 4' Stems arching; thorns many, stout; common - *R. leucodermis*
 - 2' Leaflets 5

5 Leaflets deeply cut - *R. laciniatus*

5' Leaflets toothed but not deeply cut

6 Leaf undersides not tomentose; inflorescence raceme-like; rare - *R. pensilvanicus*

6' Leaf undersides tomentose; inflorescence panicle-like; common - *R. armeniacus*

Rubus armeniacus

Rubus glaucifolius

Rubus laciniatus

Rubus leucodermis

Rubus parviflorus

Rubus pensilvanicus

Rubus ursinus

Sibbaldia

Sibbaldia procumbens

Sorbus

1 Hairs in leaf axils white; leaflet length to 8cm; pedicels hairy; fruit orange-red - *S. scopulina*

1' Hairs in leaf axils brown; leaflet length 4cm or less; pedicels glabrous or sparsely hairy; fruit bright red - *S. californica*

Sorbus californica

Sorbus scopulina

Spiraea

1 Inflorescence narrow and elongate; leaf surfaces contrasting in color; tending to lower elevations - *S. douglasii*

1' Inflorescence flat-topped; leaf surfaces similar in color; tending to higher elevations - *S. splendens*

Spiraea douglasii

Spiraea splendens

Rubiaceae

- 1 Large shrubs near water at low elevations; flowers a rounded, ball-like cluster -
Cephalanthus occidentalis
- 1' Small herbs or vine-like plants; habitat various; flowers not as above
 - 2 Flowers terminal spikes; flowers inconspicuous; bracts large, white with green margins and midribs - Crucianella angustifolia
 - 2' Flowers in leaf axils or in small clusters at branch tips; bracts small or absent
 - 3 Leaves 2 per node, opposite - Kelloggia galioides
 - 3' Leaves whorled
 - 4 Flowers sessile; calyx 6-lobed - Sherardia arvensis
 - 4' Flowers pediceled; calyx absent - Galium

Cephalanthus

Cephalanthus occidentalis

Crucianella

Crucianella angustifolia

Galium

- 1 Corolla lobes 3
 - 2 Fruits hairy - G. bifolium
 - 2' Fruits glabrous
 - 3 Plants erect and dwarfed, matted, or tufted; stems shorter than 15cm - G. trifidum ssp. subbiflorum
 - 3' Plants weak, sprawling through other vegetation; stems longer than 10cm - G. trifidum ssp. columbianum
- 1' Corolla lobes 4
 - 4 Annual
 - 5 Nutlets sausage-shaped - G. murale
 - 5' Nutlets rounded
 - 6 Plants large, sprawling or climbing; leaves 12mm long or more - G. aparine
 - 6' Plants small, erect; leaves to 9mm long - G. parisiense
 - 4' Perennial
 - 7 Fruit hairs hooked - G. triflorum
 - 7' Fruit hairs not hooked or fruits glabrous
 - 8 Plants of alpine habitats; herbage gray; fruits long hairy - G. grayanum var. grayanum

8' Plants lower than alpine; herbage green; fruits glabrous or occasionally short-hairy

9 Stems with recurved prickles; woody part of stem long and climbing; fruits glabrous - *G. porrigens* var. *tenu*e

9' Stems without recurved prickles; woody part of stem short; fruit glabrous or hairy

10 Corolla usually dark-colored, rarely not; leaves narrow, sessile - *G. bolanderi*

10' Corolla yellowish; leaves wide, petioled - *G. sparsiflorum* ssp.

Galium aparine

Galium bifolium

Galium bolanderi

Galium grayanum var. *grayanum*

Galium murale

Galium parisiense

Galium porrigens var. *tenu*e

Galium sparsiflorum ssp. *sparsiflorum*

Galium trifidum ssp. *columbianum*

Galium trifidum ssp. *subbiflorum*

Galium triflorum

Kelloggia

Kelloggia galioides

Sherardia

Sherardia arvensis

Ruscaceae

Maianthemum

1 Inflorescence a panicle, many flowers on each inflorescence branch - *M. racemosum* ssp. *amplexicaule*

1' Inflorescence a raceme, one flower at tip of each inflorescence branch - *M. stellatum*

Maianthemum racemosum ssp. *amplexicaule*

Maianthemum stellatum

Salicaceae

1 Leaves as wide as long; catkin pendant - *Populus*

1' Leaves much longer than wide; catkin erect - *Salix*

Populus

1 Leaf margin coarsely crenate; plants of low elevations - *P. fremontii* ssp. *fremontii*

1' Leaf margin finely crenate; plants of high elevations

2 Leaf tips long-tapered; mature bark furrowed, gray-brown - *P. trichocarpa*

2' Leaf tips rounded or short-tapered; mature bark white with black lenticels - *P. tremuloides*

