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Keys to the Families and Genera of Vascular Plants in Northwestern California

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KEYS TO THE FAMILIES AND GENERA OF VASCULAR PLANTS IN NORTHWESTERN CALIFORNIA

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I N T R O D U C T I O N

With this ninth edition, we continue our efforts at providing a relatively simple means for the identification of the vascular plants of northwestern California. More field work on our part and that of students at Humboldt State University has allowed us to refine our knowledge of the flora of this part of the state. New collections at other herbaria, especially those at the California Academy of Science, and the publication of recent monographic and regional studies have made the appearance of a new edition timely.

Botanical and Geographic Scope. Most of what follows is a set of dichotomous keys and descriptive material written especially for the vascular plants of northwestern California. This botanical designation refers to those plants commonly called ferns, fern allies, conifers, and flowering plants. Mosses, lichens, fungi, and algae are not treated. We have included the families and genera of all native plants, those that have been purposely or accidentally introduced from other areas, and those agricultural plants and garden ornamentals that have escaped and now persist in the wild without assistance.

For the purposes of this flora, we define northwestern California as including all of Del Norte, Humboldt, Mendocino, Trinity, and Lake counties, together with the western half of Siskiyou Co., and the inner Coast Ranges of western Shasta, Tehama, Glenn, and Colusa counties. Plants more characteristic of the floor of the Sacramento Valley are not treated. This area of about 55,000 square kilometers (21,000 square miles) corresponds roughly to the North Coast subdivision of the California Floristic Province, as defined by Stebbins and Major (1965). It is region of great botanical, ecological, and geological complexity -- in many ways, our state's least known and most challenging area.

Geology. Our area includes the Northern California Coast Range and Klamath Mountains geological provinces. The Northern California Coast Range extends from Oregon as a narrow band of low coastal mountains. The province widens south of the Klamath province to include the highlands of Mendocino County and surrounding lowlands. The Klamath Mountains province is adjacent to the northern Coast Ranges and includes the Marble, Salmon, Scott, Scott Bar, Siskiyou, and Trinity ranges, the Trinity Alps, and the Yollo Bollys. Both provinces are characterized by steep, rugged terrain. Abrupt changes in aspect, slope, soil properties, and localized disturbance regimes enhance the area's botanical diversity.

Climate. The climate of northwestern California is generally mild, with wet winters and dry summers. Average annual precipitation at coastal and low-elevation mountain locations ranges from 650 to 2000 mm. High summer and winter temperatures are typically near 38 and -7 °C, respectively.

Diversity and Endemism. The flora of California is rich in species, one of the richest in the world. About 6502 taxa (species, subspecies, and varieties) are indigenous to the state; another 1099 have been accidentally or purposely introduced and become naturalized (Baldwin et al. 2012) Northwestern California shares in that abundance and diversity. We estimate that 154 families, 909 genera, and 3735 taxa occur in our region (Smith 2014).

A surprisingly high number of our plants are endemic to the region, meaning that they are found here and nowhere else. We estimate that 285 taxa in 42 plant families are endemic to northwestern California and southwestern Oregon (Smith & Sawyer, 1988). The area's heterogeneity of topography and parent material provides the setting for this richness.

The Keys and How To Use Them. Our keys are termed artificial because they do not necessarily emphasize features of evolutionary importance, nor do they have closely related plants appearing next to one another. We believe that the purpose of a flora is to provide a quick and effective means for identifying plants; matters of evolutionary relationship can be addressed elsewhere. Although a certain minimal level of botanical terminology is unavoidable, we have attempted to avoid the excesses that most of us find so distressing. We have used everyday English whenever we can, but there are a number of instances where there is no term in everyday use that will suffice. We have also constructed alternate pathways through the keys -- one designed for the experienced field botanist and the other for the novitiate who is likely to make an understandable and predictable error.

The first step in the identification of an unknown plant is to place it in a group using the "Preliminary Key" that appears on page 5. For those unfamiliar with dichotomous keys, a word of explanation is in order. A dichotomous key is a device for the identification of unknowns -- plants, animals, soils, minerals, etc. It consists of a series of couplets, paired and contrasting statements (leads) that describe one or more features of the plant. The paired statements are numbered. At each step in the key, you must make a choice as to which one of the statements best fits the unknown plant that you are attempting to identify. Consider the following example:

1. Leaves alternate; stamens 6 or 8 . 2
1. Leaves opposite; stamens 4 3

The leads of a couplet are parallel because they address the same features, leaf position and stamen number in this example. The statements are contrasting, in that the two halves of the couplet are mutually exclusive -- the unknown plant will fit under only one of the choices. Each statement in a dichotomous key will end in the name of a taxon (group, family, genus, etc.) or in a number directing you to a subsequent dichotomy.

Once you have arrived at the family of an unknown flowering plant, turn next to Sections 4, 5, or 6 as appropriate. The families are arranged alphabetically.

Certain conventions appear in these keys. When you find a generic name in parentheses after a family name, it indicates that we are referring to that genus only. In a number of instances, a genus is represented in our region by a single species. If so, we tell you by citing the full name. The generic name or scientific name of the plant is followed by a common name, in those instances where one enjoys some popularity. Many plants do not have "real" common names and we have chosen not to invent ones for them.

We have added a new feature in this edition – *Plants Too Distinctive to Require Keying*. It is our attempt to permit the quick identification of plants that are so unusual that it would seem a shame to have to run them through a traditional dichotomous key.

Family Names and Concepts. We have elected to use the more traditional and equally correct names for six families (Compositae, Cruciferae, Gramineae, Labiatae, Leguminosae, and Umbelliferae), rather than the alternatives authorized by the International Code of Botanical Nomenclature.

Family concepts for vascular plants are in a state of flux. New molecular data and insistence on defining genera and families in terms of common ancestry have overturned a number of familiar family circumscriptions and expanded others far beyond their traditional limits, as in the recent transfer of most members of the snapdragon family (Scrophulariaceae) to the plantain family (Plantaginaceae) and the dismemberment of Liliaceae into numerous ill-defined and conflicting segregate families.

A Request. Our goal is to provide users with varying degrees of knowledge of botanical terminology with a means for the rapid and accurate identification of the higher plants in our region. Any suggestions for improvement are most welcome, as are corrections. If we have missed any families or genera, we are most anxious to know that fact, as well.

Acknowledgments. It is a pleasure to acknowledge the contributions made through the years by a number of individuals. We thank Marc Baker, James Belsher, Linda Barker, Ken Berg, Jane Cole, Joseph DiTomaso, Thomas Duebendorfer, Katie Grenier, Jennifer Whipple Hutchinson, Michael Mesler, and Thomas Nelson. Lincoln Constance, Lawrence Heckard, and Alan Smith of the University of California, Berkeley made invaluable criticisms and suggestions. We also thank the curators and staffs of the California Academy of Sciences Herbarium, the Dudley Herbarium, the Jepson Herbarium, and the University of California, Davis. Maps of California weeds, kindly made available to us by Douglas Barbe of the California Department of Food and Agriculture, were the source of several genera reported for northwestern California for the first time.

The students in the introductory and advanced plant taxonomy classes at Humboldt State University have also been very helpful in pointing out errors and awkward spots in the keys. Their "What do they mean by ...." inquiries were appreciated.

Caveat Lector!

Most of the keys and descriptive material were prepared for the1993 edition published by Mad River Press. Since then we have made a series of corrections, redefined some groups, updated plant names and family concepts, and incorporated some, but by no means all, of the more recently discovered plants in northwestern California. A thorough revision is clearly needed and it is on my "to do" list. Feel free to offer your corrections and improvements by contacting me at:

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SECTION 1: PLANTS THAT YOU SHOULD NOT HAVE TO KEY

The premise of this section is that some of the commonly encountered plants in northwest California are so distinctive that you should not have to resort to a long, tortuous dichotomous key to identify them.

If your unknown plant — it might very well be:

has an unusual color and is or has:
- tangled mass of brightly-colored leafless vines — dodder (*Cuscuta*)
- shrubby parasite on tree branches — mistletoe (*Arceuthobium* or *Phoradendron*)
- pinkish herb with sticky hairs and trapped insects — sundew (*Drosera*)
- ghostly-white fleshy stems — Indian pipe (*Monotropa uniflora*)
  — phantom orchid *(Cephalanthera austiniae*)
  — wax flower (*Moneses uniflora*)
- yellow-brown, red-brown, red or purple stems with bract-like sheathing leaves — coral root (*Corallorhiza*)
- red, fleshy, cone-like herb — snow plant (*Sarcodes sanguinea*)
- brown, yellowish, or purple cone-like herb — ground cone (*Boschniakia*)
- fleshy herb with red and white stripes — sugar stick (*Allotropa virgata*)

is a shrub that is or has:
- three leaflets — poison-oak (*Toxicodendron diversilobum*)
- flattened spine-tipped needles and olive-shaped "fruits" — California nutmeg (*Torreya californica*)
- or small tree with spiny fruits — chinquapin (*Chrysolepis*)
- with yellow flowers and intertwined thorns — gorse (*Ulex europaea*)
- spiny-leaved with bright yellow flowers — barberry (*Mahonia*)
- and a large, leathery, pear-shaped fruit — buckeye or horse chestnut (*Aesculus californicus*)
- elongate, drooping tassels in early spring — silk-tassel (*Garrya*)
- dark pink flowers appearing before its leaves come out — red bud (*Cercis californica*)

is a tree that is or has:
- spiny fruits — chestnut (*Castanea dentata*) or chinquapin (*Chrysolepis*)
- branched pine with large cones — ghost pine (*Pinus sabiniana*)
- opposite, pinnately-compound leaves and a winged fruit — ash (*Fraxinus*)
- opposite, simple, palmately lobed leaves and paired winged fruits — maple (*Acer*)
- compound leaves, paired spines, and white flowersblack locust (*Robinia pseudoacacia*)
- broad-leaved tree with small woody cones — alder (*Alnus*)

is a vine that has:
- leaves divided into three leaflets — poison-oak (*Toxicodendron diversilobum*)
- simple, shiny leaves and umbels of flowers or fruits — English or Algerian ivy (*Hedera*)
- tendrils attached opposite the leaves — wild grape (*Vitis*)
- tendrils and white flowers — man-root, wild-cucumber (*Marah*)
- prickly stems — green briar (*Smilax*), briars (*Rubus*)

is a grass that is or has:
- underground bulbs — onion grass (*Melica*) or tall oat grass (*Arrhenatherum elatius*)
- purple-tailed bulblets among the spikelets — bulbous blue grass (*Poa bulbosa*)
- very tall with a large clump of basal leaves and a conspicuous terminal plume — pampas grass (*Cortaderia*)
- bamboo-like with woody stems and a conspicuous terminal plume — giant reed (*Arundo donax*)

is a fern:
- with two very different looking fronds — deer fern (*Blechnum spicant*)
- that is really large — chain fern (*Woodwardia fimbriata*)

is a terrestrial herb that is or has:
- ridged stems, whorls of scale leaves, terminal cones — horse tails (*Equisetum*)
- umbels of large pink flowers that appear in the late summer — naked ladies (*Amaryllis belladonna*)
- small bulbs that smell and taste like small onions — wild onion (*Allium*)
- small bulbs that don't smell or taste like onions — death-camas (*Zigadenus*)
- tall, aromatic, with purple-blotched stems and finely-divided leavesp — oison hemlock (*Conium maculatum*)
- tall, aromatic, very finely divided, thread-like leaves — fennel (*Foeniculum vulgare*)
- a basal clump of large, spiny leaves with white markings — milk thistle (*Silybum marianum*)
- tall, cone-like head of blue flowers sitting above a set of up-curved spines — teasel (*Dipsacus*)
- white-flowered with three leaves from one node — wake robin (*Trillium*)
- square-stemmed plant with stinging hairs — stinging nettle (*Urtica*)
- pink or purple flowers with swept-back petals — shooting stars (*Dodecatheon*)
- milky sap — dogbane family (Apocynaceae), fig family (Moraceae), sunflower family (Compositae)
- brightly-colored sap — poppy family (Papaveraceae)
- beach plant forming mats of leaves triangular in cross-section — ice plant (*Carpobrotus*)

is small and free-floating on the surface of the water and is:

- green, without obvious stems and leaves — duckweeds (Lemnaceae)
- typically red, with small, overlapping leaves — mosquito fern (*Azolla*)

is a completely submerged aquatic, with grass-like leaves and lives in:

- marine waters — surf-grass (*Phyllospadix*) or eel-grass (*Zostera*)
- freshwater habitats — quillwort (*Isoëtes*) or ditch-grass (*Ruppia*)

is an aquatic or semi-aquatic herb (or found in a particularly wet site) and is or has:

- large floating leaves and cup-shaped yellow flowers — yellow pond-lily (*Nuphar polysepalum*)
- vase-like leaves expanded to an inflated hood — California pitcher plant (*Darlingtonia californica*)
- aromatic plant with cluster of swollen, chambered roots at base — water hemlock (*Cicuta*)
- sticky leaf surfaces with dead insects attached — sundew (*Drosera*) or butterwort (*Pinguicula macroceras*)
- tall, linear leaves, with compact, brown, cylindrical inflorescences — cat-tails (*Typha*)
- emergent that looks like a horsetail or scouring-rush — mare's-tail (*Hippuris vulgaris*)
- large, thick, yellow-green leaves and an unpleasant odor — skunk-cabbage (*Lysichiton americanus*)

Revised: 7 January 2014

SECTION 2: PRELIMINARY KEY TO GROUPS

1. Plants free-floating (not rooted) on the surface of the water, completely submersed, or with all its leaves floating on the surface of the water . . . . . **GROUP A**
1. Plants terrestrial, epiphytic, growing on rocks; if aquatic, rooted in the soil with vegetative and/or reproductive structures elevated above the surface of the water. **2**
2. Flowers and fruits absent; reproductive structures borne on underside of fertile leaves, at swollen leaf bases, in bean-shaped spore cases, in herbaceous club-shaped cone-like structures, or in woody cones (see *Taxus* and *Torreya* for conifers in our flora that produce single-seeded drupe- or berry-like female reproductive structures) **3**
2. Flowers and/or fruits present **4**
3. Herbs (ferns and fern allies) . . . . . **GROUP B**
3. Cone-bearing trees and shrubs (gymnosperms and 1 flowering plant family) . . . . . **GROUP C**
4. Leaves and stems predominately or completely white, red, brown, yellowish, purple, or variously striped . . . . . **GROUP D**
4. Leaves and stems predominantly green 5
5. Plants yielding a milky or colored sap. . . . . **GROUP E**
5. Plants yielding a watery sap 6
6. Perianth rudimentary or absent . . . . . **GROUP F**
6. Perianth well-developed **7**
7. Flower parts (especially petals and stamens) in 3's or multiples thereof . . . . . **GROUP G**
7. Flower parts (especially petals and stamens) in 2's, 4's, 5's, or 7's or multiples thereof **8**
8. Perianth parts similar, in 1 series . . . . . **GROUP H**
8. Perianth parts in 2 or more series, distinguished by shape, color, or points of attachment on the receptacle **9**
9. Stamen number at least 3 times that of petals . . . . . **GROUP I**
9. Stamen number no larger than twice that of petals **10**
10. Petals ± separate . . . . . **GROUP J**
10. Petals (2 or more of them) united for at least 1/4 their length . . . . . **GROUP K**

SECTION 3: KEY TO FAMILIES

Group A
Aquatics. Free-floating, submersed, or all leaves floating on surface

1. Plants 0.5 mm to 3 cm in diameter, free-floating **2**
1. Plants much larger, not free-floating on water's surface **3**
2. Plant body not differentiated into stems and leaves . . . . . **Lemnaceae**
2. Forked stems and two-ranked leaves present . . . . . **Salviniaceae**
3. Plants completely submersed **4**
3. Some or all leaves floating on the surface of the water **5**
4. Plants of freshwater sites; leaves spirally arranged in grass-like tufts . . . . . **Isoëtaceae**
4. Plants of marine waters; leaves alternate, two-ranked . . . . . **Zosteraceae**
5. Stems or leaves bearing small, urn-shaped bladders . . . . . **Lentibulariaceae (Utricularia)**
5. Small, urn-shaped bladders absent **6**
6. Perianth rudimentary or absent **7**
6. Perianth well-developed **12**
7. Leaves, at least submersed ones, divided into thread-like segments **8**
7. Leaves entire to toothed **9**
8. Leaf segments entire; flowers bisexual . . . . . **Haloragaceae**
8. Leaf segments sparsely toothed on one side; flowers unisexual . . . . . **Ceratophyllaceae**
9. Leaves alternate . . . . . **Ruppiaceae**
9. Leaves opposite or whorled **10**
10. Leaf bases not sheathing stems . . . . . **Callitrichaceae**
10. Leaf bases sheathing stems **11**
11. Plants annual; leaf base ± expanded . . . . . **Najadaceae**
11. Plants perennial; leaf gradually tapering from apex to base . . . . . **Potamogetonaceae**
12. All leaves floating **13**
12. Some or all leaves submersed **14**
13. Leaves peltate; carpels separate . . . . . **Cabombaceae**
13. Leaves with basal lobes; carpels united . . . . . **Nymphaeaceae**
14. Leaves whorled, simple . . . . . **Hydrocharitaceae**
14. Leaves alternate, often dissected . . . . . **Ranunculaceae (Ranunculus)**

[Steps 12–14 revised, 7 January 2014]

Group B
Ferns and lycophytes*

1. Plants aquatic or of dried pools, streams, or creek beds . . . . . **Marsileaceae**
1. Plants terrestrial **2**
2. Stems conspicuously segmented; leaves scaly, pointed, their bases united into a collar at each node . . . . . **Equisetaceae**
2. Stems not segmented; leaves small to large, but not united into a collar at each node **3**
3. Stems aerial, spreading, often branched (Caution! Do not confuse leaf stalks with stems); leaves simple, awl-shaped, seldom over 5 mm long **4**
3. Stems subterranean; leaves well-developed, often compound, typically 5 cm or more long or wide . . . **5**
4. Leaves with small flap (ligule) at their base . . . . . **Selaginellaceae**
4. Leaves without ligule at base . . . . . **Lycopodiaceae**
5. Leaves differentiated into sterile blade and spike-like or branched fertile segment . . **Ophioglossaceae**
5. Leaves not differentiated into sterile blade and fertile segment **6**
6. Indusium absent **7**
6. Indusia present **8**
7. Sori distributed across underside of leaves . . . . . **Polypodiaceae**
7. Sori marginal, covered by folded leaflet margins . . . . . **Pteridaceae (Adiantum)**
8. Sori on veins parallel to midrib of leaflet . . . . . **Blechnaceae**
8. Sori not parallel to midrib of leaflet **9**
9. Stipes and rhizomes glabrous or hairy, but not scaly . . . . . **Dennstaedtiaceae**
9. Stipes and rhizomes scaly **10**
10. Leaflet midribs with stiff, needle-like hairs . . . . . **Thelypteridaceae**
10. Leaflet midribs without stiff, needle-like hairs **11**
11. Indusium flap-like, attached along edge . . . . . **Aspleniaceae**
11. Indusium short, attached at one point only . . . . . **Dryopteridaceae**

* See Group A for two families of free-floating aquatic ferns

Group C
Cone-bearing trees and shrubs

1. Leaves elliptic to ovate . . . . . **Betulaceae (Alnus)**
1. Leaves needle-shaped or scale-like **2**
2. Needles tapering gradually or abruptly to a narrow base, no portion flattened and sheathing the stem . . . . . **Pinaceae**
2. Needles scale-like, wedge-shaped; base broader than apex or base flattened, sheathing stem **3**
3. Leaves opposite; ovules 2-many, borne in a woody or fleshy cone . . . . . **Cupressaceae**
3. Leaves alternate; ovule 1, partially or completely enclosed within a fleshy aril . . . . . **Taxaceae**

Group D
Non-green herbs, shrubs, and vines

1. Plants often forming conspicuous masses of yellow-green to bright-orange thread-like vines . . . . . **Convolvulaceae (Cuscuta)**
1. Plants erect herbs or shrubs 2
2. Plants epiphytic shrubs attached to the aerial stems and branches of various conifers and flowering plants . . . . . **Santalaceae**
2. Plants herbaceous 3
3. Leaves in basal rosettes, brown or red, long-petioled, the blades with gland-tipped, insect-catching hairs . . . . . **Droseraceae**
3. Leaves not as above. 4
4. Flowers 3-parted, one of the petals forming a lip. . . . . **Orchidaceae**
4. Flowers 4-, 5- or 8-parted; lip not present 5
5. Plants fleshy-stemmed, but flowers elevated above ground level . . . . . **Ericaceae (Monotropoideae)**
5. Plants cone-like, sessile . . . . . **Scrophulariaceae (Orobanchoideae**)

Group E
Flowering plants. Sap milky or colored

1. Plants aquatic . . . . . **Alismataceae**
1. Plants terrestrial 2
2. Vines . . . . . **Convolvulaceae**
2. Erect herbs, shrubs, or trees 3
3. Trees . . . . . **Moraceae**
3. Herbs or shrubs 4
4. Flowers unisexual; species monoecious or dioecious 5
4. Flowers bisexual 6
5. Flowers attached to the inner wall of a spherical or oblong hollow receptacle (fig) . . . . . **Moraceae**
5. Flowers easily visible . . . . . **Euphorbiaceae**
6. Flowers in heads . . . . . **Compositae**
6. Flowers solitary or in cymes or panicles 6
7. Sepals 2 [3 or 4]; stamens mostly numerous . . . . . **Papaveraceae**
7. Sepals 5; stamens 5. . . . . **Apocynaceae**

Group F
Flowering Plants. Calyx and corolla rudimentary or absent

1. Plants woody **2**
1. Plants herbaceous **17**
2. Vines **3**
2. Trees or shrubs **4**
3. Leaves glabrous, 5- to 11- lobed . . . . . **Aceraceae**
3. Leaves rough on upper surface, glandular on lower surface, 3-lobed . . . . . **Cannabaceae (Humulus)**
4. Leaves compound **5**
4. Leaves simple **8**
5. Leaves alternate **6**
5. Leaves opposite **7**
6. Leaves 1-pinnately compound . . . . . **Juglandaceae**
6. Leaves 2-pinnately compound . . . . . **Leguminosae**
7. Leaflets 3; fruits hairy . . . . . **Aceraceae**
7. Leaflets 5-7; fruits glabrous . . . . . **Oleaceae**
8. Aerial parasites on woody plants . . . . . **Viscaceae**