Populus fremontii ssp. *fremontii*

Populus tremuloides

Populus trichocarpa

Salix

1 Plants mat-forming, inches high; alpine - *S. petrophila*

1' Plants not mat-forming, much taller; not alpine;

2 Distinctive glands on petiole at base of leaf - *S. lasiandra*

2' Glands on petiole at base of leaf absent

3 Plants tall tree with large single trunks

4 Leaf undersides not glaucous - *S. goodingii*

4' Leaf undersides glaucous - *S. laevigata*

3' Plants shrubs to small trees typically with many thin trunks

5 Leaves more or less linear; thicket forming, clonal; catkins sometimes branched

6 Leaves hairy adaxially, silvery - *S. exigua*

6' Leaves glabrous adaxially, green - *S. melanopsis*

5' Leaves wider than linear; not thicket forming or clonal; catkins never branched
(HINT: of remaining species, only *S. lasiolepis* occurs below 4500' on the west side of the crest)

7 Most every leaf oblanceolate, tip rounded; typically dry habitats - *S. scouleriana*

7' Leaves not oblanceolate or only a few oblanceolate, tips typically acute to obtuse; wet habitats, meadows

8 Leaves densely hairy on both surfaces, generally silvery; small shrubs in mountain meadows

9 Leaf base rounded to truncate; leaf undersides not glaucous on surfaces below hairs; leaves tomentose or silky-hairy - *S. eastwoodiae*

9' Leaf base acute to wedge-shaped; leaf undersides glaucous on surfaces below hairs; leaves silky hairy - *S. orestera*

8' Leaves not as above, though somewhat silvery in *S. geyeriana*; generally taller and in various habitats including mountain meadows

10 Ovary glabrous; stipules present or becoming leaf-like in age, pointed or rarely rounded; if stipules present and rounded and plants male, then filaments and young leaves glabrous

11 Young leaves glabrous; blooming with emerging leaves; above 4500' - *S. ligulifolia*

11' Young leaves silky; blooming before leaves emerge; all elevations - *S. lasiolepis*

10' Ovary hairy; stipules absent or becoming leaf-like in age, rounded

12 Leaves dark green adaxially; stamens 1 (sometimes filament partially fused and appearing as 2 distally); leaf tip acute; bark not peeling - *S. jepsonii*

12' Leaves bright green or somewhat silvery adaxially; stamens 2; leaf tip acuminate; bark peeling or rarely peeling in *S. geyeriana*

13 Leaf hairs sparse abaxially, generally sparse to glabrous adaxially; pistillate inflorescence generally longer than 20mm, elongate; stipules leaf-like; plant appearing green at a distance; lowest leaf margins entire or serrulate; both sides of crest - *S. lemmonii*

13' Leaf hairs dense abaxially, generally somewhat dense adaxially; pistillate inflorescence generally shorter than 20mm, nearly spherical; stipules inconspicuous or absent; plant appearing more or less silvery at a distance; lowest leaf margins always entire; east side of crest - *S. geyeriana*

Salix eastwoodiae

Salix exigua

Salix geyeriana

Salix gooddingii

Salix jepsonii

Salix laevigata

Salix lasiandra

Salix lasiolepis

Salix lemmonii

Salix ligulifolia

Salix melanopsis

Salix orestera

Salix petrophila

Salix scouleriana

Sapindaceae

1 Fruit a samara; leaves palmately lobed or pinnately compound - *Acer*

1' Fruit pear-shaped, a large brown nut within a leathery grey-green skin; leaves palmately compound - *Aesculus californica*

Acer

1 Leaves pinnately compound; rare along Wolf Creek - *A. negundo*

1' Leaves entire; common

2 Plants widespread; leaves very large; flowers appearing after leaves; inflorescence ascending; small to large trees - *A. macrophyllum*

2' Plants of high elevations; leaves small; flowers appearing before leaves; inflorescence pendant; small trees - *A. glabrum* var. *glabrum*

Acer glabrum var. *glabrum*

Acer macrophyllum

Acer negundo

Aesculus

Aesculus californica

Sarraceniaceae

Darlingtonia

Darlingtonia californica

Saxifragaceae

1 Stamens 5

2 Petals pinnately lobed; plants of shady, wet habitats at high elevations - *Pectiantia*

2' Petals unlobed

3 Petals more or less linear and inconspicuous; leaves mostly basal; plants of rocky slopes - *Heuchera*

3' Petals wider than linear; leaves basal and cauline; plants of wet habitats - *Boykinia*