8. Not aerial parasites, but rooted directly in soil **9**
9. Leaves palmately lobed and palmately veined **10**
9. Leaves entire to pinnately toothed, pinnately veined **11**
10. Leaves alternate . . . . . **Platanaceae**
10. Leaves opposite . . . . . **Aceraceae**
11. Leaves on youngest branches opposite **12**
11. Leaves consistently alternate **13**
12. Leaves aromatic when crushed; flowers in umbels or heads . . . . . **Myrtaceae**
12. Leaves not aromatic; flowers in catkins . . . . . **Garryaceae**
13. Leaves aromatic, resinous-dotted . . . . . **Myricaceae**
13. Leaves not aromatic; resinous dots lacking **14**
14. Milky latex present; flowers borne on inner surface of vase-like structure (the "fig") **Moraceae (Ficus)**
14. Milky latex absent; flowers (some or all) borne in catkins **15**
15. Plants with either male or female flowers, but not both; ovary superior; fruit a capsule . . . . **Salicaceae**
15. Plants with both male and female flowers; ovary inferior; fruit a nut or nutlet **16**
16. Female flower(s) or fruits borne within acorn cup or spiny shell . . . . . **Fagaceae**
16. Female flowers subtended by papery or somewhat woody bract . . . . . **Betulaceae**
17. Parasites on trees and shrubs . . . . . **Viscaceae**
17. Not parasitic, but growing directly in ground or in water **18**
18. Plants aquatic **19**
18. Plants terrestrial (if aquatic, only rooted in shallow water with stems and leaves clearly elevated above water's surface) **21**
19. Leaves whorled . . . . . **Hippuridaceae**
19. Leaves alternate or opposite **20**
20. Flowers bisexual, in axillary spikes . . . . . **Potamogetonaceae**
20. Flowers unisexual, in spherical heads . . . . . **Sparganiaceae**
21. Leaf blades reduced, scale-like . . . . . **Chenopodiaceae (Salicornia)**
21. Leaf blades well-developed **22**
22. Leaves compound or deeply divided **23**
22. Leaves simple, entire to lobed or incised **25**
23. Leaves basal; flowers bisexual . . . . . **Berberidaceae**
23. Cauline leaves present; flowers unisexual **24**
24. Leaves palmately lobed or divided . . . . . **Cannabaceae (Cannabis)**
24. Leaves compound . . . . . **Ranunculaceae (Thalictrum)**
25. Leaf venation parallel **26**
25. Leaf venation netted or reticulate **31**
26. Flowers concealed in axils of bracts **27**
26. Flowers not concealed by bracts **28**
27. Stems round [flattened] in cross-section; internodes hollow [solid]; edges of sheathing leaf bases generally not unitred; individual flowers enclosed by two bracts . . . . . **Gramineae**
27. Stems triangular in cross-section [round]; internodes solid; edges of sheathing leaf bases united; individual flowers subtended by a single bract . . . . . **Cyperaceae**
28. Flowers in dense, cylindrical spikes **29**
28. Flowers in open clusters or spherical heads **30**
29. Plants less than 50 cm tall; mature spikes less than 1 cm wide . . . . . **Juncaginaceae**
29. Plants typically well over 1 m tall; mature spikes 2 cm or more wide . . . . . **Typhaceae**
30. Flowers bisexual, in open clusters . . . . . **Juncaceae**
30. Flowers unisexual, in dense spherical heads . . . . . **Sparganiaceae**
31. Flowers aggregated into thickened spike subtended by a conspicuous white or yellow bract . . . **Araceae**
31. Flowers in narrow racemes, spikes, heads, etc., but not subtended by a conspicuous bract or series of large, white involucral bracts **32**
32. Ovary 3-lobed, 3-chambered, each with 1 seed; sap often milky . . . . . **Euphorbiaceae**
32. Ovary 1-chambered, 1-seeded; sap watery **34**
33. Style 1 . . . . . **34**
33. Styles 2 or 3 . . . . . **35**
34. Plants low, rounded gray with stellate hairs . . . . . **Euphorbiaceae (Croton)**
34. Plants erect to trailing plants, some with non-stellate, painful stinging hairs . . . . . **Urticaceae**
35. Ovary inferior; stamens 8-many . . . . . **Datiscaceae**
35. Ovary superior; stamens 5 or fewer (rarely 8 or 9) **36**
36. Stipules united into membranous or papery collar around stem (ochreae) . . . . . **Polygonaceae**
36. Stipules not united into a collar **37**
37. Carpels many, separate; receptacle cylindrical . . . . . **Ranunculaceae (Myosurus)**
37. Carpels 2 or 3, united; receptacle flat or rounded . . . . . **Amaranthaceae**

Group G
Flowering Plants. Floral parts in 3's or multiples thereof.

1. Plants woody **2**
1. Plants herbaceous **7**
2. Vines **3**
2. Trees or shrubs **4**
3. Stems with prickles . . . . . **Smilacaceae**
3. Stems without prickles . . . . . **Aristolochiaceae (Aristolochia)**

4. Leaves compound . . . . . **Berberidaceae**
4. Leaves simple **5**
5. Trees; fruit a berry . . . . . **Lauraceae**
5. Shrubs; fruit an achene or berry **6**
6. Plants low, heath-like; leaves revolute; fruit a berry . . . . . **Ericaceae**
6. Plants taller, not at all heath-like; leaves not revolute; fruit an achene . . **Polygonaceae (Eriogonum)**
7. Flowers bilaterally symmetrical; lower petal typically forming a tongue or sac . . . . . **Orchidaceae**
7. Flowers radially symmetrical **8**
8. Plants aquatic or semiaquatic **9**
8. Plants terrestrial **11**
9. Leaves mostly submersed; ovary inferior . . . . . **Hydrocharitaceae**
9. Leaves floating upon or elevated above water's surface; ovary superior **10**
10. Carpels separate . . . . . **Alismataceae**
10. Carpels united . . . . . **Polygonaceae**
11. Stamens numerous . . . . . **Papaveraceae (Platystemon)**
11. Stamens 3 or 6 (rarely 9 or 12) **12**
12. Perianth parts in 1 set or series **13**
12. Perianth series 2 . . . . . **14**
13. Leaves cordate or hastate; flowers (including lobes) several cm wide; ovary inferior . . . . . **Aristolochiaceae (Asarum)**
13. Leaves various, but not cordate or hastate; flowers less than 1 cm wide; ovary superior **Polygonaceae**
14. Sepals green; petals brightly-colored **15**
14. Sepals and petals similarly colored **18**
15. Stamen filaments hairy . . . . . **Commelinaceae**
15. Stamen filaments glabrous **16**
16. Leaves simple . . . . . **Liliaceae (Trillium)**
16. Leaves compound **17**
17. Leaves 1-pinnately compound . . . . . **Limnanthaceae (Floerkea)**
17. Leaves 2- or 3-foliately compound . . . . . **Berberidaceae (Vancouveria)**
18. Stamens 6 or 9 . . . . . **19**
18. Stamens 3 . . . . . **21**
19. Flowers small and drab; fruit an achene . . . . . **Polygonaceae**
19. Flowers conspicuous and usually white, yellow, or brightly-colored; fruit a capsule or berry **20**
20. Perianth parts separate . . . . . **Liliaceae**
20. Perianth parts fused in 2 petal-like series . . . . . **Tecophilaeaceae**
21. Ovary inferior . . . . . **Iridaceae**
21. Ovary superior **22**
22. Sepals spreading; petals erect . . . . . **Liliaceae (Scoliopus)**
22. Sepals and petals similarly positioned **23**
23. Flowers in umbels . . . . . **Liliaceae**
23. Flowers in spikes, racemes, or axillary clusters . . . . . **Polygonaceae**

Group H
Flowering plants. Floral parts in 2's, 4's, 5's, or 7's. Only one perianth series present.

1. Plants woody **2**
1. Plants herbaceous **11**
2. Vines **3**
2. Trees or shrubs **5**
3. Leaves opposite, often compound . . . . . **Ranunculaceae (Clematis)**
3. Leaves alternate, simple **4**
4. Inflorescence terminal . . . . . **Araliaceae (Hedera)**
4. Inflorescence axillary . . . . . **Aristolochiaceae (Aristolochia)**
5. Leaves compound **6**
5. Leaves simple **7**
6. Leaflets 3, coarsely toothed . . . . . **Aceraceae**
6. Leaflets 3-7 (rarely 9), entire to serrate . . . . . **Oleaceae**
7. Stamens united by filaments for about half their length **8**
7. Stamens separate **8**
8' Flowers 3.5–6 cm in diameter; calyx of 5 yellow sepals; petals 0 . . . . . **Sterculiaceae**
8' Flowers much smaller, generally less than 2.5 cm wide; petals 5 . . . . . **Malvaceae**
8. Petals united; corolla bilaterally symmetrical . . . . . **Caprifoliaceae (Lonicera)**
8. Petals separate; corolla radially symmetrical **9**
9. Perianth parts 2-6 cm long; carpels many, separate . . . . . **Calycanthaceae**
9. Perianth parts less than 1 cm long; carpels 1 or 3 . . . . . **10**
10. Carpel 1; leaf veins straight; fruit an achene . . . . . **Rosaceae (Cercocarpus)**
10. Carpels 3, united; leaves with 1-few pairs of gently curving veins; fruit a drupe or capsule **Rhamnaceae**
11. Stamens 20 or more **12**
11. Stamens equal to or twice number of perianth parts (in all cases fewer than 20) **15**
12. Leaves conspicuously thickened, fleshy **13**
12. Leaves not conspicuously thickened, fleshy **14**
13. Leaves spiny . . . . . **Cactaceae**
13. Leaves not spiny . . . . . **Aizoaceae**

14. Carpels 3-many, separate . . . . . **Ranunculaceae**
14. Carpels 2-several, united (*Platystemon* has 6-25 carpels, united at first, but tending to separate at maturity) . . . . . **Papaveraceae**
15. Ovary superior **16**
15. Ovary inferior **26**
16. Plants fleshy, non-green; leaves small, scaly . . . . . **Ericaceae**
16. Plants not fleshy, chlorophyll present, leaves typically well-developed **17**
17. Perianth parts united, bell-shaped to salver-shaped . . . . . **Nyctaginaceae**
17. Perianth parts separate or separately inserted on edge of involucral cup **18**
18. Ovary conspicuously lobed; styles forked; sap often milky . . . . . **Euphorbiaceae**
18. Ovary not 3-lobed; styles not forked; sap watery **19**
19. Carpels 5-12, united into a ring; fruit a berry . . . . . **Phytolaccaceae**
19. Carpels 2-5, united (often appearing unicarpellate because of the 1-chambered ovary); fruit an achene or capsule **20**
20. Perianth 2- or 4-parted **21**
20. Perianth 5- or 6-parted **23**
21. Flowers white; stamens 4 . . . . . **Liliaceae (Maianthemum)**
21. Flowers greenish or reddish; stamens 6 or 8 . . . . . **22**
22. Flowers in terminal panicles . . . . . **Polygonaceae (Oxyria)**
22. Flower solitary in leaf axils . . . . . **Saxifragaceae (Chrysosplenium)**
23. Leaves alternate (opposite in *Pterostegia*); fruit a flattened or triangular achene . . . . . **Polygonaceae**
23. Leaves (at least lower ones) opposite or whorled; fruit a many-seeded capsule **24**
24. Style 1 . . . . . **Primulaceae**
24. Style 2-5 . . . . . **25**
25. Ovary 2- to 5-chambered; placentation axile . . . . . **Molluginaceae**
25. Ovary 1-chambered; placentation free-central or basal . . . . . **Caryophyllaceae**
26. Plants spreading, succulent annuals of coastal dunes and saltmarshes; leaves triangular-ovate . . . . . **Molluginaceae (Tetragonia)**
26. Plants not combining all of the above features **27**
27. Stamens united by anthers . . . . . **Compositae**
27. Stamens separate **28**
28. Hypanthium present, typically fused to ovary and extending beyond it . . . . . **Onagraceae**
28. Hypanthium absent **29**
29. Leaves opposite or whorled . . . . . **Rubiaceae**
29. Leaves alternate or basal **30**
30. Semiparasitic perennial herbs or shrubs attached to branches of host trees . . . . . **Viscaceae**
30. Terrestrial herbs **31**
31. Plants aromatic; leaves generally compound; flowers in compound or simple umbels; fruit a schizocarp. . . . . **Umbelliferae**
31. Plants not aromatic; leaves simple; flowers in small terminal or axillary clusters; fruit drupe-like. . . . . **Comandraceae**

Group I
Flowering plants. Floral parts in 2's, 4's, 5's, or 7's.
Calyx and corolla differentiated by points of insertion or color.
Stamens at least three times the number of petals.

1. Plants woody **2**
1. Plants herbaceous **5**
2. Leaves 2-pinnately compound . . . . . **Leguminosae (Acacia)**
2. Leaves simple, palmately compound or 1-pinnately compound **3**
3. Leaves opposite . . . . . **Hydrangeaceae**
3. Leaves alternate **4**
4. Flowers perigynous or epigynous; stamens separate . . . . . **Rosaceae**
4. Flowers hypogynous; stamens united by filaments into a tube . . . . . **Malvaceae**
5. Leaves modified into tubular "pitchers" terminating in rounded hoods . . . . . **Sarraceniaceae**
5. Leaves not modified into pitchers, nor terminating in rounded hoods **6**
6. Sepals and petals of a different number **7**
6. Sepals and petals of same number **12**
7. Flowers bilaterally symmetrical . . . . . **Ranunculaceae**
7. Flowers regular **8**
8. Carpels numerous, separate . . . . . **Ranunculaceae (Ranunculus)**
8. Carpels 2-several, united **9**
9. Leaves fleshy; styles 2-many **10**
9. Leaves not fleshy; style 1 . . . . . **11**
10. Leaves flattened, mostly basal . . . . . **Portulacaceae (Lewisia)**
10. Leaves distinctly 3-sided, well-distributed along stems . . . . . **Aizoaceae (Carpobrotus)**
11. Sepals 3; petals 5; leaves narrowly linear . . . . . **Cistaceae**
11. Sepals 2 (rarely 3); petals 4, 6, or more; leaves various, but not narrowly linear . . . . . **Papaveraceae**
12. Ovary inferior . . . . . **Loasaceae**
12. Ovary superior **13**
13. Stamens united by filaments into single tube or 3-5 bundles **14**
13. Stamens separate **15**

14. Leaf blades minutely gland-dotted . . . . . **Hypericaceae**
14. Leaf blades not gland-dotted . . . . . **Malvaceae**
15. Sepals, petals, and stamens inserted on rim of an open cup (hypanthium) . . . . . **Rosaceae**
15. Sepals, petals, and stamens inserted on receptacle, not on cup-like structure **16**
16. Carpels united; fruit a capsule **17**
16. Carpels separate; fruit a series of follicles, achenes, or berries **18**
17. Leaves narrowly linear . . . . . **Cistaceae**
17. Leaves oblong, partly clasping . . . . . **Hypericaceae**
18. Carpels several to many; fruit a series of achenes, berries, or follicles less than 1 cm long **Ranunculaceae**
18. Carpels 2-5; fruit a series of follicles over 1.5 cm long at maturity **19**
19. Flowers with 1-5 prominent nectar spurs; follicles herbaceous at maturity . . . . . **Ranunculaceae**
19. Flowers without nectar spurs; follicles woody at maturity . . . . . **Paeoniaceae**

Group J
Flowering plants. Floral parts in 2's, 4's, 5's, or 7's. Calyx and corolla differentiated. Petals separate. Stamens no more than twice number of petals.

1. Plants woody **2**
1. Plants herbaceous **29**
2. Leaves simple **3**
2. Leaves compound (*Caution! You may be keying poison-oak!*) **22**
3. Vines **4**
3. Shrubs or trees **6**
4. Tendrils present . . . . . **Vitaceae**
4. Tendrils absent **5**
5. Leaves opposite . . . . . **Hydrangeaceae (Whipplea)**
5. Leaves alternate . . . . . **Araliaceae**
6. Stamens numerous . . . . . **Hydrangeaceae (Philadelphus)**
6. Stamens 4-10 (rarely 15) **7**
7. Ovary inferior **8**
7. Ovary superior **11**
8. Hypanthium present **9**
8. Hypanthium absent **10**
9. Stamens 5 or 4 . . . . . **Grossulariaceae**
9. Stamens 8 . . . . . **Onagraceae (Fuchsia)**
10. Leaves opposite . . . . . **Cornaceae**
10. Leaves alternate . . . . . **Styracaceae**
11. Leaves opposite **12**
11. Leaves alternate **14**
12. Leaves palmately lobed and veined . . . . . **Aceraceae**
12. Leaves entire or pinnately lobed or toothed, venation pinnate **13**
13. Stamens attached at base of (in front of) each petal . . . . . **Rhamnaceae (Ceanothus)**
13. Stamens alternating with insertion of petals . . . . . **Celastraceae**
14. Stamens 10 or more **15**
14. Stamens 4 or 5 (rarely 10) **16**
15. Flowers radially symmetrical . . . . . **Rosaceae (Adenostoma)**
15. Flowers bilaterally symmetrical . . . . . **Leguminosae**
16. Stamens united by filaments for about half their length . . . . . **Sterculiaceae (Fremontodendron)**
16. Stamens separate **17**
17. Leaves less than 0.5 cm long, scale-like; flowers numerous, in panicles . . . . . **Tamaricaceae**
17. Leaves 1-6 cm long, not scale-like; flowers solitary or in corymbs **18**
18. Ovary 1-chambered **19**
18. Ovary 2- or 5-chambered **20**
19. Leaves evergreen, 4-8 cm long . . . . . **Anacardiaceae (Rhus)**
19. Leaves deciduous, 6-20 mm long . . . . . **Crossosomataceae**
20. Flowers 4-parted . . . . . **Aquifoliaceae**
20. Flowers 5-parted **21**
21. Stamens 10, opening by terminal pores; style elongate, undivided . . . . . **Ericaceae (Rhododendron)**
21. Stamens 5, opening by slits; style short, 3-cleft . . . . . **Rhamnaceae (Ceanothus)**
22. Leaflet margins spiny . . . . . **Berberidaceae**
22. Leaflet margins entire to lobed **23**
23. Leaves opposite **24**
23. Leaves alternate **26**
24. Leaflets 3 . . . . . **Aceraceae**
24. Leaflets 4 or more **25**
25. Leaves palmately compound . . . . . **Hippocastanaceae**
25. Leaves pinnately compound . . . . . **Oleaceae**
26. Flowers bilaterally symmetrical . . . . . **Leguminosae**
26. Flowers radially symmetrical **27**
27. Leaflets 11-25 . . . . . **Simaroubaceae**
27. Leaflets 3 (*Caution ! You may be keying poison-oak.*) **28**
28. Plants strongly aromatic; leaflets gland-dotted; fruit a samara, 1-2 cm in diameter . . . . . **Rutaceae**
28. Plants not aromatic; leaflets not gland-dotted; fruit a drupe . . . . . **Anacardiaceae (Toxicodendron)**

(*You are examining poison-oak. Wash your hands thoroughly, as soon as possible.*)

29. Plants +/- purplish-brown; stems fleshy; leaves reduced, scale-like . . . . . **Ericaceae**
29. Plants green; stems not noticeably fleshy; leaves well-developed **30**
30. Carpel 1 . . . . . **Leguminosae**
30. Carpels 2-5 . . . . . **31**
31. Carpels separate **32**
31. Carpels 2 or more, united for at least half their length **33**
32. Leaves fleshy; carpels 3-5 . . . . . **Crassulaceae**
32. Leaves not fleshy; carpels 2 . . . . . **Saxifragaceae**
33. Plants insectivorous plants; leaves reddish, in basal rosette less than 1 dm across, trapping insects by means of a sticky fluid from numerous gland-tipped hairs on leaves . . . . . **Droseraceae**
33. Plants not insectivorous **34**
34. Plants less than 1 dm tall, of mud flats; leaves opposite, entire; plants rooting at nodes . . **Elatinaceae**
34. Plants typically much larger and not restricted to mud flats; leaves alternate (opposite or alternate in Caryophyllaceae) **35**
35. Ovary inferior **36**
35. Ovary superior **39**
36. Flowers in compound umbels, racemes of umbels, or heads; leaves typically compound (except in certain genera of Umbelliferae) **37**
36. Flowers in axillary or terminal racemes or sessile; leaves simple **38**
37. Inflorescence a compound umbel or head; fruit a schizocarp . . . . . **Umbelliferae**
37. Inflorescence a raceme of umbels; fruit a berry . . . . . **Araliaceae (Aralia)**
38. Sepals 2; petals 5 (rarely 4 or 6) . . . . . **Portulacaceae (Portulaca)**
38. Sepals and petals 4 (rarely 2 or 5) . . . . . **Onagraceae**
39. Flowers bilaterally symmetrical **40**
39. Flowers radially symmetrical **43**
40. Leaves peltate . . . . . **Tropaeolaceae**
40. Leaves not peltate **41**
41. Petals 4, forming an inner and outer pair . . . . . **Papaveraceae**
41. Petals 5 or 6, not paired **42**
42. Flowers showy, axillary . . . . . **Violaceae**
42. Flowers small, in dense spike-like racemes . . . . . **Resedaceae**
43. Sepals 2 or 3 . . . . . **44**
43. Sepals 4 or more **47**
44. Sepals 2 . . . . . **45**
44. Sepals 3 . . . . . **46**
45. Leaves +/- fleshy; petals 5 or more . . . . . **Portulacaceae**
45. Leaves not fleshy; petals 2 . . . . . **Liliaceae (Maianthemum)**
46. Leaves pinnately dissected; stigmas 5 . . . . . **Limnanthaceae (Limnanthes)**
46. Leaves entire to somewhat lobed; stigmas 3 . . . . . **Polygonaceae**
47. Fruit of 4 nutlets . . . . . **Boraginaceae (Borago)**
47. Fruit a silique, silicle, capsule, or achene **48**
48. Placentation free-central . . . . . **Caryophyllaceae**
48. Placentation axillary, parietal, or basal **49**
49. Leaves compound **50**
49. Leaves simple, entire to deeply cleft **54**
50. Leaves palmately compound . . . . . **Oxalidaceae**
50. Leaves pinnately or ternately compound **51**
51. Leaves 2- or 3-foliate . . . . . **Berberidaceae (Vancouveria)**
51. Leaves pinnately compound **52**
52. Trailing vines; fruit spiny . . . . . **Zygophyllaceae**
52. Erect or sprawling herbs; fruits without spines **53**
53. Flowers 4-parted . . . . . **Cruciferae**
53. Flowers 5-parted . . . . . **Geraniaceae (Erodium)**
54. Petals with scale-like flap on inner surface . . . . . **Frankeniaceae**
54. Petals without a scale-like flap on the inner surface **55**
55. Flowers 4-parted **56**
55. Flowers 5-, 6-, or 7-parted **58**
56. Stipules fused into cylindrical sheath; fruit an achene . . . . . **Polygonaceae (Oxyria)**
56. Stipules not fused into cylindrical sheath; fruit a silique, silicle, or capsule **57**
57. Leaves opposite or whorled; stamens 4 . . . . . **Gentianaceae (Gentiana)**
57. Leaves alternate; stamens (2) 6 - 32 . . . . . **57'**
57' Leaves generally simple; stamens 6, 4 long and 2 short (rarely 3 + 3 or 2) . . . . . **Cruciferae**
57' Leaves generally palmately compound with 3 - 5; stamens 6 or 8 - 32 . . . . . **Cleomaceae**
58. Ovary deeply lobed; styles elongate, inserted around a central column, coiling from base upward at maturity . . . . . **Geraniaceae**
58. Ovary not noticeably lobed; styles not coiling away from central column **59**
59. Styles 2-5, separate to near bases **60**
59. Style 1, sometimes lobed at apex **63**
60. Styles 2 or 3 . . . . . **61**
60. Styles 5 . . . . . **62**
61. Leaves palmately lobed to divided, mostly basal; carpels separate at tips . . . . . **Saxifragaceae**
61. Leaves linear to lanceolate (sometimes ovate), stem leaves well-developed; carpels united at tips . . . . . **Linaceae**
62. Plants maritime; leaves basal . . . . . **Plumbaginaceae**
62. Plants widespread; stem leaves well-developed . . . . . **Linaceae**
63. Leaves palmately or pinnately lobed or divided; mature carpels separating as 1-seeded segments

. . . . . **Limnanthaceae (Limnanthes)**
63. Leaves entire; fruit a few- to many-seeded capsule **64**
64. Leaves in 1 whorl at stem apex . . . . . **Primulaceae**
64. Leaves alternate . . . . . **Linaceae**

Group K
Flowering plants. Floral parts in 2's, 4's, 5's, or 7's. Calyx and corolla present. Petals united for at least for 1/4 their length. Stamens 1–10.

1. Lower portions of sepals and petals united to form a cup-shaped or tubular structure (hypanthium), free portions of these series appearing to arise from rim **2**
1. Sepals and petals not united into a cup-shaped or tubular hypanthium **7**
2. Ovary inferior **3**
2. Ovary superior **5**
3. Herbs; flowers 2- or 4- (rarely 5-) parted . . . . . **Onagraceae**
3. Trees or shrubs; flowers 5-parted **4**
4. Carpels 2 . . . . . **Grossulariaceae**
4. Carpels 5 . . . . . **Rosaceae**
5. Carpels 1, 5, or many . . . . . **Rosaceae**
5. Carpels 2 . . . . . **6**
6. Leaves opposite or whorled; flowers axillary . . . . . **Lythraceae**
6. Leaves mostly basal; flowers in terminal inflorescences . . . . . **Saxifragaceae**
7. Trees or shrubs **8**
7. Herbs (rarely woody toward base), erect or twining **17**
8. Leaves opposite or whorled **9**
8. Leaves alternate **14**
9. Ovary superior **10**
9. Ovary inferior **13**
10. Flowers radially symmetrical **11**
10. Flowers bilaterally symmetrical **12**
11. Stipules absent; anthers opening by terminal pores . . . . . **Ericaceae**
11. Stipules present (opposite leaves ± connected by stipular line); anthers opening by longitudinal slits . . . . . **Buddlejaceae**
12. Low, native shrubs . . . . . **Scrophulariaceae**
12. Tall ornamental tree with large cordate-ovate leaves . . . . . **Paulowniaceae**
13. Stipules present (leaf-like if leaves "whorled"); ovary 2-chambered . . . . . **Rubiaceae**
13. Stipules absent; leaves opposite; ovary 3- to 5- chambered . . . . . **Caprifoliaceae**
14. Flowers bilaterally symmetrical . . . . . **Leguminosae**
14. Flowers radially symmetrical **15**
15. Leaves glabrous and sticky above; conspicuously veined and minutely hairy beneath . . . . . **Hydrophyllaceae (Eriodictyon)**
15. Leaves not as above **16**
16. Stamens inserted on corolla tube . . . . . **Solanaceae**
16. Stamens inserted on outer edge of a disk, appearing fused only at base of corolla . . . . . **Ericaceae**
17. Trailing or scrambling vines, with or without tendrils **18**
17. Erect or decumbent herbs **24**
18. Plants without chlorophyll; leaves rudimentary . . . . . **Convolvulaceae**
18. Plants with chlorophyll; leaves well-developed **19**
19. Leaves pinnately compound . . . . . **Leguminosae**
19. Leaves simple **20**
20. Tendrils present; carpels 3; ovary inferior . . . . . **Curcurbitaceae**
20. Tendrils absent; carpels 2; ovary superior **21**
21. Flowers radially symmetrical; stamens 5; sap often milky **22**
21. Flowers bilaterally symmetrical ; stamens 2 or 4; sap watery **23**
22. Leaves opposite . . . . . **Apocynaceae (Vinca)**
22. Leaves alternate . . . . . **Convolvulaceae**
23. Ovary 1-chambered; fruit a large, woody capsule with 2 large, curved hooks . . . . . **Martyniaceae**
23. Ovary 2-celled; fruit a small herbaceous capsule; curved hooks absent . . . . . **Scrophulariaceae**
24. Plants without chlorophyll; leaves rudimentary **25**
24. Plants with chlorophyll; leaves well-developed **26**
25. Stamens 4 . . . . . **Orobanchaceae**
25. Stamens 8 or 10 . . . . . **Ericaceae**
26. Flowers slightly bilateral to distinctly 2-lipped (including those with sac or spur on lower side) **27**
26. Flowers regular **38**
27. Ovary inferior **28**
27. Ovary superior **30**
28. Stamens 1-4 . . . . . **Caprifoliaceae**
28. Stamens 5 . . . . . **29**
29. Flowers in heads; ovule solitary; fruit an achene . . . . . **Compositae**
29. Flowers in open, branched inflorescences; ovules many per ovary; fruit a many-seeded capsule . . . . . **Campanulaceae**
30. Stamens 2 or 4 . . . . . **31**
30. Stamens 5 or more **35**

31. Ovary 4-lobed . . . . . **Labiatae**
31. Ovary not 4-lobed **33**
33. Ovary 1-chambered . . . . . **Lentibulariaceae**
33. Ovary 2-chambered **34**
34. Fruit a nutlet, ovules 2-4; corolla regular . . . . . **Verbenaceae**
34. Fruit a capsule, ovules several-many; corolla distinctly bilateral (rarely almost radial) **Scrophulariaceae**
35. Stems watery to fleshy; flowers inverted, nectar spur present . . . . . **Balsaminaceae**
35. Stems and flowers not as above . . . . . 35'
35' Sepals 5 (inner 2 enlarged and petaloid); petals 3 . . . . . **Polygalaceae**
35' Sepals 2 or 5 (none enlarged and petaloid); petals 4 or 5 . . . . . **36**
36. Stamens 10 (often 9 of them fused together by filaments); placenta 1 . . . . . **Leguminosae**
36. Stamens 5 or 6; placentae 2 . . . . . **37**
37. Petals 4, in 2 pairs (outer spreading at tip, inner smaller and sometimes fused at tip); stamens 3 + 3 . . . . . **Papaveraceae**
37. Petals 5; stamens 5 . . . . . **Scrophulariaceae**
38. Stamens 8 or 10 . . . . . **Ericaceae**
38. Stamens 2, 4 or 5 . . . . . **39**
39. Ovary inferior **40**
39. Ovary superior **44**
40. Flowers in heads **41**
40. Flowers not in heads **42**
41. Stamens 2-4, separate . . . . . **Dipsacaceae**
41. Stamens 5, united by anthers . . . . . **Compositae**
42. Leaves alternate . . . . . **Campanulaceae**
42. Leaves opposite or whorled **43**
43. Plants creeping; leaves opposite; flowers paired . . . . . **Caprifoliaceae (Linnaea)**
43. Plants erect; leaves whorled (rarely opposite); flowers not paired . . . . . **Rubiaceae**
44. Corona present **45**
44. Corona absent **46**
45. Sap milky; leaves glabrous to soft-hairy . . . . . **Apocynaceae**
45. Sap watery; leaves bristly-hairy . . . . . **Boraginaceae (Borago)**
46. Stamens attached at base of (in front of) each corolla lobe . . . . . **Primulaceae**
46. Stamens attached at points alternating with corolla lobes **47**
47. Style 3-parted; ovary and fruit 3-chambered . . . . . **Polemoniaceae**
47. Style undivided or forked; ovary and fruit 1-, 2- or 4-chambered **48**
48. Leaves alternate **49**
48. Leaves opposite, whorled, or basal **52**
49. Ovary conspicuously 4-lobed . . . . . **Boraginaceae**
49. Ovary 2-lobed or unlobed **50**
50. Calyx shallowly 5-toothed . . . . . **Solanaceae**
50. Calyx deeply lobed to divided **51**
51. Flowers in coiled cymes or solitary. . . . . **Boraginaceae**
51. Flowers in spiny, densely bracted heads . . . . . **Polemoniaceae (Navarretia)**
52. Plants aquatic or semiaquatic; leaves compound (leaflets 3) . . . . . **Menyanthaceae**
52. Plants terrestrial; leaves simple, entire to deeply lobed **53**
53. Stamens 2 or 4 . . . . . **54**
53. Stamens 5 . . . . . **55**
54. Leaves strictly basal; corolla thin, dry and veinless . . . . . **Plantaginaceae**
54. Leaves distributed along stems; corolla greenish to brightly-colored, veined . . . . . **Gentianaceae**
55. Sap milky; stamens forming ring around style; fruit a follicle . . . . . **Apocynaceae**
55. Sap watery; stamens not forming ring around style; fruit a capsule **56**
56. Sepals separate, fused at base only; stamens attached at base of corolla . . . . . **Boraginaceae**
56. Sepals fused; stamens attached in corolla tube or throat . . . . . **Gentianaceae**

SECTION 4: KEYS TO FERN & LYCOPHYTE GENERA

ASPLENIACEAE — **Spleenwort Family**. Terrestrial or epiphytic ferns, often of rocky sites. Sori on veins or at ends of veins. Indusia typically present, peltate, rounded to reniform. **Asplenium trichomanes**. Maidenhair spleenwort. Small ferns with dark-colored stipes and elongated sori. Known in our area from a single collection in Del Norte Co.

BLECHNACEAE — **Chain Fern Family**. Terrestrial ferns; fertile and sterile leaves similar or dissimilar; sori on veins parallel to midrib of leaflet; indusia present.

1. Fertile and sterile leaves similar in appearance . . . . . **Woodwardia fimbriata**
   Giant chair fern. Large, perennial herb with chartreuse leaves. Common native along seeps and streams.
1. Fertile and sterile leaves noticeably dissimilar . . . . . **Struthiopteris spicant**
   Deer fern. Perennial herb with 1-dissected vegetative leaves. Segments of fertile leaves much narrower and covering the sori. Common native of coastal forests.

DENNSTAEDTIACEAE — Bracken Fern Family. Robust terrestrial ferns, the plants hairy, but not scaly; leaves pinnately compound; sori ± marginal, indusia absent. **Pteridium aquilinum var**. **pubescens**. Bracken fern. This is probably our most commonly encountered fern, especially abundant in disturbed sites. The rhizomes are toxic to wild and domesticated animals and are suspected of causing precancerous growths in humans who consume the young fiddleheads.

DRYOPTERIDACEAE — Dryopteris Family. Terrestrial or epiphytic ferns. Stems erect or ascending. Leaves typically oblong, triangular, or ovate; pinnate to decompound. Indusium present or absent. Some authors place *Athyrium*, *Cysospteris*, and *Woodsia* in Woodsiaceae, but the definition of the family remains unsettled.

1. Sori without indusia . . . . . **Athyrium americanum**
   Lady fern. Large perennial herb with dissected leaves. Occasional native of talus at high elevations.
1. Sori with indusia **2**
2. Sori crescent- to horseshoe-shaped . . . . . **Athyrium filix-femina**
   Western lady fern. Perennial herb with ± elliptical leaves. Common native of the forest floor.
2. Sori round to oval **3**
3. Leaves ± leathery, 1-pinnately compound (mid- and basal-pinnae further divided in some species) . . . . . **Polystichum**
   Sword fern, holly fern. Perennial herbs. Common natives in a variable genus.
3. Leaves herbaceous, at least 2-pinnately compound **4**
4. Leaf blades more than 2.5 dm long; stipes 2-4 mm wide . . . . . **Dryopteris**
   Wood fern. Perennial herbs with roughly triangular leaves. Common natives of the forest floor.
4. Leaf blades less than 1.5 dm long; stipes less than 1.5 mm wide **5**
5. Indusia basal, breaking into thread-like divisions that intertwine with sporangia. . . . **Woodsia scopulina**
   Mountain cliff fern. Perennial with delicate leaves. Rare native of dry rocks at English Peak, Siskiyou Co.
5. Indusia hood-like and attached on one side, covering sporangia . . . . . **Cystopteris fragilis**
   Brittle fern. Small perennial herb with delicate leaves. Common native of open habitats.

EQUISETACEAE — Horsetail or Scouring-rush Family. Annual or perennial rhizomatous herbs; aerial stems erect, segmented, ridged, unbranched or with whorls of lateral branches that are easily mistaken for leaves; leaves rudimentary, reduced to a whorl of fused scales at each node; reproductive stroboli terminal, borne on ordinary green stems or on specialized fertile ones that lack chlorophyll. **Equisetum**. Horsetail, giant horsetail, scouring-rush, snake-grass. Common.

ISOËTACEAE — Quill Wort Family. Small perennial aquatic or emergent herbs of grass-like habit; stems short, erect; leaves quill-like, arising in clumps from a corm-like base, with sporangia sunken in their bases. **Isoëtes**. Quill wort. Common natives of mountain lakes.

LYCOPODIACEAE — Club-moss Family. Terrestrial, moss-like non-flowering perennial herbs; stems erect or prostrate, freely-branching; leaves small, 1-veined, in whorls, pairs or spirals; sporangia on upper side of fertile leaves, these usually aggregated into terminal stroboli.

1. Fertile stems bearing few-many stroboli . . . . . **Lycopodium clavatum**
   Club-moss, ground-pine, running-pine. Moist habitats in Humboldt Co.
1. Fertile stems terminating in a single strobolus . . . . . **Lycopodiella inundata**
   Bog club-moss. Sphagnum bogs, moist places in Humboldt Co.

MARSILEACEAE — Water-clover Family. Small aquatic or semiaquatic, rhizomatous perennial herbaceous ferns of muddy lake and pond margins. Leaves without blades or divided into four leaflets. Sporangia borne in small bean-like structures (sporocarps) at the base of the leaf stalks. Plants heterosporous.

1. Plants glabrous; leaf blades absent . . . . . **Pilularia americana**
   American pillwort. Grass-like perennial herb with thread-like, leaves. Uncommon plants of wet areas, often found on margins of vernal pools.

1. Plants hairy; leaf blades well-developed and divided into 4 leaflets . . . . . **Marsilea vestita** Water-clover. Perennial, clover-like herb with compound leaves. Native to muddy and shallow-water areas, especially vernal pools.

OPHIOGLOSSACEAE — Grape Fern Family. Perennial terrestrial ferns. Leaves 1-3, differentiated into a sterile blade and a fertile segment that is either spike-like or branched. Plants homosporous.

1. Leaves lobed or compound; fertile segment branched . . . . . **Botrychium** Rattlesnake fern, grape fern, moonwort. Perennial, sometimes fleshy-leaved herbs. Uncommon natives of moist meadows and the edges of conifer forests.
1. Leaves simple and entire; fertile segment unbranched. . . . . **Ophioglossum pusillum** Adder's tongue fern. Perennial herbs. Uncommon native known only from Siskiyou Co. in our area.

POLYPODIACEAE — Polypody Family. Epiphytic or terrestrial ferns; leaves pinnately lobed, but not compound; sori naked (without indusia). **Polypodium**. Polypody. Common epiphytes, but also found on rock outcrops and coastal dunes. The genus is relatively easy to recognize; the species are not.

PTERIDACEAE — **Brake Fern Family.** Terrestrial ferns; leaves simple and entire to variously compounded; sori marginal (except in *Pentagramma*), and often covered by the reflexed margin.

1. Sori attached toward midvein of leaf; lower leaf surface covered with a dense, waxy powder . . . . . **Pentagramma triangularis** Goldenback fern. Small perennial herb with yellowish lower leaf surface. Common native of low elevation rock outcrops.
1. Sori attached at or near leaf margins; lower leaf surface glabrous to sparsely hairy, but not covered with a dense, waxy powder. **2**
2. Leaves bearing sori distinctly different in shape from those that do not . . . . . **Cryptogramma** Parsley fern, rock-brake. Small perennial herbs with 2-pinnately dissected leaves. Common natives in open, rocky mountain habitats.
2. Leaves bearing sori similar to the vegetative ones. **3**
3. Leaf stalks black; ultimate segments of blade 1 cm or more wide . . . . . **Adiantum** Maidenhair fern, five-finger fern. Perennial herbs with translucent leaves. Common natives of seeps and streamsides.
3. Leaf stalks brown or straw-colored; ultimate segments of blade 1-5 mm wide **4**
4. Leaves hairy or scaly . . . . . **Cheilanthes** Lip fern. Small perennial herbs with compound leaves. Common natives of dry rock outcrops.
4. Leaves glabrous or nearly so. **5**
5. Blades much longer than wide. . . . . **Pellaea** Cliffbrake, coffee fern. Small perennial herbs with leathery leaves. Common natives of dry rock outcrops.
5. Blades about as long as broad. . . . . **Aspidotis** California lace fern, Indian's dream. Small perennial herbs with pinnately compound leaves. Common natives of dry rock outcrops. Our species have also been placed in *Cheilanthes* and *Onychium*.

SALVINIACEAE — **Mosquito Fern Family**. Free-floating, moss-like aquatic ferns; stems delicate; leaves paired, 2-lobed; sporangia in spore cases on underside of first leaves on branches. **Azolla**. Mosquito fern. Ponds, wet ditches.

SELAGINELLACEAE — Spike-Moss Family. Low, erect or spreading, perennial, moss-like herbs; stems freely branched; leaves small, 1-veined, spirally inserted or 4-ranked, a minute flap (ligule) present at base; sporangia-bearing leaves (sporophylls) aggregated into a strobilus or separate and resembling sterile leaves. **Selaginella** Spikemoss. Common plants of exposed rocks and cliffs of inland areas.

THELYPTERIDACEAE — Marsh Fern Family. Terrestrial ferns, often of moist to wet habitats; leaves bipinnate to bipinnatifid, typically with stiff, needle-like hairs on the upper side of the rachis; sori along veins that continue to the margins; indusia usually present, but often inconspicuous. **Thelypteris nevadensis**. Marsh fern. Native fern of stream sides in the Coast Range.

SECTION 5: KEYS TO CONIFER GENERA

CUPRESSACEAE — Cypress Family. Prostrate shrubs to gigantic trees (the tallest on Earth!); leaves alternate, opposite, or whorled, scale-like or awl-shaped (sometimes on the same plant), often closely appressed on branches to linear-lanceolate, persistent or deciduous; female cones typically woody (fleshy in *Juniperus*). As treated here, the family includes Taxodiaceae.

1. Leaves alternate; adult foliage usually needle-like to linear-lanceolate **2**
1. Leaves opposite (in 4-ranks) or whorled; adult foliage usually scale-like to awl-shaped **3**
2. Leaves of lower branches linear, 2-ranked . . . . . **Sequoia sempervirens**
   Redwood, coast redwood. Majestic native, red-barked tree.
2. Leaves of lower branches scale-like, appressed . . . . . **Sequoiadendron giganteum**
   Giant-sequoia, big tree. Massive, ± pyramidal tree. Planted around Trinity Lake, Trinity Co.
3. Leaf-covered branchlets round in cross-section, not forming flat sprays. **4**
3. Leaf-covered branchlets forming definitely flattened sprays **5**
4. Female cones fleshy . . . . . **Juniperus**
   Juniper. Trees or shrubs with fleshy, aromatic cones.
4. Female cones woody . . . . . **Cupressus**
   Cypress, Alaska yellow-cedar. Trees with round cones. Locally common, though widely scattered natives. Includes *Cupressus* and *Callitropsis*.
5. Needles apparently 4 per node; internodes longer than broad . . . . . **Calocedrus decurrens**
   Incense-cedar. Tree with flat-topped sprays of branches. Common native.
5. Needles paired; internodes of youngest branchlets about as long as broad **6**
6. Ultimate branchlets typically less than 1.5 mm wide; cones sub-globose, scales peltate . . . . . **Chamaecyparis lawsoniana**
   Cedar, Port Orford-cedar. Tree with pointed sprays of branches. Locally common natives of moist habitats.
6. Ultimate branchlets 2.5 (rarely 2.0) mm or more wide; cones elongate, scales not peltate, but often spine-tipped . . . . . **Thuja plicata**
   Western red-cedar. Tree with white lines on lower surface of leaves forming an hour glass. Occasional native of coastal forests.

PINACEAE — Pine Family. Cone-bearing trees; leaves persistent, alternate, in bundles or occurring singly, needle-shaped to linear; ovulate cone woody, with spirally arranged, overlapping bracts.

1. Needles in bundles of 2-5 . . . . . **Pinus**
   Pine. Abundant natives. Our most diverse genus of conifers.
1. Needles occurring singly **2**
2. Cone scales conspicuously exserted, 3-pointed . . . . . **Pseudotsuga menziesii var. menziesii**
   Douglas-fir. Abundant native. Foliage pleasantly-scented. A tree of great economic importance.
2. Cone scales neither conspicuously exserted, nor 3-pointed. **3**
3. Branchlets not roughened, needles falling without leaving persistent bases or stalks . . . . . **Abies**
   Fir. Trees with stiff, horizontal branches. Common natives, especially at mid- to high-elevations.
3. Branchlets prominently roughened by persistent ridges or short stalks (points of needle attachment) . **4**
4. Needles of various lengths on same branchlet. . . . . **Tsuga**
   Hemlock. Common natives of coastal forests and high elevations.
4. Needles ± equal in length . . . . . **Picea**
   Spruce. Trees with drooping branches. Natives of coastal forests or of mid- to high-elevations.

TAXACEAE — Yew Family. Much-branched trees or shrubs; leaves spirally arranged, persistent, linear to lanceolate; the species dioecious; ovule 1, partially to completely enclosed by a fleshy, berry-like aril.

1. Leaves stiff, very sharp-pointed; ovule 1; aril olive-shaped, green with purple streaks, closed at apex . . . . . **Torreya californica**
   California-nutmeg. Small tree or shrub. Rare in Lake Co. chaparral.
1. Leaves flexible, not sharp-pointed; ovules 2; aril orange to scarlet, open at its apex . . **Taxus brevifolia**
   Pacific yew. Small tree with extremely flexible branches. Common stream side native of interior areas, where it may be confused with redwood. The bark and foliage of Pacific yew contain taxol, an alkaloid used to treat certain forms of cancer.

SECTION 6: KEYS TO FLOWERING PLANT GENERA

ACERACEAE — Maple Family. Trees and shrubs; leaves opposite, palmately lobed and veined (pinnately compound in box-elder); flowers unisexual; sepals 4 or 5, separate or united, petals 4 or 5, separate; stamens 4-10; carpels 2, united , each forming a samara at maturity. One genus in our area, **Acer**. Maple, box-elder. Common natives. The family is closely related to Sapindaceae and sometimes included in it.