1' Stamens 10

4 Plants emergent from perennial water courses; leaves very large; flowers emerging on leafless stalks before appearance of leaves - *Darmera peltata*

4' Plants of dry or wet habitats; significantly smaller than above; flowering after appearance of leaves

5 Cauline leaves present, well developed

6 Plants generally of dry habitats, shady or open; styles 2 - *Lithophragma*

6' Plants of shady, wet habitats; styles 3 - *Tellima grandiflora*

5' Cauline leaves absent or scale-like

7 Basal leaves lacking obvious petioles or if petioles present, then petals with two yellow spots near base - *Micranthes*

7' Basal leaves with obvious petioles; petals without two spots near base - *Saxifraga mertensiana*

Boykinia

1 Plants large in all regards; inflorescence flat-topped; leaves divided deeply - *B. major*

1' Plants smaller in all regards; inflorescence not flat-topped; leaves shallowly divided - *B. occidentalis*

Boykinia major

Boykinia occidentalis

Darmera

Darmera peltata

Heuchera

1 Plants typically of low to mid elevations; leaves often with purple venation; calyx 3mm or longer; calyx lobes equal - *H. micrantha*

1' Plants of high elevations; leaves green; calyx 3mm or shorter; calyx lobes more or less unequal - *H. rubescens*

Heuchera micrantha

Heuchera rubescens

Lithophragma

1 Hypanthium tapered to pedicel - *L. parviflorum* var. *parviflorum*

1' Hypanthium abruptly narrowed to pedicel

2 Basal leaves deeply lobed to divided; bulblets generally present in inflorescence - *L. glabrum*

2' Basal leaves shallowly lobed; bulblets absent

3 Basal leaf teeth rounded; petals entire or lobed; generally at lower elevations - *L. bolanderi*

3' Basal leaf teeth pointed; petals lobed; generally at higher elevations - *L. campanulatum*

Lithophragma bolanderi

Lithophragma campanulatum

Lithophragma glabrum

Lithophragma parviflorum var. *parviflorum*

Micranthes

1 Flowers bilateral; bulblets present in axils of upper leaves - *M. bryophora*

1' Flowers radial; bulblets absent

2 Each petal with two yellow or green spots; filaments inflated near tip - *M. odontoloma*

2' Petals lacking spots; filaments not inflated

3 Plants of low to mid elevations

5 Leaf margins entire; heads dense - *M. integrifolia*

5' Leaf margins crenate; heads open - *M. californica*

3' Plants of high elevations

4 Leaves linear to lanceolate, generally longer than 10cm; petioles not obvious - *M. oregana*

4' Leaves elliptic to oval, generally shorter than 10cm; petioles generally obvious

5 Sepals erect to spreading; leaves generally smaller - *M. aprica*

5' Sepals reflexed; leaves generally larger - *M. nidifica*

Micranthes aprica

Micranthes bryophora

Micranthes californica

Micranthes integrifolia

Micranthes nidifica

Micranthes odontoloma

Micranthes oregana

Pectiantia

1 Stamens opposite petals; occurring at higher elevations than below - *P. pentandra*

1' Stamens alternating with petals; occurring at lower elevations than above - *P. breweri*

Pectiantia breweri

Pectiantia pentandra

Saxifraga

Saxifraga mertensiana

Tellima

Tellima grandiflora

Scrophulariaceae

1 Small herb on drying lake margins - *Limosella*

1' Large herb

2 Flowers red, tubular - Scrophularia

2' Flowers yellow, rarely white, rotate - Verbascum

Limosella

1 Corolla lobes rounded; leaf linear or a bit widened at tip - *L. acaulis*

1' Corolla lobes acute; leaf spoon-shaped or wider - *L. aquatica*

Limosella acaulis

Limosella aquatica

Scrophularia

1 Plants of low elevations west of crest, generally taller - *S. californica*

1' Plants of high elevations and east of crest, generally shorter - *S. desertorum*