AIZOACEAE — **Ice Plant Family**. Fleshy annual or perennial herbs; leaves alternate or opposite; flowers bisexual; sepals 5-8, petaloid and separate; petals 0-many; stamens many; carpels 2-many; fruit a capsule. See Molluginaceae for other species often placed in this family.

1. Petals absent . . . . . **Tetragonia tetragonioides**
   New Zealand-spinach. Annual herb with succulent, edible leaves. Garden escape.
1. Petals present **2**
2. Placentation axillary **3**
2. Placentation parietal. **4**
3. Prostrate or climbing subshrub . . . . . **Aptenia cordifolia**
   Baby sun-rose. Perennial, succulent subshrub. Disturbed coastal bluffs.
3. Annual or perennial herbs with branched trailing stems . . . . . **Mesembryanthemum crystallinum**
   Crystalline ice plant. Escaped ornamental native to Africa.
4. Fruit an indehiscent, fleshy berry. . . . . **Carpobrotus**
   Ice plant, Hottentot-fig. Naturalized roadside plantings. Two species have been introduced on our coastal sand dunes.
4. Fruit a dry, dehiscent capsule **5**
5. Leaves smooth, sometimes punctate . . . . . **Lampranthus coccineus**
   Red flush. Creeping perennial. Garden escape. Extirpated?
5. Leaves with glistening papillae . . . . . **Drosanthemum floribundum**
   Rosea ice plant. Presumed extirpated.

ALISMATACEAE — **Arrowhead or Water-plantain Family**. Perennial herbs of aquatic sites; leaves simple, basal, erect or floating, blades linear to arrowhead-shaped; flowers white, unisexual or bisexual; sepals 3, separate; petals 3, separate; stamens 6-many; carpels 6-many, separate; fruit typically an achene.

1. Petals sharply and unevenly toothed . . . . . **Damasonium californicum**
   Fringed water-nymph. Native of shallow water or mud.
1. Petals entire **2**
2. Upper flowers unisexual . . . . . **Sagittaria**
   Arrowhead. Natives of shallow water and marshes.
2. Upper flowers bisexual **3**
3. Carpels in 1 whorl; stamens 6 . . . . . **Alisma**
   Water-plantain. Natives of pond margins, swales, and shorelines.
3. Carpels in spherical head; stamens 6-30 . . . . . **Echinodorus**
   Bur head. Uncommon native of marshes.

AMARANTHACEAE — **Pigweed Family**. Annual herbs, often with reddish lower stems; leaves simple, alternate or opposite; flowers small, greenish; sepals 4-5, separate; petals 0; stamens 4-5, united by filaments; carpels 2 or 3, united; fruit a pyxis or utricle. **Amaranthus**. Pigweed. Common robust weeds of waste areas. Chenopodiaceae are sometimes considered part of this family.

ANACARDIACEAE — **Cashew, Sumac , or Poison-oak Family**. Shrubs or vines; leaves simple or pinnately compound; flowers bisexual; sepals 5, united at base; petals 5, separate; stamens 10; carpels 3, united; fruit a drupe.

1. Leaves simple, leathery, and evergreen . . . . . **Rhus ovata**
   Sugar bush. Shrub with shiny leaves. Introduced near Junction City, Trinity Co.
1. Leaves compound, thin, and deciduous **2**
2. Fruits glabrous, whitish; flowers in open panicles; leaflets and branchlets glabrous . . . . . **Toxicodendron diversilobum**
   Poison-oak. Shrub or vine causing severe dermatitis in sensitive individuals. *We urge you to wash your hands immediately and thoroughly!!* Common native.
2. Fruits hairy, reddish; flowers in dense spikes; leaflets and branchlets pubescent . . . . . **Rhus trilobata**
   Squaw bush. Shrub with deciduous, trifoliolate leaves. Common native. Leaves similar to poison-oak, but terminal leaflet larger than lateral ones.

APOCYNACEAE — **Dogbane or Milkweed Family**. Perennial herbs or shrubs, milky sap present or absent; leaves simple, alternate, opposite or whorled; flowers bisexual, radially symmetrical, generally in umbels or raceme-like inflorescences; sepals 5, united at base, often reflexed; petals 5, united; stamens 5, epipetalous, their filaments united into a column (with elaborate appendages in *Asclepias*); carpels 2, often united above, but the ovaries separate, the ovary superior; fruit a follicle, capsule, drupe, or berry. As treated here, the family includes Asclepiadaceae.

1. Plants shrubby . . . . . **Nerium oleander**
Oleander. Attractive, but highly toxic shrubs with whorled, lanceolate leaves. Planted along highways and at rest areas, from which it has escaped in Shasta Co.
1. Plants herbaceous **2**
2. Filaments fused into a column; appendages present . . . . . **Asclepias**
Milkweed. Common natives of open habitats. The milky sap is toxic, causing potentially severe dermatitis or gastroenteritis if consumed.
2. Filaments free from one another; appendages absent **3**
3. Vegetative stems trailing; flowers 2.5 cm or more long . . . . . **Vinca major**
Periwinkle. Trailing, perennial, blue-flowered herb. Naturalized.
3. Vegetative stems erect; flowers less than 2 cm long **4**
4. Leaves in 2 or 3 pairs; corolla 1.5 cm or more long, funnel-shaped, rose-purple . . **Cycladenia humilis**
Waxy-dogbane. Small perennial herbs with showy flowers. Uncommon, but widespread natives.
4. Leaves in several to many pairs; corolla whitish, less than 1 cm long, bell-shaped to urn-shaped **Apocynum**
Dogbane. Perennial herbs with small flowers and a toxic, milky sap. Common natives.

APONOGETONACEAE — Cape Pondweed Family. Perennial aquatics; leaves long-petioled, linear-oblong, floating or submersed; flowers small, typically bisexual; perianth 0 to 6-parted, reduced; stamens 3 + 3; carpels 3, separate; fruit a follicle. **Aponogeton distachyus**. Cape pondweed.

AQUIFOLIACEAE — **Holly Family**. Trees or shrubs, often evergreen; leaves simple, alternate, spiny; flowers unisexual or bisexual; sepals 4, separate; petals 4, separate; stamens 4; carpels 4, united; fruit a drupe. **Ilex aquifolium**. English holly. Escaped ornamental.

ARACEAE — **Arum, Philodendron or Aroid Family**. Perennial herbs; leaves alternate, simple, pinnately or palmately veined; flowers small, unisexual, aggregated into a spadix subtended by a showy bract (spathe); sepals 4-6, separate; petals 0; stamens 6; carpels 2 or 3, united; fruit a berry. The free-floating aquatic plants of the duckweed family (Lemnaceae) are sometimes assigned to this family. While closely related, it is convenient to continue to place them in their own family, Lemnaceae.

1. Spathe with spots or streaks **2**
1. Spathe uniformly colored **3**
2. Leaves deeply many-lobed; apex of spadix tapered . . . . . **Dracunculus vulgaris**
Dragon-arum. Escaped ornamental native to the Mediterranean region.
2. Leaves with hastate or sagittate bases; spadix with a prominent sterile appendage . . . . . **Arum**
Italian arum. Perennial herb with yellow spadix and spathe with purple spots. Garden escape.
3. Spathe white . . . . . **Zantedeschia aethiopica**
Calla-lily. Perennial herb with showy spathe. Common garden escape.
3. Spathe yellow . . . . . **Lysichiton americanum**
Yellow skunk-cabbage. Perennial herb with showy spathe and strong, unpleasant smell. Common native of wet areas. Blooming in winter months.

ARALIACEAE — **Ginseng Family**. Robust herbs and vines; herb; leaves alternate, simple or pinnately compound; flowers unisexual or bisexual; sepals 5, separate; petals 5, separate; stamens 5; carpels 5, united, ovary inferior; fruit a berry or drupe. Closely related to Umbelliferae and although easily separated from it in North America, only with some difficulty world-wide. *Hydrocotyle*, sometimes assigned to this family, is treated here in its own family, Hydrocotylaceae.

1. Leaves simple; trailing or climbing vines . . . . . **Hedera helix**
English ivy. Perennial vine with dark, green leaves. Common garden escape.
1. Leaves compound; erect herbs . . . . . **Aralia californica**
Spikenard, elk's-clover. Robust herb (to 3 m) with compound leaves. Common native of interior stream sides.

ARISTOLOCHIACEAE — **Birthwort Family**. Perennial herbs and vines; leaves alternate, simple; flowers radially or bilaterally symmetrical; sepals 3, petaloid, united; petals 0; stamens 6-many; carpels 4-6, united; fruit a capsule.

1. Woody, climbing vines; flowers bilaterally symmetrical . . . . . **Aristolochia californica**
Dutchman's pipe. Winter blooming, perennial vine. Native of streambanks, often growing over shrubs.
1. Low herbs; flowers radially symmetrical . . . . . **Asarum**
Wild-ginger. Perennial, aromatic, evergreen herbs with large, cordate leaves. Common natives.

BALSAMINACEAE — Touch-me-not Family. Succulent herbs with ± transparent, watery stems; flowers bisexual, bilaterally symmetrical; sepals 3, lowermost forming a tubular spur; petals 5, lateral pair united; stamens 5, connate above; carpels 5, united; fruit a capsule that dehisces readily (hence the common name of the family). **Impatiens**. Jewel weed, touch-me-not.

BERBERIDACEAE — Barberry Family. Shrubs or perennial herbs; leaves alternate, simple or compound; flowers bisexual; sepals 3-many, separate; petals 3-9, separate (the perianth thus appearing 3 + 3 + 3 + 3) or rarely without a perianth; stamens 4-18, pressure sensitive; carpels 2 or 3, appearing unicarpellate and unilocular; fruit a berry or follicle.

1. Shrubs **2**
1. Herbs **3**

2. Leaves pinnately compound; stems spineless . . . . . **Mahonia**
Barberry, Oregon-grape. Shrubs with evergreen, pinnately compound, spiny leaves. Common natives. Our species have been separated from *Berberis*, which is now recognized as a genus of Old World shrubs with spiny stems. Common spiny-leaved shrubs. Our local species are difficult to distinguish.
2. Leaves simple; stems spiny. . . . . **Berberis**
Barberry. Yellow-flowered shrubs with simple leaves and stipular spines. Escaped ornamentals.
3. Flowers in a spike; perianth absent . . . . . **Achlys**
Deer foot, vanilla leaf. Perennial forest herbs with 3 leaves at stem apex. Common natives.
3. Flowers in a panicle; perianth present . . . . . **Vancouveria**
Inside-out-flower. Perennial herbs with compound leaves and reflexed perianth. Common forest natives. The yellow-flowered *V. chrysantha* is rare.

BETULACEAE — **Birch Family**. Trees and shrubs; leaves alternate, simple, pinnately veined; flowers unisexual, borne in separate male and female catkins; sepals typically 0; petals 0; stamens 2-20; carpels 2, united; fruit a nut or nutlet.

1. Leaf bases cordate; fruit a rounded nut partially enclosed in a leafy involucre . . . . . **Corylus cornuta var. californica**
Hazelnut, filbert. Shrub with deciduous leaves and large, edible fruits. Common native.
1. Leaf bases not cordate; fruit a flattened, winged nutlet in elongate or cone-like catkins **2**
2. Female catkin woody, cone-like. . . . . **Alnus**
Alder. Trees and shrubs with deciduous leaves. Common natives.
2. Female catkin soft, not at all cone-like . . . . . **Betula occidentalis**
Water birch. Tree or shrub with sticky, triangular leaves. Uncommon native in central Siskiyou Co.

BIGNONIACEAE — **Catalpa Family.** Mostly trees or woody vines; leaves typically opposite, simple or compound; flowers bisexual, bilaterally symmetrical; sepals 5, united; petals 5, united; stamens 4, didynamous and epipetalous; carpels 2, united; fruit a capsule.

1. Woody vine; leaves compound . . . . . **Campsis radicans**
Trumpet creeper. Woody vine with opposite, pinnately compound leaves. Escaped ornamental native to the eastern United States.
1. Tree; leaves simple . . . . . **Catalpa bignonioides**
Indian bean, catalpa. Tree to 15 m with purple-spotted flowers. Sparingly escaped from cultivation; native to the eastern and central U. S.

BORAGINACEAE — **Borage Family**. Annual or perennial herbs, often bristly-hairy; leaves alternate, simple; flowers bisexual, often in coiled cymes; sepals 5, united; petals 5, united; stamens 5; carpels 2, each 2-lobed; fruit 4 nutlets or achenes. Hydrophyllaceae are closely related and sometimes included here.

1. Flowers rotate; anthers convergent, but not united . . . . . **Borago officinalis**
Borage. Coarse, perennial, blue-flowered herb. Garden escape along coast.
1. Flowers tubular, salver-shaped, or funnel-shaped; anthers not convergent **2**
2. Flowers uniformly yellow or orange **3**
2. Flowers blue, pink, white, white with yellow centers or blue with yellow centers. **4**
3. Plants perennial; nutlets attached by bases to flat or convex receptable . . **Lithospermum californicum**
Puccoon. Large, perennial herb with white, shiny nutlets. Uncommon, but widespread native.
3. Plants annual; nutlets attached laterally to elongate or conical receptacle . . . . . **Amsinckia**
Fiddleneck. Bristly annuals. Common native of open habitats.
4. Flowers pink, blue or blue with yellow centers. **5**
4. Flowers white or white with yellow centers **. 11**
5. Style terminal, borne on summit of fruit. . . . . **Heliotropium**
Heliotrope. Perennial herbs with gray leaves. Rare introductions, Shasta Co.
5. Style basal, arising from receptacle or deep among lobes **6**
6. Nutlets with barbs or prickles **7**
6. Nutlets without barbs or prickles **8**

7. Nutlets widely spreading in fruit; pedicels erect or spreading during fruiting phase. . . . . **Cynoglossum**
Hound's tongue. Coarse, perennial herbs. Common natives of forests and woodlands.
7. Nutlets erect; pedicels recurved or reflexed during fruiting phase . . . . . **Hackelia**
Stickseed. Large, perennial herbs with bur-like fruits. Common natives of mid-elevation meadows. Flowers much like those in Myosotis.
8. Base of nutlet sitting within thickened rim; receptacle pitted **9**
8. Base of nutlet sitting within a thickened rim; receptacle not pitted **10**
9. Cauline leaves clasping. . . . . **Anchusa officinalis**
Bugloss. Spiny herb. Uncommon introduction, Hayfork Valley (Trinity Co.).
9. Cauline leaves petiolate or sessile, but not clasping**. . . . . Symphytum asperum**
Comfrey. Coarse, hairy, perennial herb. Garden escape along coast. The plant has a long history of medicinal uses. Its current use is controversial.
10. Corolla lobes spreading. . . . . **Myosotis**
Forget-me-not. Slender, low herbs. Mainly naturalized plants of moist areas.
10. Corolla lobes erect . . . . . **Mertensia**
Lungwort. Perennial herbs with blue or white flowers. Natives of mid-elevation meadows and forest openings.
11. Style borne on summit of fruit. . . . . **Heliotropium**
Heliotrope. Perennial herbs with gray leaves. Rare introductions, Shasta Co.
11. Style arising from receptacle or deep among lobes **12**

12. Nutlets with barbs or prickles **13**
12. Nutlets without barbs or prickles **14**
13. Nutlets spreading widely at maturity, their margins armed with hooked bristles; plants annua**Pectocarya** Comb seed. Low, spreading annuals with elongate fruits. Nutlets with prickles forming an "x". Natives of dry, open habitats.
13. Nutlets erect at maturity, their surfaces or margins armed with barbed prickles; plants biennial or perennial . . . . . **Hackelia** Stickseed. Large, perennial herbs with bur-like fruits. Common natives of mid-elevation meadows. Flowers much like those in Myosotis.
14. Nutlets attached to flat or convex receptacle . . . . . **Myosotis** Forget-me-not. Slender, low herbs. Mainly naturalized plants of moist areas.
14. Nutlets attached to elongate, truncate, or conical receptacle **15**
15. Plants typically with pungent hairs; nutlets with groove or slit running most of their length . . **Cryptantha** Annual herbs. Abundant natives of open habitats. Easily confused with *Plagiobothrys*. A difficult genus requiring mature fruit to determine species.
15. Plants typically with soft hairs, only rarely pungent; nutlets with a keel extending to middle and often with an apparent scar representing point of attachment . . . . . **Plagiobothrys** Popcorn flower. Annual herbs. Abundant natives of open habitats. Easily confused with *Cryptantha*. A difficult genus requiring mature fruit to determine species.

BUDDLEJACEAE — Butterfly Bush Family. Trees and shrubs; leaves opposite, simple; flowers besexual; sepals 4, united; petals 4, united; stamens 4; carpels 2, united, ovary superior; fruit a capsule, berry, or drupe. **Buddleja davidii**. Butterfly bush, summer-lilac. Shrub with lilac-like, lavender flowers. Escaped ornamental. The genus has also been assigned to Loganiaceae and Scrophulariaceae.

CABOMBACEAE — Water-Shield Family. Aquatic, rhizomatous herbs; leaves (in ours) simple, long-petioled, peltate, and floating on the surface; flowers bisexual, regular, sepals 3, ± petaloid; petals 3; stamens 12-18; carpels 4-8; fruit achene-like or follicle-like. **Brasenia schreberi**. Water-shield. Perennial herb with small purple flowers. Uncommon native in ponds. Family sometimes included in Nymphaeaceae.

CACTACEAE — Cactus Family. Succulent herbs or shrubs of diverse forms, often spiny; stems fleshy, spherical, flattened or cylindric; leaves alternate, simple, usually reduced or missing on mature plants; flowers typically solitary, regular; calyx petaloid, intergrading into corolla, the numerous perianth segments often fused into an elongate hypanthium; stamens many; carpels 2-many, united, ovary inferior. **Opuntia fragilis var. fragilis.** Pigmy tuna. Shasta Valley, Siskiyou Co.

CALLITRICHACEAE — Water-Starwort Family. Aquatic herbs with slender, tufted stems; submersed leaves often linear, bifid; emergent leaves linear to spathulate; flowers unisexual; sepals 0; petals 0; stamen 1; carpels 2, united; fruit a schizocarp. One genus in the family, **Callitriche.** Water-starwort. Natives of seasonal or permanent ponds.

CALYCANTHACEAE — **Spice Bush Family**. Shrubs; leaves alternate, simple; flowers bisexual; perianth 15-30, ± petaloid, separate; stamens 5-20; carpels many, separate; fruit an achene. **Calycanthus occidentalis**. Spice bush, sweet shrub. Shrub with maroon flowers. Occasional native of interior streamsides.

CAMPANULACEAE — **Harebell or Bellflower Family**. Perennial herbs; leaves alternate, simple; flowers bisexual; sepals 5, separate; petals 5, separate; stamens 5, epipetalous; carpels 2, 3 or 5, the ovary inferior; fruit a capsule.

1. Plants aquatic, annual, immersed or branches floating . . . . . **Howellia aquatilis** Water howellia. Annual herb with linear leaves. Rare native of stagnant pools. Long presumed extinct in California, it was rediscovered in 1996.
1. Plants terrestrial, annual or perennial **2**
2. Corolla radially symmetrical **3**
2. Corolla bilaterally symmetrical **7**
3. Lower (or all) flowers well-developed, open-pollinated **4**
3. Lower flowers with vestigial corollas, self-pollinated **6**
4. Upper flowers sessile or nearly so . . . . . **Githopsis** Bluecups. Small annual with minute flowers. Native of open, interior, low elevation habitats.
4. Upper flowers stalked **5**
5. Flowers generally 2 or more per node; corolla lobes linear . . . . . **Asyneuma prenanthoides** California harebell. Perennial herbs with pale to deep blue flowers. Redwood and montane forests.
5. Flowers generally 1 per node; corolla lobes triangular . . . . . **Campanula** Harebell. Small herbs with typically blue flowers. Common natives of mid- to high-elevation forests.
6. Corolla lobes shallow . . . . . **Heterocodon rariflorum** Western pearlflower. Small annual. Native of damp, grassy habitats.
6. Corolla lobes to below middle . . . . . **Triodanis perfoliata** Venus' looking glass. Small annuals. Natives of open, disturbed habitats.
7. Anthers equal, separate . . . . . **Nemacladus** Nemacladus. Small annuals. Natives of dry slopes, burns, or serpentine.
7. Anthers unequal, united **8**
8. Flowers stalked . . . . . **Legenere limosa** False Venus' looking-glass. Small, annual herb with yellow flowers. Native of dried beds of vernal pools.
8. Flowers sessile in axils of leafy bracts . . . . . **Downingia** Calico flower. Annual herbs with showy flowers. Locally abundant in dried beds of vernal pools.

CANNABACEAE — **Hemp Family**. Aromatic annual herbs or perennial vines; leaves alternate or opposite, simple or compound; flowers uinsexual, on separate plants; sepals 5, separate; petals 0; stamens 5; carpel 1; fruit an achene.

1. Plants erect; leaves alternate . . . . . **Cannabis sativa**
   Marijuana, pot, grass, etc. Annual herbs. Reputed to be the single most economically important plant of our region.
1. Plants trailing; leaves opposite . . . . . **Humulus lupulus**
   Hop. Perennial vine with flowers enclosed in green bracts. Occasionally naturalized. The female inflorescence provides the flavoring material used in brewing.

CAPRIFOLIACEAE — **Honeysuckle Family**. Shrubs; leaves opposite, simple or compound; flowers bisexual, radially or bilaterally symmetrical; sepals 5, separate; petals 4 or 5, united; stamens 4 or 5; carpels 2, 3, 5, or 8, united; fruit a berry or drupe. Recent work suggests that *Sambucus* and *Viburnum* should be segregated into their own families.

1. Leaves compound . . . . . **Sambucus**.
   Elderberry, elder. Shrubs with deciduous, pinnately compound leaves. Berries blue, black or red. Common natives. The fruits are used to make elderberry wine.
1. Leaves simple **2**
2. Stamens 4. . . . . **Linnaea borealis ssp. longiflora**
   Long-tubed twin-flower. Perennial ground cover with glossy leaves and pink flowers. Common mid-elevation native of damp forest floor habitats. Sometimes placed in its own family, Linnaeaceae.
2. Stamens 5. . . . . **3**
3. Style rudimentary or absent . . . . . **Viburnum**
   Viburnum, arrow wood. Deciduous shrub with simple leaves. Rare, widely scattered natives and an escaped ornamental.
3. Style well-developed **4**
4. Berry white; corolla radially symmetrical . . . . . **Symphoricarpos**
   Snowberry. Small shrubs with white fruit. Common natives.
4. Berry red or black; corolla 2-lipped or spurred or both. . . . . **Lonicera**
   Twinberry, honeysuckle. Shrubs or vines with simple leaves and paired fruits. Common natives.

CARYOPHYLLACEAE — **Pink or Carnation Family**. Annual or perennial herbs, often with swollen nodes; leaves opposite, simple, often connected at base by a thin line; flowers bisexual (rarely unisexual); sepals 5, separate or united; petals 5 (often cleft) or 0; stamens 5 or 10; carpels 2-5, united, unilocular, with free-central placentation; fruit a capsule or utricle.

1. Petals minute or absent **2**
1. Petals present, conspicuous **5**
2. Fruit several-seeded. . . . . **Loeflingia squarrosa**
   Spreading pygmy-leaf. Annual herb with glandular-pubescent foliage. Native of grassy areas. Doubtfully established in our area.
2. Fruit 1-seeded **3**
3. Sepals spine-tipped . . . . . **Cardionema ramosissimum**
   Thyme-leaved sandwort. Perennial herb forming mat of spine-tipped leaves. Common native on coastal dunes.
3. Sepals not spine-tipped **4**
4. Leaves elliptic to oblanceolate; stipules present . . . . . **Herniaria cinerea**
   Rupture wort**.** Prostrate herb with spreading stems. Sparingly naturalized. Once offered as a cure.
4. Leaves subulate; stipules absent . . . . . **Scleranthus annuus**
   Knawel. Low herb with rigid stems. Sparingly naturalized in dry areas.
5. Leaves whorled **6**
5. Leaves opposite. **7**
6. Stipules minute; styles 5 . . . . . **Spergula arvensis**
   Corn-spurry. Annual herb with linear, whorled leaves. Commonly naturalized in vacant lots.
6. Stipules 3-10 mm long; styles 3 . . . . . **Spergularia**
   Spurry. Annual or perennial herbs. Common natives of salt marshes and naturalized in waste places.
7. Sepals separate for most of their length. **8**
7. Sepals united into tube or cup. **17**
8. Stipules present. **9**
8. Stipules absent **11**
9. Stipules with a bristle. . . . . **Loeflingia squarrosa**
   Spreading pygmy-leaf. Annual herb with glandular-pubescent foliage. Native of grassy areas. Doubtfully established in our area.
9. Stipules without a bristle **10**
10. Style 1, 3-cleft or -toothed . . . . . **Polycarpon tetraphyllum**
    All-seed. Annual herb with glabrous stems. Naturalized in waste areas.
10. Styles 3, separate . . . . . **Spergularia**
    Spurry. Annual or perennial herbs. Common natives of saltmarshes and naturalized in waste areas.
11. Petals notched, cleft, or bilobed for at least half their length **12**
11. Petals entire, very slightly notched, or irregularly notched **13**
12. Styles 3 (rarely 4) . . . . . **Stellaria**
    Chickweed. Small, annual or perennial herbs with white, star-shaped flowers. Common natives and naturalized plants.
12. Styles 5 . . . . . **Cerastium**

Mouse-ear chickweed. Small, hairy herbs. Common annual weeds and perennial natives.
13. Styles 5 . . . . . **Sagina**
Pearlwort. Low, matted herbs. Common natives and naturalized plants.
13. Styles 3 (rarely 2) **14**
14. Upper portion of petals irregularly toothed . . . . . **Holosteum umbellatum**
Jagged-chickweed. Small, annual herbs. Introduction to Shasta Valley (Siskiyou Co.).
14. Upper portion of petals entire to very slightly notched **15**
15. Mature capsule splitting into as many valves or teeth as there are styles. . . . . **Minuartia**
Sandwort. Low, matted herbs. Mostly common natives. [= *Arenaria* in part]
15. Mature capsule splitting into twice as many valves or teeth as there are styles **16**
16. Plants rhizomatous perennials; seeds with pale, oily appendage near seed scar**Moehringia macrophylla**
Sandwort. Annual herb. Native of shaded slopes.
16. Plants annual or perennial, but not rhizomatous; oily appendage on seeds absent . . . . . **Arenaria**
Sandwort. Low, matted herbs. Mostly common natives.
17. Flowers in small clusters, subtended by 2-several bracts **18**
17. Flowers not in small clusters and not subtended by bracts **19**
18. Calyx tube scarious at junction of sepals . . . . . **Petrorhagia velutina**
Pink. Annual herb with pink flowers. Abundantly naturalized along roadsides in Trinity Co.
18. Calyx tube not scarious at junction of sepals. . . . . **Dianthus armeria**
Pink. Herb with bright red flowers. Locally naturalized garden escape.
19. Calyx teeth 2-3 cm long, much longer than petals. . . . . **Agrostemma githago**
Corn-cockle. Tall, silky herb with large reddish flowers. Toxic grain-field contaminant from Eurasia. Presumably escaping. We have not seen specimens.
19. Calyx teeth much shorter than petals. **20**
20. Styles 2 . . . . . **21**
20. Styles 3 or 5 (rarely 4) **24**
21. Stamens 5. . . . . **Velezia rigida**
Velezia. Diffuse, annual herb. Naturalized in Humboldt Co.
21. Stamens 10. . . . . **22**
22. Leaves clasping . . . . . **Vaccaria pyramidata**
Cow-cockle. Tall, glabrous herb with reddish flowers. Grainfield contaminant from Europe.
22. Leaves not clasping **23**
23. Petals white, less than 0.5 cm long . . . . . **Gypsophila paniculata**
Baby's breath. Perennial herb with small flowers. Naturalized in Shasta Valley, Siskiyou Co.
23. Petals pink, 3 cm or more long . . . . . **Saponaria officinalis**
Bouncing bet, soapwort. Stout, perennial herb occurring in large patches. Common poisonous garden escape, especially around older buildings.
24. Styles 3 (if 4 or 5, flowers bisexual). . . . . **Silene**
Catchfly. Herbs with sticky leaves and showy flowers. Common, diverse plants of the region.
24. Styles 5 (if 4, flowers unisexual) . . . . . **Lychnis coronaria**
Mullein-pink. Perennial herb with red or pink flowers. Occasional garden escape.

CELASTRACEAE — Staff-tree or Bittersweet Family. Woody plants, often climbing; leaves opposite or alternate, simple; flowers bisexual; sepals 3-5, separate; petals 3-5, separate, ours red-brown; stamens 3-5, inserted on or below margin of staminal disk; carpels 2-5, united; fruit a berry, drupe, samara or capsule.

1. Plants evergreen; leaves 1-2.5 cm long; flowers 4-parted . . . . **Paxistima myrsinites ssp. myrsinites**
Boxwood, Oregon boxwood, mountain lover. Small shrub with dark, shiny leaves. Locally abundant native of mid-elevation forests.
1. Plants deciduous; leaves 3-9 cm long; flowers typically 5-parted . . . . . **Euonymus occidentalis var. occidentalis**
Heart's-bursting-with-love, western burning bush. Large shrub with green, angled stems. Common, though reclusive, native of stream margins. In the fall, capsules open to expose red seeds.

CERATOPHYLLACEAE — Hornwort Family. Submersed aquatic herbs; leaves linear, whorled; flowers bisexual; sepals 9-12, united; petals many, separate; stamens many; carpels few to many, separate; fruit an achene. **Ceratophyllum demersum.** Hornwort. Common native of ponds and slow streams.

CHENOPODIACEAE — Goosefoot Family. Annual or perennial herbs and shrubs, often of xerophytic or halophytic habitats; Leaves typically alternate, simple; flowers unisexual, small, greenish; sepals usually 5, sometimes 0; petals 0; stamens typically 5; carpels 2, united; fruit a nutlet. Often treated as a subfamily of Amaranthaceae.

1. Leaves spine-tipped or reduced to scales **2**
1. Leaves flattened, well-developed and not spine-tipped **3**
2. Leaves spine-tipped; plants of disturbed terrestrial sites . . . . . **Salsola iberica**
Russian thistle. Annual herb forming a round, bushy clump. Common weed of interior on disturbed land.
2. Leaves scaly; plants of coastal salt marshes . . . . . **Salicornia depressa**
Pickle weed. Herbs with succulent stems. Abundant natives of salt marshes.
3. Flowers unisexual; pistillate ones ± naked between pair of appressed bracts . . . . . **Atriplex**
Saltbush. Herbs and shrubs with gray leaves. Large genus of native and naturalized plants.
3. Flowers bisexual; perianth 5-parted. **4**
4. Calyx without hooked spines . . . . . **Chenopodium**
Goosefoot. Herbs with mealy pubescence. Varied genus of natives and naturalized plants.
4. Calyx with hooked spines . . . . . **Bassia hyssopifolia**
Five-horned smother weed. Annual herb with fuzzy, linear leaves. Weed of interior, alkaline areas.

CISTACEAE — **Rock-rose Family**. Herbs and shrubs; leaves alternate, simple; flowers bisexual; sepals 5, separate; petals 5, separate; stamens many; carpels 3, 5 or 10, united; fruit a capsule.

1. Leaves usually alternate; flowers yellow; ovary 3-loculed. . . . . **Helianthemum scoparium**
   Sun-rose, rush-rose. Subshrub with showy, yellow flowers. Coastal native of Mendocino Co.
1. Leaves usually opposite; flowers rose to purple; ovary 5- or 10-loculed . . . . . **Cytisus**
   Rock-rose. Low shrubs. Escaped ornamental native to the Mediterranean.

CLEOMACEAE — Bee Plant Family. Ours annual herbs, glabrous or densely glandular-hairy; leaves alternate, generally 3-foliolate; sepals 4; petals 4, often clawed; stamens 6 (8 or more), often long-exserted; ovary stalked or sessile within the flower, unilocular; fruit a capsule. Sometimes considered a subfamily of Cruciferae or merged with Capparaceae.

1. Plants glabrous; leaflets 3; stamens 6; ovary stalked . . . . . **Cleome**
   Bee plant. Native annuals of dry foothills and pine-juniper woodlands.
1. Plants glandular-hairy; leaflets 3-5; stamens 8-32; ovary ± sessile . . . . . **Polanisia dodecandra ssp. trachysperma**
   Clammy weed. Native annual of dry sandy soils. Known in our region from southwest of Redding.

COMANDRACEAE — Bastard Toad-flax Family. Perennials or subshrubs; leaves alternate, simple; flowers bisexual; sepals 0; petals 4 - 6; stamens as many as petals and inserted opposite them; carpels 2- 5, united, the ovary inferior; fruit 1-seeded, drupe-like. **Comandra umbellata ssp. californica.** Bastard toad-flax. Occasional native of drier, rocky sites. The genus has been traditionally placed in Santalaceae and recent studies support that position. An alternative suggested by recent research is to include Viscaceae.

COMMELINACEAE — **Spiderwort Family**. Annual or perennial herbs; stems succulent, often mucilaginous, nodes ± swollen; leaves alternate, simple; flowers bisexual, subtended by boat-shaped bracts; sepals 3, separate; petals 3, separate; stamens 6, filaments typically conspicuously hairy; carpels 3, united; fruit a capsule. **Tradescantia**. Wandering-jew. Perennial, blue- or white-flowered herb with trailing stems. Naturalized ornamental.

COMPOSITAE (ASTERACEAE) — Sunflower, Aster, or Daisy Family. Annual herbs to shrubs, sap watery or milky; leaves often in basal rosettes or alternate (opposite in two tribes), simple or compound; flowers bisexual or unisexual, radially or bilaterally symmetrical, often individually subtended by bracts (chaff), aggregated into heads surrounded by an involucre of bracts (phyllaries); sepals modified into a series of bristles, awns, scales or hairs (pappus); petals 5, united; stamens 5, separate or united by their anthers; carpels 2, united, the ovary inferior; fruit an achene.

The key that follows recognizes three different flower types: (1) tubular or disc flowers that are radially symmetrical, bisexual or functionally staminate, and located at the center of the receptacle; (2) ray flowers that are bilaterally symmetrical, neuter or functionally pistillate, and located around the periphery of the receptacle, surrounding the tubular flowers; and (3) ligulate flowers that are bilaterally symmetrical, bisexual, and constitute the only type found in the head.

KEY TO ARTIFICIAL GROUPS

1. Plants thistle-like, phyllaries and often leaves spine-tipped . . . . . **Group A**
1. Plants not thistle-like, phyllaries and leaves not spine-tipped **2**
2. Heads of ligulate flowers only; corolla tips 5-toothed; sap usually milky . . . . . **Group B**
2. Heads with some or all tubular flowers; tips of ray flowers (when present) with no more than 3 teeth; sap usually watery **3**
3. Ray flowers present, conspicuous; corollas typically well over 5 mm long **4**
3. Ray flowers absent or inconspicuous; not exceeding tubular flowers **6**
4. Ray flowers white, pink, rose, purple, red, blue or white-yellow bicolored . . . . . **Group C**
4. Ray flowers yellow or orange. **5**
5. Pappus of delicate hairs or bristles, these capillary, barbellate, or plumose . . . . . **Group D**
5. Pappus of stiff bristles, stout awns, scale, or absent . . . . . **Group E**
6. Pappus of capillary or plumose bristles. . . . . **Group F**
6. Pappus of scales, a reduced crown, stout awns, or absent . . . . . **Group G**

Group A: Plants thistle-like

1. Heads with ligulate flowers only, subtended by 5 large bracts**. . . . . Helminthotheca echioides**
   Bristly ox-tongue. Coarse, annual herb with bristly leaves and many yellow flowers. Well-established weed. [= *Picris e.*]
1. Heads with some or all tubular flowers, not subtended by large bracts **2**
2. Leaves spiny **3**
2. Leaves not spiny **8**
3. Plants acaulescent; heads solitary, sessile, and subtended by upper leaves . . . . **Centaurea benedictus**
   Blessed thistle. Annual herb with large heads of yellow flowers. Occasional weed. [= *Cnicus b.*]
3. Plants typically caulescent, heads few to many per plant and well-elevated above leaves **4**
4. Leaves white-mottled along veins . . . . . **Silybum marianum**
   Milk thistle. Stout, biennial herb with purple flowers and variegated leaves. Common weed on rich, disturbed ground.

4. Leaves without white mottling **5**
5. Receptacle densely bristly **6**
5. Receptacle not densely bristly (sometimes sparsely so in *Onopordum*) **7**
6. Pappus of central flowers barbellate; leaves conspicuously decurrent . . . . . **Carduus**
Plumeless thistle. Biennial herbs with spiny-winged stems. Common roadside weeds.
6. Pappus of central flowers plumose; leaves not decurrent (except in *C. vulgare*) . . . . . **Cirsium**
Thistle. Herbs with spiny, pinnatifid leaves. A large genus of natives and naturalized plants, some quite attractive.
7. Leaf bases clasping; flowers yellow with red veins; receptacle not pitted . . . . . **Carthamus lanatus**
Distaff thistle. Annual herb with spiny leaves. Rare adventive.
7. Leaf bases decurrent; flowers red-purple or purple; receptacle deeply pitted . . . . . **Onopordum**
Scotch thistle. Biennial herbs with spiny leaves. Rare adventives in Shasta Valley, Siskiyou Co.
8. Heads of two kinds, staminate and pistillate; involucre of pistillate heads with straight or hooked spines, prickles or tubercules; involucre of staminate heads unarmed **9**
8. Heads all alike, not differentiated into staminate and pistillate heads **10**
9. Prickles hooked . . . . . **Xanthium**
Cocklebur. Stout, annual herbs with rough foliage and elliptical burs. Common weed.
9. Prickles or tubercules straight . . . . . **Ambrosia**
Ragweed, bur-sage. Annual or perennial herbs. Common natives on coastal dunes. Common roadside weeds. Our species have traditionally been placed in the genus Franseria.
10. Leaves rounded, ovate to cordate; involucral spines hooked. . . . . **Arctium**
Burdock. Coarse, biennial herbs with round leaves. Occasional weeds.
10. Leaves much longer than wide, entire to pinnatifid; involucral spines straight . . . . . **Centaurea**
Star-thistle, knapweed, cornflower, bachelor's buttons. Herbs with long, golden spines on heads. Diverse genus of widespread weeds. The yellow star-thistle is an especially pernicious weed and can cause lethal poisoning in horses.

Group B: Heads with ligulate flowers only

1. Leaves linear, grasslike with parallel veins, blades clasping and auriculate. . . . . **Tragopogon**
Goat's-beard. Stout, glabrous herbs. Common weeds.
1. Leaves oblanceolate, entire to deeply cleft, sometimes divided into thin, threadlike segments; if linear, not grasslike, not auriculate, and not clasping (plants lacking leaves at maturity included here) **2**
2. Flowers blue, white, rose, pink, burnt-orange, or violet **3**
2. Flowers yellow **9**
3. Flowers rose, pinkish, or violet . . . . . **Stephanomeria**
Stephanomeria. Slender-stemmed, summer-blooming annuals or perennials. Natives.
3. Flowers blue, white or burnt-orange. **4**
4. Inflorescence sessile and axillary . . . . . **Cichorium intybus**
Chicory. Much-branched, perennial herb with bright blue flowers. Common roadside weed. Used to flavor coffee.
4. Inflorescence paniculate or scapose, simple or branched **5**
5. Flowers blue; inflorescence paniculate . . . . . **Lactuca**
Lettuce. Annual or biennial herbs. Widespread weeds and local natives.
5. Flowers burnt-orange or white; inflorescence scapose **6**
6. Flowers burnt-orange . . . . . **Agoseris aurantiaca**
Mountain-dandelion. Perennial herb with basal leaves. Common native of openings in mid-elevation forests.
6. Flowers white **7**
7. Leaves conspicuously hairy . . . . . **Hieracium albiflorum**
Hawkweed. Slender, perennial herb. Common native of mid-elevation forests.
7. Leaves ± glabrous **8**
8. Stem single, branched above; pappus bristles capillary . . . . . **Malacothrix**
Desert-dandelion. Annual herbs with basal leaves. Natives of open habitats.
8. Stems several to many, arising from a common base, each branching above; pappus bristles plumose . . . . . **Rafinesquia californica**
California-chicory. Small, glabrous annual with toothed leaves. Common native of disturbed, sunny areas.
9. Leaves mostly basal **10**
9. Stem leaves well-developed, similar in shape to basal ones **22**
10. Leaves linear to oblanceolate, entire to very slightly toothed **11**
10. Leaves variously cleft and incised, often pinnatifid, sometimes divided into thread-like segments . . . **13**
11. Scapes bearing 2 or more heads . . . . . **Hieracium**
Hawkweed. Small, hairy, perennial herbs. Common natives of open habitats.
11. Scapes bearing 1 head **12**
12. Pappus of 10-30 awn-like bristles, these flattened at base; achenes beakless . . . . . **Microseris**
Microseris. Herbs with yellow to white flowers, often striped with red. Natives of woodlands and grasslands.
12. Pappus of numerous capillary bristles, these not flattened at base; achenes beaded (except in *A. glauca*) . . . . . **Agoseris**
Mountain-dandelion. Perennial herbs with basal leaves. Common natives of openings in mid-elevation forests.
13. Scapes bearing 1 head **14**
13. Scapes bearing 2 or more heads **18**
14. Inner phyllaries erect; outer ones relaxed and spreading . . . . . **Taraxacum**
Dandelion. Perennial herbs with yellow flowers. A common naturalized species and a rare native. Often confused with *Hypochoeris.*
14. Phyllaries all erect **15**
15. Pappus bristles capillary **16**
15. Pappus bristles plumose or pappus base flattened and expanded **17**

16. Pappus deciduous, easily removed with dissecting needle . . . . . **Malacothrix**
Malacothrix. Annual herbs with basal leaves. Natives of open habitats.
16. Pappus of numerous persistent bristles, not easily separating from achene apex . . . . . **Agoseris**
Mountain-dandelion. Perennial herbs with basal leaves. Common natives of openings in mid-elevation forests.
17. Base of pappus a clearly differentiated, ± glabrous bract; lateral appendages of the bristles equal in length . . . . . **Microseris**
Microseris. Herbs with yellow to white flowers, often striped with red. Natives of woodlands and grasslands.
17. Base of pappus flattened, but not clearly differentiated; clothed in numerous hairs of uneven length . . . . . **Leontodon taraxacoides**
Hawkbit. Perennial herb often confused with the dandelion, Taraxacum. Common coastal lawn weed.
18. Pappus of capillary bristles only **19**
18. Pappus of evidently to obscurely plumose bristle **or** a mixture of plumose and capillary bristles **or** a series of scales **20**
19. Leaves 5-30 cm long, prominently toothed; pappus bristles persistent . . . . . **Crepis**
Hawksbeard. Perennial herbs with hairy leaves. Common mid-elevation natives. Also weedy annuals occur along the coast.
19. Leaves usually less than 4 cm long; bristles deciduous, easily removed with a dissecting needle **Malacothrix**
Malacothrix. Annual herbs with basal leaves. Natives of open habitats.
20. Receptacle chaffy . . . . . **Hypochoeris**
Cat's-ear. Herbs most often confused with *Taraxacum*. Widespread lawn weeds.
20. Receptacle not chaffy **21**
21. Base of pappus a clearly differentiated, ± glabrous bract; lateral appendages of pappus bristles equal . . . . . **Microseris**
Microseris. Herbs with yellow to white flowers, often striped with red. Natives of woodlands and grasslands.
21. Base of pappus flattened, but not clearly distinguished, clothed in numerous hairs of uneven length; lateral appendages of pappus bristles of uneven length . . . . . **Leontodon taraxacoides**
Hawkbit. Perennial herbs confused with Taraxacum. Common coastal lawn weed.
22. Pappus of plumose bristles or absent **23**
22. Pappus of smooth or scabrous capillary bristles. **24**
23. Heads subtended by a set of spiny bracts; leaves hairy . . . . . **Helminthotheca echioides**
Bristly ox-tongue. Coarse, annual herb with bristly leaves and many yellow flowers. Well-established weed. [= *Picris e.*]
23. Heads without subtending spiny bracts; leaves glabrous . . . . . **Lapsana communis**
Nipplewort. Slender, glabrous, yellow-flowered annual. Naturalized along the coast.
24. Stem leaves stalked or sessile, but bases not clasping nor auriculate . . . . . **Crepis**
Hawksbeard. Perennial herbs with hairy leaves. Common mid-elevation natives. Also weedy annuals along the coast.
24. Stem leaves auriculate, clasping **25**
25. Heads with ca 85-250 flowers; some outer pappus bristles evidently stouter than inner ones . . **Sonchus**
Sow thistle. Annual herbs with leafy stems. Common weeds.
25. Heads with ca 11-60 flowers; pappus bristles all similar. . . . . **Lactuca**
Wild lettuce. Annual or biennial herbs. Common weeds and more localized natives.