Scrophularia californica

Scrophularia desertorum

Verbascum

1 Leaves soft, fuzzy tomentose hairy - *V. thapsus*

1' Leaves not soft, fuzzy hairy

2 Flowers nearly sessile; leaves with hairs - *V. virgatum*

2' Flowers on distinct peduncles; leaves glabrous - *V. blattaria*

Verbascum blattaria

Verbascum thapsus

Verbascum virgatum

Selaginellaceae

Selaginella

1 Awns entire - *S. watsonii*

1' Awns toothed

2 Some leaves red, common at low elevations - *S. hansenii*

2' No leaves with red color; higher elevations

- 3 Awn longer than leaf width; rare - *S. asprella*
- 3' Awn shorter than leaf width; uncommon - *S. wallacei*

Selaginella asprella

Selaginella hansenii

Selaginella wallacei

Selaginella watsonii

Simaroubaceae

Ailanthus

Ailanthus altissima

Smilacaceae

Smilax

Smilax californica

Solanaceae

- 1 Flowers very large and showy, 15cm or longer; fruit prickly - *Datura wrightii*
- 1' Flowers much smaller, 5cm or shorter; fruit not prickly
 - 2 Flowers tubular – *Nicotiana*
 - 2' Flowers not tubular
 - 3 Anthers shorter than filaments - *Leucophysalis nana*
 - 3' Anthers larger than filaments - *Solanum*

Datura

Datura wrightii

Leucophysalis

Leucophysalis nana

Nicotiana

1 Calyx midribs darker in coloration, lobes lanceolate, unequal in length; plants densely glandular - *N. acuminata* var. *multiflora*

1' Calyx midribs not darker in coloration, lobes wider, more or less equal in length; plants glabrous to sparsely glandular - *N. attenuata*

Nicotiana acuminata var. *multiflora*

Nicotiana attenuata

Solanum

1 Flowers yellow; plant spiny - *S. rostratum*

1' Flowers white; plant not spiny

2 Leaves deeply lobed; fruit green at maturity; east side of crest - *S. triflorum*

2' Leaves entire, wavy, or shallowly toothed; fruit black at maturity - *S. americanum*

1" Flowers purple; plant not spiny

3 Plant climbing; fruit red; corolla lobes longer than fused portion - *S. dulcamara*

3' Plant shrubby; fruit black; corolla lobes shorter than fused portion - *S. umbelliferum* var. *spenceriae*

Solanum americanum

Solanum dulcamara

Solanum rostratum

Solanum triflorum

Solanum umbelliferum var. *spenceriae*

Styracaceae

Styrax

Styrax redivivus

Taxaceae

1 Small tree; needles short, not sharp; fruit small, red - *Taxus*

1' Large tree; needles longer, sharp; fruit large, green - *Torreya*

Taxus

Taxus brevifolia

Torreya

Torreya californica ●

Tecophilaceae

Odontostomum

Odontostomum hartwegii

Thelypteridaceae

Amauropelta

Amauropelta nevadensis

Themidaceae

1 Flowers not tubular - Muilla maritima

1' Flowers tubular

2 Stamens 3

3' Stamines 3 - Brodiaea

3' Stamines 0 - Dichelostemma

2' Stamens 6

4 Filament attached to anther at middle - Triteleia

4' Filaments attached to anther at one end - Dipterostemon capitatus ssp. capitatus

Brodiaea

1 Stamines held far apart, not touching - B. elegans ssp. elegans

1' Stamines held closely together in center of flower, touching

2 Corolla narrowed above ovary in somewhat of an hourglass shape - B. minor

2' Corolla not narrowed, bell-shaped

3 Plants robust; staminodes long, tips recurved; plants on gabbro - B. sierrae

3' Plants smaller; staminode squat and not recurved at tips; plants not on gabbro - B.

coronaria

Brodiaea coronaria

Brodiaea elegans ssp. *elegans*

Brodiaea minor

Brodiaea sierrae

Dichelostemma

1 Stem twining, climbing; flowers rose colored - *D. volubile*

1' Stem erect, not climbing; flowers lavender colored

2 Stamines rounded - *D. multiflorum*

2' Stamines forked - *D. congestum*

Dichelostemma congestum

Dichelostemma multiflorum

Dichelostemma volubile

Dipterostemon

Dipterostemon capitatus ssp. *capitatus*

Muilla

Muilla maritima

Triteleia

1 Flowers white; stamens at equal attachments; anthers white or yellow - *T. hyacinthina*

1' Flowers blue-purple (pale morphs rare)

2 Stamens at alternating attachments; corolla without lighter patch of color at center; anthers white or blue - *T. laxa*

2' Stamens at equal attachments; corolla with lighter patch of color at center; anthers blue - *T. bridgesii*

1" Flowers yellow

3 Stamens linear; filaments all equal in length - *T. montana*

3' Stamens wide, appearing winged; filaments differing in length

4 Plants generally of lower elevations; anthers cream or yellow; corolla midribs not

prominently darkened adaxially; flower tube with darkened midrib, yellow otherwise; filament wing tips straight to recurved; filaments 4-5mm and 5-7mm - *T. ixioides* ssp. *scabra*

4' Plants of mid elevations; anthers blue, cream, or yellow; corolla midribs prominently darkened adaxially; flower tube with purple colorations abaxially; filament wing tips straight to incurved; filaments 2-4mm and 3-5mm - *T. ixioides* ssp. *unifolia*

4" Plants generally of higher elevations; anthers blue or cream; corolla midribs prominently darkened adaxially; flower tube with darkened midrib, yellow otherwise; filament wing tips straight to incurved; filaments 1-2mm and 3-3.5mm - *T. ixioides* ssp. *anilina*

Triteleia bridgesii

Triteleia hyacinthina

Triteleia ixioides ssp. *anilina*

Triteleia ixioides ssp. *scabra*

Triteleia ixioides ssp. *unifolia*

Triteleia laxa

Triteleia montana

Tolfieldiaceae

Triantha

Triantha occidentalis ssp. *occidentalis*

Typhaceae

1 Plants tall; flower clusters elongate; female flowers tan to brown - *Typha*

1' Plant short; flower clusters spheric; female flowers not tan or brown - *Sparganium*

Sparganium

1 Male flower heads crowded, 3 or 4; leaves 5mm or skinnier - *S. angustifolium*

1' Male flower heads crowded or well-spaced, 3-7; leaves 5mm or wider - *S. emersum*

Sparganium angustifolium

Sparganium emersum

Typha

- 1 Bare stem between male and female flowers absent - *T. latifolia*
- 1' Bare stem between male and female flowers visible - *T. domingensis*

Typha domingensis

Typha latifolia

Urticaceae

- 1 Perennial; robust; leaves elongate - *Urtica gracilis* ssp. *holoserica*
- 1' Annual; somewhat dainty; leaves rounded
 - 2 Leaf margins with shallow rounded teeth; leaf face hairs with black bases - *Hesperocnide tenella*
 - 2' Leaf margins with pointed and more deeply cut teeth; leaf face hairs without black bases - *Urtica urens*

Hesperocnide

Hesperocnide tenella

Urtica

- 1 Perennial, robust, leaves elongate - *U. gracilis* ssp. *holoserica*
- 1' Annual, somewhat dainty; leaves rounded - *U. urens*

Urtica gracilis ssp. *holosericea*

Urtica urens

Valerianaceae

- 1 Perennial
 - 2 Flowers red - *Centranthus ruber*
 - 2' Flowers white - *Valeriana californica*
- 1' Annual
 - 3 Plants seldom branched - *Plectritis*
 - 3' Plants highly branched - *Valerianella locusta*

Centranthus

Centranthus ruber

Plectritis

1 Flower bilateral, pink or darker; lower lip with two red spots - *P. ciliosa*

1' Flower radial, white to light pink; lower lip without two red spots - *P. macrocera*

Plectritis ciliosa

Plectritis macrocera

Valeriana

Valeriana californica

Valerianella

Valerianella locusta

Verbenaceae

1 Plants creeping, mat-like; flowers bilateral - *Phyla nodiflora*

1' Plants decumbent to erect, not mat-like; flowers tubular and more or less radial - *Verbena*

Phyla

Phyla nodiflora

Verbena

1 Plant decumbent to ascending; leaves lobed at least near base

2 Inflorescence bracts not prominent, shorter than or equal to calyx in length - *V.*

lasiostachys var. *lasiostachys*

2' Inflorescence bracts prominent, longer than calyx - *V. bracteata*

1' Plant tall and erect; leaves not lobed

3 Inflorescence clusters head-like - *V. bonariensis*

3' Inflorescence clusters elongate, spike-like - *V. litoralis*

Verbena bonariensis

Verbena bracteata ●

Verbena lasiostachys var. lasiostachys

Verbena litoralis

Viburnaceae

1 Leaves compound - Sambucus

1' Leaves simple - Viburnum opulus

Sambucus

1 Inflorescence flat-topped; berries glaucous, appearing blue; widespread - *S. mexicana*

1' Inflorescence pyramidal; berries red or black; high elevations

2 Berries red; common - *S. racemosa* var. *racemosa*

2' Berries black; rare - *S. racemosa* var. *melanocarpa*

Sambucus mexicana

Sambucus racemosa var. *melanocarpa*

Sambucus racemosa var. *racemosa*

Viburnum

Viburnum opulus

Violaceae

Viola

1 Flowers not yellow on faces

2 Flowers pure white - *V. macloskeyi*

2' Flowers various shades of purple

3 Plants of dry sagebrush habitats; flowers ornate and pansy-like; leaves compound; east side of crest - *V. beckwithii*

3' Plants not as above

4 Leaves all basal; stem absent

5 Plant with stolons; generally of disturbed or human impacted areas; known from west side of crest, potentially present on both sides - *V. odorata*