Group C: Heads with non-yellow ray flowers

1. Receptacle chaffy throughout **2**
1. Receptacle naked or with row of chaff separating disc and ray flowers. **4**
2. Leaves entire, linear to thread-like . . . . . **Blepharipappus**
Rough eyelash weed. Small, annual herbs with white rays lined with purple. Common in juniper woodlands and pine forests, Siskiyou Co.
2. Leaves pinnatifid to finely dissected **3**
3. Annuals; ray flowers 10-25 . . . . . **Anthemis**
Chamomile. Aromatic herbs with dissected leaves. Common weeds.
3. Perennials; ray flowers typically 3-5. . . . . **Achillea**
Yarrow. Aromatic, perennial herbs with small, white-flowered heads and highly-dissected leaves. Common natives.
4. Pappus of disc flowers composed wholly or partly of capillary or barbellate bristles. **5**
4. Pappus of disc flowers composed of scales, awns, flattened bristles, a low crown, or absent **9**
5. Leaves basal, long-petioled, blade palmately lobed . . . . . **Petasites frigidus var. palmatus**
Colt's-foot. Perennial herb with large leaves. Flowering in early spring. Abundant native in low elevation forests.
5. Leaves various, basal ones (if present) not palmately lobed and long-petiolate **6**
6. Leaves spine-tipped . . . . . **Machaeranthera shastensis**
Shasta-aster. Perennial herb with blue flowers. Widespread native.
6. Leaves spineless **7**
7. Style branches of disc flowers with dense tufts of rigid, yellow hairs . . . . . **Corethrogyne californica**
California corethrogyne. Perennial herb with violet ray flowers. Local native of coastal dunes. Easily confused with the genus Aster.
7. Style branches without tufts of rigid, yellow hairs **8**
8. Phyllaries either ± equal and outer ones leafy or overlapping with papery base and often green-tipped (sometimes papery throughout); style appendage typically 0.5 mm or longer; blooming in late summer and fall . . . . . **Aster**
Aster. Summer and fall blooming perennial herbs. Common natives of a large, difficult genus. Easily confused with *Erigeron*.
8. Phyllaries either ± equal or overlapping, often green in part, but not leafy throughout nor papery-based with green tip; style appendages 0.5 mm or less long; blooming in spring or early summer . . . . . **Erigeron**

Fleabane. Spring and early summer blooming, perennial herbs. Common natives of a large, difficult genus. Easily confused with *Aster*.

9. Phyllaries with tack-shaped or saucer-shaped stalked glands . . . . . **Calycadenia**
Rosin weed. Annual herbs with linear leaves. Diverse natives.
9. Phyllaries without tack-shaped or saucer-shaped, stalked glands **10**
10. Pappus of disc flowers a short crown or absent; receptacle naked **11**
10. Pappus of disc flowers a series of flattened, bristle-like scales (paleae); ray and disc flowers separated by row of chaff **12**
11. Plants less than 1 dm tall; corolla or ligulate flowers less than 1 cm long . . . . . **Bellis perennis**
English-daisy, lawn-daisy. Small perennial herb with white ray flowers. Common lawn weed.
11. Plants 2-8 dm tall; corolla or ligulate flowers more than 2 cm long . . . . . **Leucanthemum**
Chrysanthemum. Herb with large, showy heads. Widespread roadside introduction. [= *Chrysanthemum* in part]
12. Ray flowers 8 or more; phyllaries completely enclosing ray achenes at maturity. . . . . **Layia**
Tidy-tips. Small, annual herbs with showy flowers. Short-lived spring natives of seasonally wet habitats.
12. Ray flowers 5; phyllaries only half-enclosing ray achenes . . . . . **Hemizonia**
Tarweed. Herbs with very glandular, aromatic foliage. Common natives of interior, dry habitats.

Group D: Heads with yellow ray flowers and pappus of bristles

1. Plants shrubby . . . . . **Haplopappus**
Goldenbush. Shrubs with yellow flowers. Common natives of open forests and steppes. The genus is now divided into several segregate genera.
1. Plants herbaceous **2**
2. Leaves (except perhaps uppermost) opposite . . . . . **Arnica**
Arnica. Small, perennial herbs with showy flowers. Common natives of forest floor habitats. Local species difficult to determine.
2. Leaves alternate or basal **3**
3. Plants annual; receptacle conical; rays individually subtended by phyllaries . . . . . **Crocidium multicaule**
Spring gold. Delicate, spring annual. Native of roadsides and rock outcrops, especially noticeable in Trinity Co.
3. Plants perennial (except two weedy species of *Senecio*); receptacle flat; rays not subtended by individual phyllaries **4**
4. Phyllaries partly or completely enclosing ray flower achenes. . . . . **Layia**
Tidy-tips. Small, annual herbs with showy flowers. Short-lived spring natives.
4. Phyllaries not enclosing ray flower achenes. **5**
5. Principal phyllaries in 1 series, often with a few very short ones at their base . . . . . **Senecio**
Groundsel. Herbs typically with black-tipped phyllaries. Common natives of a large, difficult genus.
5. Principal phyllaries in 2 or more series; much-reduced bracts absent **6**
6. Plants with fibrous roots arising from rhizome or woody base; heads usually small and numerous; pappus bristles equal . . . . . **Solidago**
Goldenrod. Perennial herbs with showy flowers. Common natives.
6. Plants with taproots (if not, heads solitary); pappus bristles unequal or in 2 distinct sets **7**
7. Pappus bristles unequal, but not forming definite sets . . . . . **Haplopappus**
Goldenbush. Perennial herbs. Natives.
7. Pappus bristles forming 2 sets, outer much shorter than inner . . . . . **Heterotheca**
Golden-aster. Perennial, pubescent herbs. Uncommon natives.

Group E: Heads with yellow ray flowers and pappus of scales or awns or absent.

1. Receptacle hairy; chaff absent. . . . . **Arnica dealbata**
Mountain mule-ears. Perennial herb with whitish; opposite leaves. Rare native of pine forests. [= *Whitneya d.*]
1. Receptacle chaffy or naked; hairs absent **2**
2. Receptacle with chaff ± uniformly distributed over its surface. **3**
2. Receptacle naked or with row of bracts between ray and disc flowers **9**
3. Involucral bracts in 2 dissimilar series . . . . . **Bidens**
Beggar ticks. Perennial herb. Common weed.
3. Involucral bracts in 1 or more series, but all similar. **4**
4. Ray flower corolla 4-7 mm long; leaves rigid, pungent. . . . . **Hemizonia**
Tarweed. Aromatic herbs with sticky herbage. Common and varied natives.
4. Ray flower corolla at least 1 cm long; leaves not rigid and seldom pungent **5**
5. Plants scapose (if stem leaves present, greatly reduced) . . . . . **Balsamorhiza**
Balsamroot. Large, perennial herbs with showy flowers. Common interior natives. Easily confused with *Wyethia*.
5. Stem leaves well-developed (sometimes smaller than basal ones) **6**
6. Leaves alternate **7**
6. Leaves (especially lower ones) opposite **8**
7. Receptacle flat or slightly convex; ray flowers fertile . . . . . **Wyethia**
Mule ears. Large, perennial herbs sometimes confused with the genus *Balsamorhiza*. Common interior natives.
7. Receptacle conical or columnar; ray flowers sterile . . . . . **Rudbeckia**
Coneflower. Large, perennial herbs. Common natives of wet, mid-elevation habitats.
8. Pappus persistent; disc achenes strongly compressed with thin edges. . . . . **Helianthella**
Sneezeweed. Perennial herbs with leafy stems. Occasional natives of dry habitats.
8. Pappus readily separating from achene; disc achenes slightly to moderately compressed, but without thin

edges . . . . . **Helianthus**
Sunflower. Large herb with showy heads of flowers. Locally abundant native.
9. Leaves 2-pinnatifid to pinnately dissected . . . . . **Tanacetum**
Tansy. Aromatic, perennial herbs with dissected leaves. Common natives of the coast and garden escape.
9. Leaves entire to 1-pinnatifid **10**
10. Involucre resinous . . . . . **Grindelia**
Gum plant. Usually perennial herbs with resinous phyllaries. Common natives of foothills and saltmarshes.
10. Involucre not resinous **11**
11. Pappus of awns or bristles (sometimes feathery toward base) **12**
11. Pappus of scales, a short crown, or absent **13**
12. Leaves opposite . . . . . **Lasthenia**
Goldfields. Small, annual herbs with yellow flowers. Short-lived, spring natives. [= *Baeria*]
12. Leaves alternate . . . . . **Layia**
Tidy-tips. Small, annual herbs with showy flowers. Short-lived, spring natives.
13. Phyllaries clasping and completely enclosing outer achenes **14**
13. Phyllaries not enclosing achenes **17**
14. Involucre silky-hairy . . . . . **Lagophylla**
Hareleaf. Large, open herbs with yellow flowers. Locally abundant natives of dry slopes.
14. Involucre not silky-hairy, but sometimes glandular **15**
15. Pappus absent . . . . . **Madia**
Tarweed. Herbs with strong scent and sticky foliage. Summer blooming natives.
15. Pappus present **16**
16. Ray achenes glabrous . . . . . **Madia**
Tarweed. Strongly scented herbs with sticky foliage. Summer blooming natives.
16. Ray achenes bristly to hairy . . . . . **Layia**
Tidy-tips. Small, annual herbs with showy flowers. Short-lived, spring natives.
17. Upper stem leaves opposite **18**
17. Upper stem leaves alternate **19**
18. Plants of coastal salt marshes and tidal flats; leaves partially joined at bases; phyllaries in 3-4 series . . . . . **Jaumea carnosa**
Fleshy jaumea. Perennial herb with narrow leaves. Common native of salt marshes.
18. Plants typically of interior habitats, particularly grassy, wooded sites; leaf bases not joined; phyllaries in 1 or 2 series . . . . . **Lasthenia**
Goldfields. Small, annual herbs with yellow flowers. Short-lived spring natives.
19. Phyllaries with membranous margins . . . . . **Blennosperma nanum**
Common sticky seed. Low, annual herb with pinnate leaves. Locally common native. One of our first flowers of spring.
20. Phyllaries equal **21**
20. Phyllaries in 2 or 3 series **22**
21. Pappus absent . . . . . **Monolopia major**
Annual herb with a large head whose phyllaries have some black hairs. Native of open grassy areas.
21. Scaly pappus present . . . . . **Eriophyllum**
Woolly-sunflower. Perennial herbs or subshrubs with white, woolly foliage. Abundant and diverse natives of rock outcrops and dry slopes.
22. Leaves in dense rosettes; receptacle flat . . . . . **Hulsea nana**
Dwarf hulsea. Small, perennial herb with one or few large, yellow heads. Native found only on highest peaks in region.
22. Leaves not in dense rosettes; stem leaves present; receptacle convex to ± spherical **23**
23. Phyllaries loose; leaves entire or merely toothed . . . . . **Helenium**
Sneezeweed. Perennial herbs with yellow ray flowers and brown disc flowers. Common natives of mid-elevation forests.
23. Phyllaries appressed; leaves divided into linear segments . . . . . **Hymenoxys lemmonii**
Lemmon's goldflower. Perennial herb. Native, more common in Great Basin communities.

Group F: Heads of tubular flowers only and with pappus bristles

1. Receptacle densely bristly throughout or chaffy near margin **2**
1. Receptacle naked **6**
2. Plants densely white-woolly; less than 3 dm tall; receptacle with marginal chaff . . . . . **Filago**
Filago. White-woolly, annual herbs with small heads. Native and introduced species.
2. Plants not white-woolly; typically several dm tall; receptacle bristly **3**
3. Leaves entire . . . . . **Centaurea**
Star thistle. Herbs with long, golden spines on heads. Diverse, abundant weeds.
3. Leaves toothed or pinnatifid **4**
4. Principal leaves triangular-ovate to triangular-cordate, coarsely toothed . . . . . **Saussurea americana**
American sawwort. Perennial, blue-flowered herb. Uncommon native in Siskiyou Mtns.
4. Principal leaves pinnatifid **5**
5. Stems fleshy; involucre about 5 cm high . . . . . **Cynara scolymus**
Artichoke. Stout, thistle-like, perennial herb. Garden escape.
5. Stems not fleshy; involucre not over 2.5 cm high . . . . . **Centaurea**
Star thistle. Herbs with long, golden spines on heads. Diverse, abundant weeds.
6. Shrubs **7**
6. Herbs (if woody, only at very base) **9**
7. Flowers yellow . . . . . **Chrysothamnus viscidiflorus**
Rabbit brush. Gray shrubs with abundant yellow flowers. Native; more common in Great Basin communities.
7. Flowers white, creamy, or pink-purple **8**

8. Flowers unisexual. . . . . **Baccharis**
Coyote brush. Rounded shrub with thick, rounded leaves. Abundant in coastal scrub. Typical subspecies is a prostrate shrub.
8. Flowers bisexual . . . . . **Brickellia**
Brickellia. Mainly perennial herbs. Natives of rocky habitats, including streamsides.
9. Flowers yellow, yellow-red, or reddish **10**
9. Flowers blue, purple, pink to whitish **21**
10. Leaves opposite. . . . . **Arnica**
Arnica. Small, perennial herbs with showy flowers. Common natives of forest floor habitats. Local species difficult to determine.
10. Leaves alternate **11**
11. Phyllaries equal, forming single series; small basal bracts sometimes present **12**
11. Phyllaries overlapping, in 2-several series **15**
12. Pappus bristles feathery . . . . . **Raillardella**
Raillardella. Perennial herbs with showy flowers. Uncommon natives of mid-elevations.
12. Pappus bristles capillary or barbellate **13**
13. Flowers fewer than 30 per head; leaves entire or deeply palmately cleft . . . . . **Luina**
Luina. Subshrubs with silver foliage and white flowers. Natives or rock outcrops.
13. Flowers more numerous per head; leaves pinnately toothed or lobed (rarely entire). **14**
14. Outer flowers pistillate; weedy plants near coast. . . . . **Erechtites**
Australian-fireweed. Tall herbs with small heads of flowers. Weeds of forest openings and clearcuts.
14. Outer flowers bisexual; widely distributed . . . . . **Senecio**
Groundsel. Herbs typically with black-tipped phyllaries. Common natives in a large, difficult genus.
15. Branches thread-like; achenes beaked . . . . . **Tracyina rostrata**
Beaked tracyina. Slender, annual herb with linear leaves. Rare native of southern Humboldt Co.
15. Branches more substantial; achenes beakless. **16**
16. Pappus bristles ± brown **17**
16. Pappus bristles white **18**
17. Pappus of numerous, markedly unequal bristles . . . . . **Machaeranthera shastensis**
Shasta-aster. Perennial herb. Widespread native.
17. Pappus of numerous, long, capillary bristles and shorter scales . . . . . **Heterotheca**
Golden-aster. Perennial, pubescent herbs. Uncommon natives.
18. Style appendages 0.5 mm or less in length. . . . . **Erigeron**
Fleabane. Spring and early summer blooming perennial herbs. Common natives of a large, difficult genus. Easily confused with *Aster*.
18. Style appendages mostly 0.7 mm or more long. **19**
19. Leaves linear to lanceolate . . . . . **Haplopappus**
Goldenbush. Perennial herbs. Natives, especially of the interior.
19. Leaves oblong to ovate. **20**
20. Leaves entire. . . . . **Eucephalus tomentellus**
Brickell-bush-aster. Perennial herb with dark green upper surface and white lower surface. Rare native of Del Norte Co. serpentines. [= *Aster brickellioides*]
20. Leaves toothed . . . . . **Hazardia whitneyi var. discoideus**
Whitney's golden bush. Perennial herb with woolly foliage. Uncommon native of higher mountains.
21. Leaves spine-tipped, entire; if toothed, teeth spine-tipped. . . . . **Machaeranthera shastensis**
Shasta-aster. Perennial herb. Widespread native.
21. Leaves not spine-tipped **22**
22. True ray flowers absent (corollas of marginal disc flowers enlarged and palmately 5-lobed, thus resembling ray flowers). . . . . **Lessingia**
Lessingia. Summer-blooming native herbs with glandular foliage. Widespread natives of open habitats.
22. True ray flowers present or absent; if absent, disc flowers not enlarged as above. **23**
23. Phyllaries dry, thin, and papery **24**
23. Phyllaries not dry, thin, and papery **27**
24. Herbage green and sticky . . . . . **Baccharis douglasii**
Salt marsh baccharis. Herb with simple, ascending branches. Native of primarily coastal habitats.
24. Herbage white-woolly. **25**
25. Plants with tap roots; all heads with inner bisexual or staminate flowers and outer pistillate ones . . . . . **Gnaphalium**
Cudweed. Small herbs with silvery foliage and inconspicuous heads. Common, overlooked natives. A number of species have been transferred to *Euchiton, Gamochaeta,* and *Pseudognaphalium*. We are still reviewing this proposal.
25. Plants with fibrous roots; heads on at least some plants wholly staminate or wholly pistillate **26**
26. Basal leaves forming a conspicuous and persistent rosette; stem leaves seldom well-developed; pappus bristles of pistillate flowers united at base . . . . . **Antennaria**
Pussytoes. Low, woolly perennials with basal leaves. Common natives, especially at mid- to high-elevations.
26. Basal leaves dying and falling, persistent rosette absent; stem leaves well-developed; pappus bristles of pistillate flowers separate . . . . . **Anaphalis margaritacea**
Pearly everlasting. Perennial herb with showy, white heads. Common forest native, especially at low elevations.
27. Leaves glandular-punctate or resin-dotted **28**
27. Leaves not glandular-punctate nor resin-dotted **29**
28. Leaves deltoid to deltoid-ovate; achenes mostly 5-angled and not ribbed . . . . . **Ageratina**
Eupatorium. Perennial herb with purple to white flowers. Native of open, rocky habitats of mid-elevations.
28. Leaves various, but not deltoid; achenes 10-ribbed (rarely 8-20 ribbed) . . . . . **Brickellia**
Brickellia. Herbs with resinous foliage. Natives of open, rocky habitats.
29. Leaves basal, long petioled; blade palmately lobed . . . . . **Petasites frigidus var. palmatus**

Colt's-foot. Perennial herb with large leaves. Flowers in early spring. Abundant in low elevation forests.
29. Cauline leaves present; basal ones (if present) not palmately lobed and long-petioled **30**
30. Plants foul-smelling; pappus bristles many, soft, and fine . . . . . **Senecio**
Australian-fireweed. Tall herbs with small heads of flowers. Weeds of forest openings and clearcuts. [= *Erechtites*]
30. Plants not noticeably odorous; pappus bristles few and fragile . . . . . **Conyza**
Horse weed. Tall, annual herb with narrow leaves. Common weed.

Group G: Tubular flowers only; pappus of scales, awns or absent

1. Plants low, spreading annuals; heads small of greenish flowers in forks of stems; achenes pointed because of persistent, hardened style . . . . . **Soliva sessilis**
Prickly soliva. Small annual, most easily found by walking bare foot in lawns. Native (?) of coastal areas.
1. Plants erect; heads usually easily visible and not in forks of stems; achenes not pointed; styles not hardened **2**
2. Some or all involucres bearing prickles, spines, or tubercules **3**
2. Involucral prickles, spines, or tubercules absent **4**
3. Involucre with hooked spines . . . . . **Xanthium**
Cocklebur. Stout, annual herbs with rough foliage and distinctive burs. Common weeds.
3. Involucre with straight tubercules or spines . . . . . **Ambrosia**
Ragweed and bursage. Annual or perennial herbs. Common native on coastal dunes and roadside weeds.
4. Plants white-woolly to silky-villous **5**
4. Plants glabrous to sparsely hairy; if ± woolly below heads, then leaves pinnatifid **9**
5. Achenes enclosed by phyllaries . . . . . **Lagophylla**
Hareleaf. Large, open herbs with yellow flowers. Locally abundant natives of dry slopes.
5. Achenes not enclosed by phyllaries **6**
6. Receptacle chaffy throughout . . . . . **Stylocline**
Cotton weed. Small, annual herbs with wooly foliage and minute flowers. Natives of open habitats.
6. Receptacle naked in center **7**
7. Achene-bearing bracts open, merely subtending marginal flowers . . . . . **Hesperevax sparsiflora**
Dwarf cudweed. Small, annual herb with woolly foliage. Native of dry, open places.
7. Achene-bearing bracts surrounding marginal flowers **8**
8. Leaves opposite . . . . . **Psilocarphus**
Woolly-heads. Small, annual herbs with woolly, opposite leaves. Natives of open habitats.
8. Leaves alternate . . . . . **Micropus californicus**
Slender-cotton weed. Small, annual herb with woolly, alternate leaves. Native of open habitats.
9. Receptacle chaffy throughout . . . . . **Bidens**
Beggar ticks. Perennial herb. Common weeds.
9. Receptacle naked, with single row of chaff separating ray and disc flowers, or somewhat hairy **10**
10. Lowermost leaves deltoid-ovate to almost reniform; blades green above and white below . . . . . **Adenocaulon bicolor**
Trail plant. Perennial herb with bicolored leaves, the lower surface whitish. Common native of mid-elevation forests.
10. Leaves not deltoid-ovate to reniform; leaf surfaces not conspicuously different in color (except in some *Artemisia*) **11**
11. Upper and lower leaves opposite **12**
11. Leaves alternate (lower sometimes opposite) **13**
12. Phyllaries overlapping; plants of coastal salt marshes, tidal flats . . . . . **Jaumea carnosa**
Fleshy jaumea. Perennial herb with narrow leaves. Common native of salt marshes.
12. Phyllaries in 1 series, not overlapping; plants of various terrestrial habitats . . . . . **Lasthenia**
Goldfields. Small, annual herbs with yellow flowers. Short-lived spring natives. [= *Baeria*]
13. Pappus absent or reduced to very short crown **14**
13. Pappus a series of distinct awns, scales, or bristles **20**
14. Achenes enclosed by phyllaries . . . . . **Madia**
Tarweed. Herbs with strong scent and sticky foliage. Summer-blooming natives.
14. Achenes not enclosed by phyllaries **15**
15. Heads in spikes, racemes, or panicles **16**
15. Heads solitary or in corymbs **17**
16. Plants usually aromatic; leaves often pinnately cleft . . . . . **Artemisia**
Sage or sagebrush. Perennial herbs and shrubs with strong scents. Natives of forest margins and meadows.
16. Plants not aromatic; leaves linear . . . . . **Pentachaeta**
Pygmy daisy. Slender, annual herb with diffusely branched stems. Native of dry, grassy slopes.
17. Plants of coastal marshes; achenes, especially marginal ones, conspicuously stalked . . . . . **Cotula**
Brass buttons. Diffuse herbs with strong scents. One native of salt-marshes; the other a common, introduced weed.
17. Plants of terrestrial habitats; achenes sessile **18**
18. Receptacle conical in longitudinal section . . . . . **Matricaria**
Pineapple weed. Annual herbs with finely dissected leaves and strong, pineapple-like odor. Common weeds.
18. Receptacle flat or somewhat convex **19**
19. Leaves simple, merely toothed . . . . . **Chrysanthemum**
Costmary. Perennial herb with silvery-hairy leaves and white flowers. Garden escape.
19. Leaves pinnatifid to pinnately dissected . . . . . **Tanacetum**
Tansy. Aromatic, perennial herbs with dissected leaves. Common natives of the coast and a garden escape.
20. Involucre strongly resinous . . . . . **Grindelia**
Gum plant. Usually perennial herbs with resinous phyllaries. Common natives of foothills and saltmarshes.
20. Involucre not resinous **21**

21. Leaves more than 2 mm wide **22**
21. Leaves filiform to linear, mostly less than 1 mm wide **23**
22. Leaves entire to remotely toothed; lower leaves opposite, upper alternate . . . . . **Achyrachaena mollis**
Blow-wives. Annual herb best recognized by its papery, silvery achenes. Common native of seasonally wet habitats.
22. Leaves usually pinnatifid; uniformly alternate . . . . . **Chaenactis**
Pincushion flower. Herbs with highly dissected leaves. Native of dry open habitats.
23. Pappus of 3-5 awnlike scales . . . . . **Rigiopappus leptocladus**
Wire weed. Annual herb with slender, wiry stems and linear leaves. Native of dry, open slopes.
23. Pappus of 3 fragile, slender bristles . . . . . **Pentachaeta**
Pygmy daisy. Slender, annual herbs with diffuse, branched stems. Natives of grassy slopes.