- 5' Plant lacking stolons; generally of wild habitats east side of crest - *V. nephrophylla*
- 4' Leaves basal and cauline; stem present
- 6 Flowers light colored on face, purple on back of petals; Washington serpentines - *V. cuneata*
- 6' Flowers purple throughout; generally east side of crest, occasionally high elevations west of crest, rarely lower - *V. adunca* ssp. *adunca*
- 1' Flowers yellow on faces
- 7 Leaves deeply lobed or compound
- 8 Plants of low elevations in grassy portions of oak savannahs - *V. douglasii*
- 8' Plants of mid to high elevation mixed conifer woodland habitats
- 9 Leaves compound, overall shape rounded - *V. sheltonii*
- 9' Leaves deeply lobed, hand-shaped - *V. lobata* ssp. *lobata*
- 7' Leaves not or sometimes shallowly lobed
- 10 Leaves large, rounded; plants always of perennially wet places, stream margins - *V. glabella*
- 10' Leaves not large, generally longer than wide or if rounded, then leaves small and often purple tinted; plants of dry or vernal moist places
- 11 Basal leaves entire
- 12 Plant generally glabrous - *V. bakeri*
- 12' Plant densely tomentose - *V. tomentosa*
- 11' Basal leaves generally not entire, at least wavy margined
- 13 Fruit glabrous or sparsely hairy - *V. praemorsa*
- 13' Fruit distinctly hairy
- 14 Stems short, not elongating and mostly buried at end of season - *V. purpurea* ssp. *integrifolia*
- 14' Stems elongating by end of season as to be noticeably present
- 15 Lowest petal 10-16mm long; fruit 8-12mm long - *V. purpurea* ssp. *quercetorum*
- 15' Lowest petal 6-12mm long; fruit 3.5-7mm long
- 16 Basal leaf bases cordate or truncate - *V. purpurea* ssp. *dimorpha*
- 16' Basal leaf bases tapered
- 17 Cauline leaves more or less rounded, slightly longer than wide - *V. purpurea* ssp. *purpurea*
- 17' Cauline leaves much longer than wide
- 18 Leaves 3.5-9.6cm in length; seeds brown - *V. pinetorum* ssp. *pinetorum*
- 18' Leaves to 4.8cm in length; seeds mottled grey and brown - *V. purpurea* ssp. *mesophyta*
- Viola adunca* ssp. *adunca*
- Viola bakeri*

Viola beckwithii

Viola cuneata

Viola douglasii

Viola glabella

Viola lobata ssp. *lobata*

Viola macloskeyi

Viola nephrophylla

Viola odorata

Viola pinetorum ssp. *pinetorum*

Viola praemorsa

Viola purpurea ssp. *dimorpha*

Viola purpurea ssp. *integrifolia*

Viola purpurea ssp. *mesophyta*

Viola purpurea ssp. *purpurea*

Viola purpurea ssp. *quercetorum*

Viola sheltonii

Viola tomentosa

Vitaceae

Vitis

Vitis californica

Viscaceae

- 1 Herbage green; on hardwoods and conifers - Phoradendron
- 1' Herbage brownish, lacking green; on conifers only - Arceuthobium

Arceuthobium

- 1 On *Pinus contorta* - *A. americanum*
- 1' On other conifers, including other pines - *A. campylopodum*

Arceuthobium americanum

Arceuthobium campylopodum

Phoradendron

- 1 Leaves small and scale-like; on *Calocedrus*, *Juniperus* - *P. juniperinum*
- 1' Leaves big and leaf-like
 - 2 On conifers - *P. bolleanum*
 - 2' On hardwoods - *P. leucarpum* ssp. *tomentosum*

Phoradendron bolleanum

Phoradendron juniperinum

Phoradendron leucarpum ssp. *tomentosum*

Zygophyllaceae

Tribulus

Tribulus terrestris