Portions of this key are modified from Cronquist, A. C. 1955. Vascular plants of the Pacific Northwest. University of Washington Press. Vol. 5. The key to ligulate composites (Group B) is based on one written by the Advanced Plant Taxonomy Class of 1971, Humboldt State University.

CONVOLVULACEAE — **Morning-glory Family**. Trailing vines (with or without chlorophyll) or erect herbs, often with milky sap; leaves alternate, simple, scale-like or absent in *Cuscuta*; flowers bisexual; sepals 5, separate; petals 5, united; stamens 5, epipetalous; carpels 2, united; fruit a capsule. The genus *Cuscuta* is often placed in its own family, Cuscutaceae.

1. Leaves absent or scale-like; plants yellowish to bright orange (chlorophyll almost entirely absent) **Cuscuta**
Dodder. Parasitic vines. Common natives, particularly obvious in *Salicornia* salt marshes.
1. Well-developed leaves present; plants green **2**
2. Erect or matted herbs; leaves and flowers less than 1 cm long **3**
2. Trailing herbs or vines; leaves and flowers typically well over 1 cm long **4**
3. Matted herb; ovary deeply 2-lobed . . . . . **Dichondra donnelliana**
Dichondra. Small, perennial herb with round leaves. Native of sea stacks and rock outcrops along coast. Also cultivated as a ground cover.
3. Erect herb; ovary not lobed. . . . . **Cressa truxillensis**
Alkali weed. Low, much-branched silky-canescent perennial herb native to saline or alkaline.
4. Ovary 2-chambered, its internal partition complete; stigma linear, stigmatic surface and style continuous . . . . . **Convolvulus arvensis**
Bindweed or wild morning glory. Perennial vine with white flowers. Common weed of roadsides and fields.
4. Ovary 1-chambered, its internal partition incomplete; stigma oblong, stigmatic surface and style distinct . . . . . **Calystegia**
Wild morning glory. Perennial vines with showy flowers. Natives. Perhaps better included in *Convolvulus*.

CORNACEAE — **Dogwood Family**. Trees, shrubs, and perennial herbs; leaves usually opposite, simple; flowers bisexual or unisexual; sepals 4 or 5, separate; petals 4 or 5, united; stamens 4 or 5; carpels 2, united, the ovary inferior; fruit a drupe or berry. **Cornus**. Dogwood. Some have white bracts, and in these plants the inflorescence is commonly misinterpreted as a single flower. Common natives, especially along creeks.

CRASSULACEAE — **Stonecrop or Orpine Family**. Succulent herbs and subshrubs, often reproducing vegetatively by means of offsets and bulbils; leaves alternate or opposite, simple, fleshy; flowers bisexual; sepals 4 or 5, separate; petals 4 or 5, separate; stamens 8 or 10; carpels 4 or 5, separate or fused at base; fruit a follicle.

1. Inflorescence terminal **2**
1. Inflorescence axillary **3**
2. Plants annual; stamens 3-5. . . . . **Sedella**
Mock stonecrop. Diminutive annual herbs. Natives of dry, open habitats.
2. Plants perennial; stamens 8 or 10 . . . . . **Sedum**
Stonecrop. Small perennial herbs. Common natives of rock outcrops. There are more species of this genus in the Klamath Region than anywhere else in North America.
3. Diminutive annuals; petals 1-2 mm long . . . . . **Crassula**
Pigmy weed. Diminutive annual herbs. Natives of dry, open habitats.
3. Conspicuous perennials; petals ca. 1 cm long . . . . . **Dudleya**
Live-forever, sea-lettuce, hens-and-chickens. Large perennial herbs. Diverse group of natives on rock outcrops.

CROSSOSOMATACEAE — Crossosoma Family. Shrubs; leaves spirally arranged, simple; flowers bisexual or unisexual; sepals 4 or 5, united; petals 4 or 5, separate; stamens many; carpels 3 to 6, separate; fruit a follicle. **Glossopetalon spinescens var. aridum.** Nevada greasewood. Small shrub with many green, angular stems. Rare native in northern Trinity Co. and in the vicinity of the Eagle Creek Campground.

CRUCIFERAE (BRASSICACEAE) — **Mustard or Crucifer Family**. Annual or perennial herbs, typically containing oils of mustard, acrid principles that give plants of this family a characteristic flavor and odor; leaves alternate, simple, often with simple, forked or stellate hairs; flowers bisexual; sepals 4, separate; petals 4, separate, often clawed; stamens 6, typically in 2 sets (4 long + 2 short); carpels 2, united; fruit a silicle or silique (depending upon length: width ratio), dehiscing longitudinally (less often opening transversely or remaining indehiscent at maturity). Mature fruits are essential for proper identification.

1. Fruit conspicuously 2-lobed. . . . . **Coronopus didymus**
Wart-cress. Prostrate herb with strong odor. Occasional weed, often growing in sidewalks.
1. Fruit apex entire to notched, but not conspicuously 2-lobed **2**

2. Fruit less than twice as long as wide (as measured at longest and widest points) **3**
2. Fruits at least twice as long as wide (as measured at longest and widest points) **18**
3. Fruit slightly to prominently winged **4**
3. Fruits not winged **6**
4. Fruit with prominent, radiating veins; 1-seeded . . . . . **Thysanocarpus**
Lace pod. Annual herbs with flat, round fruits. Common natives of open, grassy habitats and roadsides.
4. Fruit without radiating veins; 2- to many-seeded **5**
5. Fruits (not individual chambers) 2-seeded . . . . . **Lepidium**
Pepper-grass. Small, annual herbs with notched fruits. Abundant natives of open, grassy habitats and roadsides. Species determination difficult.
5. Fruits few- to many-seeded . . . . . **Thlaspi arvense**
Penny-cress. Annual herb with clasping leaves. Occasionally naturalized in Siskiyou Co.
6. Inflorescence 1-flowered. . . . . **Idahoa scapigera**
Flat-pod. Small, annual herb with glabrous leaves. Locally abundant in scattered localities.
6. Inflorescence few- to many-flowered **7**
7. Fruits an inverted, notched triangle . . . . . **Capsella bursa-pastoris**
Shepherd's purse. Annual herb, easily recognized by its unique fruit shape. Common weed.
7. Fruits ± round **8**
8. Fruits oval, 2 cm or more in diameter . . . . . **Lunaria annua**
Moonwort, money plant. Tall herb with large fruits. Occasional garden escape. Popular in dried arrangements.
8. Fruits of various shape, much less than 2 cm in diameter. **9**
9. Pedicels of mature fruit curving downward **10**
9. Pedicels divergent to erect **11**
10. Fruits 1-seeded . . . . . **Athysanus pusillus**
Common sandweed. Small, annual herb with burred fruits. Common native of open, grassy slopes and roadsides.
10. Fruits 2- to many-seeded . . . . . **Heterodraba unilateralis**
Ladies-tongue mustard. Small, annual herb whose fruits lack hooked hairs. Native of open, grassy slopes.
11. Sterile beak of fruit as long or longer than body of fruit . . . . . **Lesquerella**
Bladderpod. Perennial herbs with yellow flowers. Occasional natives of dry slopes.
11. Sterile beak shorter than body of fruit **12**
12. Leaves mostly basal; well-developed stem leaves absent; flower stalk usually less than 12 cm tall . . **13**
12. Cauline leaves present; flowering stalking usually longer than 12 cm **14**
13. Petals entire or nearly so . . . . . **Draba**
Draba or whitlow-grass. Small, perennial herbs or winter, annual herbs. Perennials common natives of high elevation ridges and rock outcrops. Annuals common roadside weeds.
13. Petals deeply notched. . . . . **Draba verna**
Whitlow-grass. Naturalized introduction from Europe. Disturbed areas below 6000 ft. [= *Eriophila v.*]
14. Stems and fruits glabrous . . . . . **Cochlearia officinalis**
Scurvy-grass. Herb with round, inflated fruit. Rare native of coastal bluffs and sea stacks, Del Norte Co.
14. Stems and fruits sparsely to densely hairy **15**
15. Hairs on stems and/or fruits with 3 to several branches **16**
15. Hairs on stems and/or fruits with 0 to 2 branches **17**
16. Some or all stem leaves clasping at base; fruit not notched at tip . . . . . **Camelina sativa**
False-flax. Annual herb. Occasional weed of fields and roadsides.
16. Stem leaves not clasping at base; fruit notched at tip . . . . . **Alyssum alyssoides**
Pale madwort. Annual herb. Naturalized in Shasta Valley, Siskiyou Co.
17. Leaf bases clasping; hairs simple. . . . . **Cardaria**
Hoary cress. Perennial herbs with rhizomes. Widespread, pernicious weed.
17. Leaf bases not clasping; hairs forked . . . . . **Lobularia maritima**
Sweet-alyssum. Small, perennial herb with white flowers. Common garden escape.
18. Fruits 2-jointed, each part 1-seeded (lower joint often sterile); joints separated by cross-wise partition; plants of coastal dunes . . . . . **Cakile**
Sea rocket. Annual herbs with fleshy leaves. One native and one naturalized species that hybridize on coastal beaches.
18. Fruits not 2-jointed; partition running lengthwise **19**
19. Fruits borne on stalk <u>within</u> flower (caution: you are not being asked whether the fruit is pedicellate) . . . . . **Thelypodium**
Thelypody**.** Herbs of variable habit. Natives of open, grassy slopes.
19. Fruits sessile <u>within</u> flower **20**
20. Fruits breaking cross-wise (transversely) into indehiscent segments **21**
20. Fruits splitting lengthwise (longitudinally) into dehiscent segments. **22**
21. Pedicels 10-20 mm long . . . . . **Raphanus**
Wild radish. Annual or biennial herbs with radish taste. Common weeds.
21. Pedicels 2-5 mm long . . . . . **Chorispora tenella**
Musk mustard. Annual herb. Grainfield weed in Shasta Valley, Siskiyou Co.
22. Fruits round to square in cross-section, but not rectangular **23**
22. Fruits flattened to rectangular **31**
23. Fruits round in cross-section **24**
23. Fruits angular in cross-section. **30**
24. Fruits bearing sterile beak 5 mm or more long (except in *Brassica nigra*) **25**
24. Fruits beakless; if so, beak less than 2.5 mm long. **26**
25. Valves of fruit with conspicuous midrib and less conspicuous lateral veins, thus appearing 1-veined . . . . . **Brassica**
Wild mustard, black mustard, rape. Herbs with yellow flowers. Common weeds.
25. Valves of fruit conspicuously 3-veined . . . . . **Hirschfeldia incana**

Hoary mustard. Common weed. Introduced from Europe. [= *Brassica geniculata*]
26. Plants of wet banks and quiet water, roots often immersed **27**
26. Plants of dry sites, roots not immersed in water **28**
27. Stems rooting at nodes; flowers white; seeds in 1 row in each chamber . . . . . **Nasturtium officinale**
Water-cress. Perennial, white-flowered herb. Common introduction in ponds and slow moving waters.
27. Stems not rooting at nodes; flowers yellow; seeds in 2 rows in each chamber . . . . . **Rorippa**
Yellow-cress. Herbs of prostrate habit.
28. Plants with forked hairs on lower leaves and stems . . . . . **Arabis glabra**
Tower mustard. Tall, biennial herb with erect fruits. Native of open habitats at mid-elevations. [=*Turritis g.*]
28. Plants with straight hairs or glabrous **29**
29. Leaves basal . . . . . **Thelypodium**
Thelypody. Herbs of variable habit. Natives of open, grassy slopes.
29. Cauline leaves present . . . . . **Sisymbrium**
Hedge mustard. Large, annual or biennial herbs with small, yellow flowers. Common weeds.
30. Plants hairy . . . . . **Erysimum**
Wallflower. Herbs with yellow to orange flowers. Natives of rock outcrops and coastal dunes. The Humboldt Bay or Menzies' wallflower (*E. menziesii*) is an endangered species.
30. Plants glabrous . . . . . **Barbarea**
Winter-cress. Glabrous herbs with yellow flowers. Native or introduced species of moist habitats.
31. Racemes leafy . . . . . **Tropidocarpum gracile**
Dobie pod. Slender, annual yellow-flowered herb. Native of oak woodlands.
31. Racemes leafless **32**
32. Upper stem leaves sessile, auriculate, and clasping **33**
32. Upper stem leaves stalked to sessile, but not clasping **37**
33. Corolla urn-shaped . . . . . **Streptanthus**
Jewel flower, shield-leaf. Herbs with perennial, grooved petals. Many native taxa with restricted ranges.
33. Corolla not urn-shaped **34**
34. Partition in fruit running at right angle to plane of flattening **35**
34. Partition of fruit running parallel to plane of flattening **36**
35. Inflorescence a much-branched panicle; mature fruits a dark purplish-brown . . . . . **Isatis tinctoria**
Woad. Glaucous herb with large inflorescence. Common weed, especially in interior valleys. Historic dye plant.
35. Inflorescence a simple raceme; mature fruits green to light brown . . . . . **Thlaspi**
Penny-cress. Herbs with white-margined sepals. Native or adventive species.
36. Fruits linear . . . . . **Arabis**
Rock-cress. Small herbs with leaves in basal rosettes. Common natives in a large, difficult genus.
36. Fruits lanceolate . . . . . **Phoenicaulis cheiranthoides**
Wallflower phoenicaulis. Perennial herb with lance-shaped fruits. Native of mid- to high- elevations.
37. Leaves mostly basal **38**
37. Stem leaves well-developed **41**
38. Upper leaf surface purple; plants usually at least 15 cm tall . . . . . **Arabidopsis thaliana**
Mouse-ear cress. Annual herb with slender stems covered with forked hairs. Roadside weed of interior, mid-elevations.
38. Upper leaf surface green; plants usually 10 cm or less tall **39**
39. Partition in fruit running at right angle to plane of flattening. . . . . **Hornungia procumbens**
Prostrate hutchinsia. Annual, white-flowered herb. Native of moist, alkaline habitats. [= *Hutchinsia p.*]
39. Partition in fruit running parallel to plane of flattening **40**
40. Plants glabrous . . . . . **Cardamine**
Bitter-cress. Annual or perennial glabrous herbs. Common forest floors and moist habitats.
40. Plants hairy . . . . . **Draba**
Draba. Small, perennial herbs or winter annuals. Common native perennials of high elevation ridges and rock outcrops or annual roadside weeds.
41. Fruit with beak 3-10 mm long; plants with separate rhizomal leaf. . . . . **Cardamine**
Toothwort, milk-maids. Perennial herbs with showy flowers. Common natives of forest floor habitats. [Includes *Dentaria*]
41. Fruit beakless; plants lacking separate rhizomal leaves **42**
42. Upper and lower leaves distinctly different in shape. . . . . **Cardamine**
Bitter-cress. Herbs with leafy stems. Common on forest floors and moist habitats.
42. Upper and lower leaves similar **43**
43. Flowers yellow **44**
43. Flowers white to rose-purple **45**
44. Stem leaves compound. . . . . **Descurainia**
Tansy-mustard. Annual or biennial herbs with highly dissected leaves. Natives of dry slopes and disturbed habitats.
44. Stem leaves simple . . . . . **Erysimum**
Wallflower. Herbs with yellow to orange flowers. Natives of rock outcrops and coastal dunes. Menzies' wallflower (*E. menziesii*) is an endangered species.
45. Stem leaves sessile . . . . . **Hesperis matronalis**
Dame's rocket. Herb with fragrant flowers. Sparingly naturalize around Trinity Center, Trinity Co.
45. Stem leaves petioled . . . . . **Cardamine**
Bitter-cress, toothwort. Herbs with leafy stems. Common on forest floors and moist habitats.

This key is based on one written by the Advanced Plant Taxonomy Class of 1973 at Humboldt State University.

CUCURBITACEAE — **Pumpkin, Squash or Cucurbit Family**. Robust, tendril-bearing vines; leaves alternate, simple, palmately lobed and veined; flowers unisexual; sepals 5, united; petals 5, united; stamens 5, usually

highly modified by fusion and twisting; carpels 3, united, the ovary inferior; fruit a leathery berry (pepo). **Marah.** Man root, wild cucumber. Vine from large tubers. Fruits ± spiny. Common native. Local folklore suggests that the seeds are psychoactive, but this has not been demonstrated under controlled conditions.

CYPERACEAE — **Sedge Family**. Grass-like herbs of wet sites; stems typically 3-sided, internodes solid; leaves basal or cauline and 3-ranked, differentiated into blade and basal sheath, its edges fused; flowers tiny, bisexual or unisexual, subtended by small bract (glume) spirally or distichously arranged in small spikes (spikelets); perianth essentially absent, reduced to bristles, hairs or scales; stamens 3; carpels 3, united, the ovary superior; fruit an achene.

1. Flowers unisexual; gynoecium or achene enclosed in a sac-like structure. . . . . **Carex** Sedge. Perennial herbs. Common natives of every habitat. Largest genus of flowering plants in our region and in California. Mature fruits needed to identify species. Consider Dante's admonition.
1. Flowers typically bisexual; gynoecium or achene not in sac-like structure **2**
2. Spikelet bracts 2-ranked. **3**
2. Spikelet bracts spirally inserted. **4**
3. Perianth of several bristles; well-developed stem leaves present . . . . . **Dulichium arundinaceum** Three-way sedge. Perennial herb with grass-like foliage. Rare around high-elevation lakes.
3. Perianth absent; leaves basal; if stem leaves present, only subtending inflorescence . . . . . **Cyperus** Flat sedge. Herbs with flat spikelets. Common natives of mainly wet habitats.
4. Flowering stems without cauline leaves 5
4. Flowering stems with 1 or more cauline leaves 8
5. Inflorescence bracts absent; spikelet 1; leaves 2, the blade ± absent . . . . . **Eleocharis** Spikerush. Herbs with reduced, scale-like leaves. Natives of wet habitats.
5. Inflorescence bracts 1 or more; spikelets 1 or more; leaves 1–3, the blade generally expanded 6
6. Florals bracts 1-veined . . . . . **Schoenoplectus** Naked-stemmed bulrushes. Native perennials with long, scaly rhizomes. [=*Scirpus* in part]
6. Floral bracts with 3 or more veins **7**
7. Flowers subtended by 1 bract . . . . . **Isolepis** Bulrush. Natives annuals and perennials of wet sites and open woodlands. [=*Scirpus* in part]
7. Flowers subtended by [1] 2 bracts. . . . . **Lipocarpha** Half-chaff sedge. Dwarf, annual herbs. Natives of moist habitats. [= *Hemicarpha*]
8. Inflorescences 1 or more, in leaf axils 9
8. Inflorescence 1 per flowering stem, terminal. 10
9. Flowers 10–50 per spikelet . . . . . **Scirpus** Bulrush. Perennial herbs with cylindrical spikelets. Natives of wet habitats.
9. Flowers 1–6 per spikelet. . . . . **Rhynchospora** Beaked-rush. Perennial herbs. Natives of bogs and marshes.
10. Flower bracts notched at tip, generally with a curved awn; tubers present. . . . . **Bolboschoenus** Tuberous bulrushes. Native perennials of wet sites. [=*Scirpus* in part]
10. Flower bracts tip entire, awnless; tubers absent . . . . . **Eriophorum** Cotton-grass. Perennial herb with heads of soft, white bristles. Rare native of wet mountain meadows or boggy areas.

[Modified from S. G. Smith in *The Jepson Manual* (revised edition)

DATISCACEAE — **Datisca Family**. Robust perennial. Leaves alternate, pinnately divided; flowers bisexual; sepals 3-9, separate; petals 0; stamens 8 to many; carpels 3 to 5, united, the ovary inferior; fruit a capsule. **Datisca glomerata**. Durango root. Large perennial herb, marijuana-like in general appearance, but not at all related. Native of seasonally wet stream beds and ditches. The plant is toxic.

DIPSACACEAE — Teasel Family. Herbs; leaves opposite; flowers bisexual, in dense heads; sepals 5, separate; petals 5, united, bilaterally symmetrical; stamens 4, epipetalous; carpels 2, united, the ovary inferior; fruit an achene. Sometimes included in Caprifoliaceae.

1. Flowering heads subtended by conspicuous, up-turned, thistle-like bracts . . . . . **Dipsacus** Teasel. Stout herbs with blue flowers in dense, cone-shaped heads. Naturalized, especially in coastal Humboldt Co. The thistle-like heads have been used in the carding of wool.
1. Flowering heads subtended by small herbaceous bracts. . . . . **Scabiosa atropurpurea** Mourning bride. Annual herb. Naturalized garden escape.

DROSERACEAE — **Sundew Family**. Perennial, glandular, insectivorous herbs, often of acid bogs; leaves with sticky, insect-trapping hairs; flowers bisexual; sepals 5, fused; petals 5, separate; stamens 5; carpels 2-5, united; fruit a capsule. **Drosera**. Sundew. Natives of boggy areas and marshes. Endangered because they are collected as curiosities.

EBENACEAE — Ebony Family. Trees or shrubs; leaves alternate, simple, entire, exstipulate; flowers small, regular; calyx 3- to 7-lobed, corolla 4- or 5-lobed; stamens 4-many; carpels 4-16, united; fruit a large berry. **Diospyros virginiana var. virginiana.** American persimmon. Hopland, Mendocino Co. Doubtfully naturalized.

ELAEAGNACEAE — Russian-olive or Oleaster Family. Ours a dioecious shrub with silvery or golden-brown scales; leaves simple, opposite leaves; flowers small, in short spikes or racemes, 4-parted; fruit drupe-like. **Shepherdia.** Buffalo berry. Streambanks, conifer forests.

ELATINACEAE — **Waterwort Family**. Ours annual herbs; leaves alternate, simple; sepals 3 to 5, separate; petals 3 to 5, separate; stamens 3-10; carpels 3 to 6, united; fruit a capsule. **Elatine.** Waterwort. Small, annual herbs. Natives of shallow freshwater habitats.

ERICACEAE — Heath Family. Herbs, shrubs, subshrubs, ± woody, perennial herbs (rarely trees); with or without chlorophyll; leaves alternate, simple, often leathery and evergreen, or reduced to lacking; flowers bisexual; sepals 4 or 5, ± united ; petals 4 or 5, united (rarely separate), corolla bell-, funnel- or urn-shaped; stamens usually 5-8, inserted on a disk, anthers often with tail-like appendages, opening by terminal pores; carpels 4 or 5, united, the ovary superior or inferior; fruit a capsule, drupe or berry. As treated here, the family includes Monotropaceae and Pyrolaceae.

1. Trees or shrubs **2**
1. Herbs **13**
2. Well-developed trees . . . . . **Arbutus menziesii**
   Madrone, madroño. Tree with peeling red bark. Widespread native.
2. Erect to trailing shrubs **3**
3. Leaf blades scale- or needle-like **4**
3. Leaf blades broad, well-developed **6**
4. Anthers without awns or tails . . . . . **Phyllodoce empetriformis**
   Red-heather. Small shrub with red flowers. Native of high elevation mountain meadows.
4. Anthers awned or tailed **5**
5. Plants 1-3 dm tall; leaves 4-ranked, overlapping. . . . . **Cassiope mertensiana**
   White-heather. Small, evergreen shrub. Native of high elevation mountain meadows.
5. Plants 2-3 m tall; leaves whorled, not overlapping . . . . . **Erica lusitanica**
   Heath, heather. Shrub with bright green leaves. Naturalized along roadsides in Humboldt Co.
   Petals separate . . . . . **Rhododendron columbianum**
   Labrador-tea. Evergreen shrub with leaves clustered at tips of branches. Native of wet habitats. [= *Ledum glandulosum*]
6. Petals united **7**
7. Calyx fleshy, fruit-like; true fruit a capsule . . . . . **Gaultheria**
   Wintergreen, salal. Erect shrub native to coastal habitats and low ground covers native to interior, moist areas.
7. Calyx not at all fleshy and fruit-like; true fruit a capsule or berry **8**
8. Ovary inferior . . . . . **Vaccinium**
   Huckleberry. Deciduous, sometimes evergreen, shrubs with edible fruits. Common natives.
8. Ovary superior. **9**
9. Corolla lobes 4. . . . . **Menziesia ferruginea**
   Mock-azalea. Deciduous, orange-flowered shrub. Native of redwood forest.
9. Corolla lobes 5. . . . . **10**
10. Anthers awned or tailed **11**
10. Anthers without awns or tails **12**
11. Fruit a berry . . . . . **Arctostaphylos**
    Manzanita, bearberry, kinnikinnick. Evergreen shrubs. Common, widespread natives. A large, taxonomically difficult genus, especially so because of hybridization.
11. Fruit a capsule. . . . . **Leucothoë davisiae**
    Black-laurel, Sierra-laurel. White-flowered shrub. Native of moist areas.
12. Corolla saucer-shaped with basal pouches . . . . . **Kalmia microphylla var. microphylla**
    Western alpine laurel. Small shrub with large, pink flowers. Native of wet meadows and boggy areas.
12. Corolla urn- or funnel-shaped, without basal pouches . . . . . **Rhododendron**
    Rhododendron, western azalea, California rose-bay. Deciduous or evergreen shrubs with showy flowers. Natives of coastal or moist interior habitats.
13. Plants producing chlorophyll; leaves well-developed, green **14**
13. Plants without chlorophyll (white, ± brown, red, or pink); leaves reduced or absent **17**
14. Flowers in 1-sided raceme borne on bent stem . . . . . **Orthilia secunda ssp. secunda**
    One-sided wintergreen. Perennial herb with light-green leaves. Common forest native. [= *Pyrola s.*]
14. Flowers solitary or in symmetrical racemes, umbels or corymb-like inflorescences **15**
15. Stem leaves present; style not clearly exserted; upper portion of filaments enlarged and hairy . . . . . **Chimaphila**
    Pipsissewa, prince's-pine. Perennial, pink-flowered herbs. Common natives of forests.
15. Leaves ± basal; style clearly exserted; filaments not enlarged nor hairy **16**
16. Flowers solitary . . . . . **Moneses uniflora ssp. reticulata**
    Wood nymph. Perennial, white-flowered herb. Uncommon native of low-elevation forests.
16. Flowers in racemes . . . . . **Pyrola**
    Wintergreen, shinleaf. Perennial herbs with dark-green leaves. Common natives of forests.
17. Stems white, pink or red striped; anthers with basal pores . . . . . **Allotropa virgata**
    Sugar stick. Native perennial of mid-elevation forests.
17. Stems not striped; anthers with longitudinal slits **18**
18. Petals ± united **19**
18. Petals separate **21**
19 Sepals 2 or 4. . . . . **Hemitomes congestum**
    Coneflower, gnome plant. Perennial herb with white stems. Rare native of redwood forests.
19. Sepals 5 . . . . . **20**
20. Plants purple-brown, 3-10 dm tall; anthers with 2 appendages. . . . . **Pterospora andromedea**
    Pinedrops. Perennial herb with sticky stems. Native of mid-elevation forests.
20. Plants red, 1.5-3 (rarely 5) dm tall; anthers without appendages . . . . . **Sarcodes sanguinea**
    Snow plant. Perennial herb with red stems. Native of mid- and high-elevation forests.

21. Flowers solitary, waxy-white (black on drying) . . . . . **Monotropa uniflora**
Indian pipe. Perennial herb with waxy-white stems. Rare native in mid- to low-elevation forests.
21. Flowers 2 to several per stem **22**
22 Corolla ± glabrous within; filaments glabrous; anthers 2-3 mm long . . . . . **Pleuricospora fimbriolata**
Fringed pinesap. Perennial herb with white stems. Occasional native of low- to mid-elevation forests.
22. Corolla conspicuously hairy within; filaments hairy; anthers ca 1 mm long. **23**
23. Placentation axillary; plants turning brownish on drying . . . . . **Monotropa hypopitys**
Pinesap. Perennial herb with fragrant stems. Native of low- to high-elevation forests.
23. Placentation parietal; plants turning blackish on drying . . . . . **Pityopus californicus**
California pinefoot. Perennial herb with waxy-white stems. Rare native of low- to mid-elevation forests.

EUPHORBIACEAE — **Spurge Family**. Our herbs and shrubs, typically with a milky sap; leaves alternate (sometimes opposite or whorled), simple or compound; flowers unisexual; in *Euphorbia* and its relatives, borne in a much-reduced, complex inflorescence (cyathium), consisting of a cup-like portion (involucre), several staminate flowers (consisting of 1 stamen) and 1 pistillate flower (consisting of 3 united carpels) ; in other members of the family, flowers more conspicuous (sepals 5 or 0, separate; petals 0; stamens 1 to many; carpels 3, united); fruit a capsule. The milky sap is acrid and can cause dermatitis or gastroenteritis if ingested.

1. Leaves with branched, silvery hairs . . . . . **Croton setigerus**
Turkey-mullein. Flat, annual herb with gray leaves. Common native along roadsides and in open habitats. Native Americans used this plant as a fish poison. [= *Eremocarpus s.*]
1. Leaves glabrous. . . . . **Euphorbia**
Spurge. Herbs with white sap. Natives and weeds. The sap has irritating properties and can also cause gastrointestinal disturbances if ingested. As treated here, includes *Chamaesyce.*

FAGACEAE — Oak or Beech Family. Trees and shrubs; leaves alternate, simple, pinnately lobed and veined; flowers unisexual, the male in catkins; sepals 4-6, separate; petals 0; stamens 4 to 40; carpels 3, united; fruit a nut, ± enclosed by scaly or spiny involucre.

1. Fruits partially enclosed in spiny covering. **2**
1. Fruits partially enclosed in cup-like involucre ("acorn cup") **3**
2. Leaves sharply toothed. . . . . **Castanea dentata**
Chestnut. Deciduous trees with large leaves. Naturalized, as along State Route 299 east of Willow Creek, Humboldt Co. and elsewhere.
2. Leaves entire. . . . . **Chrysolepis**
Chinquapin, golden chinquapin. Evergreen trees and shrubs with golden lower leaf surfaces. Common in mid- and high-elevations.
3. Lateral leaf veins parallel; staminate catkins erect . . . . . **Notholithocarpus densiflorus**
Tan-oak, tanbark oak. Evergreen tree and shrub (on serpentine) with green, fuzzy leaves. Abundant native with Douglas-fir in interior forests at low elevations. [= *Lithocarpus d.*]
3. Lateral veins not parallel; staminate catkins pendent. . . . . **Quercus**
Oak. Deciduous or evergreen trees and shrubs. Abundant natives that freely hybridize.

FRANKENIACEAE — Frankenia Family. Herbs; leaves alternate, simple; flowers bisexual; sepals 4 to 7, united; petals 4 to 7, separate; stamens 6; carpels 3, united; fruit a capsule. **Frankenia salina**. Alkali-heath. Bushy herb with small flowers. Native of coastal salt marshes.

GARRYACEAE — Silk Tassel Family. Shrubs, typically with 4-angled stems; leaves opposite, simple, evergreen; flowers unisexual, in catkin-like racemes, the species dioecious; sepals 0, 2 or 4, separate; petals 0; stamens 4; carpels 2 or 3, united, the ovary inferior; fruit a berry. **Garrya**. Silk tassel. Common natives.

GENTIANACEAE. — **Gentian Family**. Annual or perennial herbs; leaves opposite, simple; flowers bisexual; sepals 4, separate; petals 4 or 5, united; stamens 4 or 5, epipetalous; carpels 2, united; fruit a capsule.

1. Corolla rotate with conspicuous fringed glands on upper surface. **2**
1. Corolla bell-shaped, funnel-shaped or salver-shaped; glands absent **3**
2. Glands 1 per corolla lobe; leaves white-margined . . . . . **Swertia**
Green-gentian. Biennial or perennial herbs with open-faced flowers. Attractive natives of dry to moist habitats.
2. Glands 2 per corolla lobe; leaves not white-margined . . . . . **Frasera speciosa**
Green-gentian. Tall perennial with greenish-white, purple-dotted flowers. Dry to wet sites above 5000 ft. in Coast Range.
3. Flowers red or pink; anthers coiled or twisted after flowering . . . . . **Centaurium**
Centaury. Annual herbs with pink flowers. Showy natives.
3. Flowers yellow, blue or bluish; anthers not coiled or twisted. **4**
4. Corolla yellow; anthers cordate-ovate . . . . . **Cicendia quadrangularis**
Oregon timwort. Small annual with a single yellow flower. Uncommon native. [= *Microcala q.*]
4. Corolla blue or bluish; anthers oblong **5**
5. Corolla lobes separated by plaited folds that bear appendages or teeth. . . . . **Gentiana**
Gentian. Perennial herbs with showy flowers. Common natives of mid- to high-elevations.
5. Corolla without plaited folds between lobes **6**
6. Corolla 8-20 mm long. . . . . **Gentianella amarella**
Felwort. Moist places in Siskiyou Co. [= *Gentiana a.*]
6. Corolla 2.5-4 cm long. . . . . **Gentianopsis simplex**
Hiker's gentian. Meadows at mid and high elevations, Humboldt and Siskiyou counties. [= *Gentiana s.*]

GERANIACEAE — Geranium Family. Herbs and subshrubs; leaves alternate or opposite, palmately or pinnately lobed or divided, or compound; flowers bisexual, radially to ± bilaterally symmetrical; sepals 5, separate or united below; petals 5, separate; stamens 5, 10 or 15; carpels 5, united; fruit a schizocarp, each of the 1- to several-seeded segments rolling or spiraling away from a central beak at maturity.

1. Nectar spur at base of calyx; flowers bilaterally symmetrical . . . . . **Pelargonium**
   Geranium. Glabrous herb with pungent, turpentine-like odor. Naturalized ornamental.
1. Nectar spur absent; flowers regular **2**
2. Leaves palmately veined or divided . . . . . **Geranium**
   Cranesbill. Herbs with pink flowers. Common native and naturalized species.
2. Leaves pinnately veined or divided . . . . . **Erodium**
   Filaree, stork's-bill. Herbs with early-blooming, pink flowers. Among our most widespread weeds. [Includes *California*]

GRAMINEAE (POACEAE) — **Grass Family**. Annual or perennial herbs, sometimes robust and tree-like; stems (culms) round, internodes hollow, nodes often swollen; leaves alternate, simple, 2-ranked, differentiated into a blade, sheath (its edges not fused), and ligule (membrane or series of hairs at junction of lamina and sheath); flowers bisexual or unisexual, much-reduced, subtended by bracts, and borne in a tiny spike-like inflorescence (spikelet); spikelets pedicellate or sessile, arranged in spikes, racemes, and panicles, ± round in cross-section (terete), flattened from the sides (laterally compressed) or flattened from the backs of the bracts (dorsally compressed); at maturity breaking away (disarticulating) above or below the first glume; spikelets consist typically of a central axis (rachilla), two sterile bracts (first and second glume) at its base and one or more florets; florets consist of tiny, wind-pollinated flowers and associated bracts (lemma and palea); the lemma is the larger of the two, typically partially enclosing the palea; if it has a flower in its axil, it is a fertile lemma; if not, it is a sterile lemma; the palea is the more delicate and membranous bract, its margins often hidden inside the lemma; glumes, lemmas, and paleas usually with strands of vascular tissue (nerves) running their length (best seen with hand lens or dissecting microscope); glumes and lemmas (rarely paleas) may be armed with stiff, hair-like projections (awns) at or near their tips; perianth reduced to 2 or 3 microscopic flaps (lodicules); stamens 2, 3 or 6; carpels 3, united; fruit a caryopsis or grain. The genera *Elymus, Festuca,* and *Stipa* are treated here in a more inclusive sense than is currently fashionable.

KEY TO GROUPS

1. Inflorescence a single spikelet, a spike, a raceme, a spike-like panicle, or a head-like clump of spikelets; no inflorescence branches easily visible . . . . . **Group A**
1. Inflorescence a well-developed panicle or in a series of 2-several unbranched or sparingly branched arms; inflorescence branches evident **2**
2. Inflorescence a series of 2 or more unbranched or sparingly branched arms, each of them bearing a spike, a raceme, or a series of paired spikelets. . . . . **Group B**
2. Inflorescence a well-developed panicle of few-many branches that are themselves rebranched **3**
3. Spikelets with 1 floret. . . . . **Group C**
3. Spikelets with 2 or more florets (look carefully: 1 or more sometimes vestigial). . . . . **Group D**

Group A: **Inflorescence a single spike or head -- no branches evident**

1. Flowering stems culminating in 1 spikelet. . . . . **Danthonia unispicata**
   Wild mountain oat grass. Tufted perennial. Native of rocky hillsides.
1. Flowering stems culminating in several-many spikelets **2**
2. Mature inflorescence a spike or head-like cluster, typically not exceeding and often partially hidden by leaves; plants low, often less than 1 dm tall **3**
2. Mature inflorescences well-exserted from leaf sheaths; plants typically more than 1 dm tall **4**
3. Floret 1; lemma awnless. . . . . **Crypsis**
   Prickle grass. Annual herbs. Infrequent Old World introductions on sand or gravel bars and mud flats.
3. Florets 2 or more; lemmas awnless . . . . . **Sclerochloa dura**
   Hard grass. Low, tufted annual. Introduced from Europe. Adventive in Shasta Valley, Siskiyou Co. 000
4. Lemmas with 5 or more awns or awn-like lobes . . . . . **Orcuttia tenuis**
   Slender Orcutt's grass. Annual herb. Rare native of vernal pools, Lake and Tehama counties.
4. Lemmas awnless to 3-awned or 3-lobed. **5**
5. Spikelets subtended by conspicuous bristles . . . . . **Setaria**
   Foxtail. Annual or perennial herbs. Mostly introduced weeds of waste places and agricultural areas.
5. Spikelets not subtended by bristles **6**
6. Inflorescence axis thickened; spikelets pressed onto its surface or sunken into pits or depressions . . . **7**
6. Inflorescence axis not thickened; spikelets not pressed on to its surface, nor in pits or depressions . . **10**
7. Spikelets awned. **8**
7. Spikelets awnless. **9**
8. Glumes awnless; floret 1 . . . . . **Scribneria bolanderi**
   Scribner's grass. Diminutive annual herb, easily overlooked. Occasional native in many plant communities.
8. Glumes with 1-4 awns; florets 2-5. . . . . **Aegilops**
   Goat grass. Annual herbs. European weeds of disturbed areas.
9. Lemmas 1-veined; glumes 2 (but often appearing as 1 split glume) . . . . . **Parapholis**
   Sickle grass. Annual herbs. *P. incurva* is frequently encountered in our coastal salt marshes. A second European species, *P. strigosa*, is known in North America only from collections around Humboldt Bay.
9. Lemmas 3-veined; glume 1. . . . . **Hainardia cylindrica**
   Thintail. Annual herb. An Old World introduction in coastal salt marshes. Known here from an historic collection at mouth of the Eel River.
10. Spikelets 2 or more per node **11**

10. Spikelets 1 per node **19**
11. Glumes awnless **12**
11. Glumes awned (or entire glume narrow and awn-like) **13**

12. Fertile floret 0 or 1 . . . . . **Hordeum**
Barley. Annual or perennial herbs. Native and introduced weeds of many plant communities.
12. Fertile florets 2 or more . . . . . **Elymus**
Wild rye or rye grass. Perennial herbs. Natives of the coastal strand, grasslands, and openings in woodlands.
13. Rachis remaining intact at maturity **14**
13. Rachis breaking apart into separate spikelet-bearing segments at maturity **16**
14. Lemmas 3-veined . . . . . **Elymus caput-medusae**
Medusa-head. Annual herb. Common Old World weedy introduction in grasslands. [= *Taeniatherum c.-m.*]
14. Lemmas 5-veined **15**
15. Fertile florets 2-several; plants perennial . . . . . **Elymus**
Wild-rye or rye grass. Perennial herbs. Natives of coastal strand, grassy, and wooded areas. [Includes numerous segregate genera]
15. Fertile floret 1; plants annual . . . . . **Hordeum**
Barley. Annual or perennial herbs. Native and introduced weeds of many plant communities.
16. Spikelets 3 per node (central one fertile, laterals sterile) . . . . . **Hordeum**
Barley. Annual or perennial herbs. Native and introduced weeds of many plant communities.
16. Spikelets 2 per node, both with 2 or more fertile florets **17**
17. Glumes 12-24 mm long; plants sterile . . . . . **X Elyhordeum macounii**
Macoun's wild-rye. Sporadic sterile hybrid of meadows and open places.
17. Glumes 30-100 mm long; plants fertile **18**
18. Glumes 2- to 4-veined . . . . . **Elymus x hansenii**
Hansen's wild-rye. Sporadic and variable hybrid of dry, open places.
18. Glumes 1-veined (sometimes obscurely 2-veined) . . . . . **Elymus**
Squirreltail. Perennial herbs. Natives of dry, open, rocky sites, meadows, and open places. [= *Sitanion*]
19. Floret 1, no reduced florets or sterile lemmas present **20**
19. Florets 2 or more **27**
20. Glumes plumose or with conspicuous hairs on keels (short ciliate at base only in *Alopecurus myosuroides*) **21**
20. Glumes glabrous to sparsely hairy, but not plumose nor conspicously hairy on keels **22**
21. Glumes awned or awn-tipped . . . . . **Phleum**
Timothy. Perennial herbs. One is a native of wet meadows and boggy areas; the other an introduced pasture grass that is weedy along roadsides and in waste places.
21. Glumes awnless . . . . . **Alopecurus**
Foxtail. Annual or perennial herbs. Native or introduced species of fields, waste places, and wet areas.
22. Glumes awned **23**
22. Glumes awnless **24**
23. Awn several times longer than body of lemma (except in *Polypogon elongatus*); spikelet falling as a unit from plant at maturity . . . . . **Polypogon**
Beard grass, rabbit-foot grass. Annual or perennial herbs. Common European introductions of wet sites.
23. Awn no longer than body of lemma; glumes remaining on plant at maturity . . . . . **Muhlenbergia**
Muhly. Annual or perennial grasses. Occasional natives, especially of moist places.
24. Second glume 4-5X longer than lemma . . . . . **Gastridium ventricosum**
Nit grass. Annual herb. Common weedy introduction from Europe.
24. Second glume 1-2X longer than lemma **25**
25. Lemma awned from middle or below; awn slender and often bent . . . . . **Calamagrostis**
Reed grass. Perennial herbs. Occasional natives near the coast and in interior rocky places, meadows, and subalpine areas.
25. Lemma awnless or awned from tip **26**
26. Grasses of coastal dunes; spikelets 1 cm or more long; lemmas 5- to 7-veined . . **Ammophila arenaria**
European beach grass. Rhizomatous, perennial herb. Introduced from Europe to stabilize coastal sand dunes.
26. Grasses of interior sites; spikelets less than 0.5 cm long; lemmas 3-veined . . . . . **Muhlenbergia**
Muhly. Annuals or perennials. Occasional natives, mostly of moist places.
27. Fertile floret 1, subtended by 2 [rarely 1] sterile florets **28**
27. Florets 2 or more, more than 1 often fertile; sterile florets, if present, above fertile one(s) **29**
28. Sterile florets reduced to small, awnless, scale-like lemmas . . . . . **Phalaris**
Canary grass, reed canary grass. Annual or perennial herbs. Native or introduced plants of moist, wooded areas and waste places.
28. Sterile florets well-developed, with hairy, awned lemma . . . . . **Anthoxanthum**
Sweet vernal grass. Annual or perennial, pleasantly aromatic, Old World species. Lawns and waste places.
29. Lemma veins parallel, not converging at tip . . . . . **Pleuropogon**
Semaphore grass. Perennial herbs. Occasional natives of wet places and meadows.
29. Lemma veins converging at tip **30**
30. First (inner) glume absent, except in terminal spikelet . . . . . **Lolium**
Ryegrass, darnel. Annual or perennial herbs. Widespread European weeds.
30. Both glumes present **31**
31. Glumes unlike in shape, second wider than first when spread flat . . . . . **Koeleria macrantha**
June grass. Perennial herb. Common native of dry, open slopes in many plant communities.
31. Glumes similar in shape, equal or unequal in length **32**
32. Spikelets on short pedicels **33**
32. Spikelets sessile **37**
33. Lemmas awnless, acute (see also *Trisetum wolfii*) . . . . . **Poa**

Blue grass. Perennial (rarely annual) herbs. Common native and introduced species in many plant communities.

33. Lemmas awn-tipped or notched. **34**
34. Both glumes shorter than florets . . . . . **Festuca**
Annual fescues. Tufted annuals. Common native and intro-duced weeds of many plant communities. [= *Vulpia*]
34. One or both glumes as long as or longer than florets **35**
35. First glume shorter than first floret; lemma awn round in cross-section; florets 2 (rarely 3 or 4) **Trisetum**
Oat grass. Tufted perennials. Natives of wooded areas and occasional introduced weeds.
35. First glume longer than first floret; lemma awn flattened; florets 3 or more. **36**
36. Lemmas glabrous or with scattered hairs . . . . . **Danthonia**
Poverty-oat, oat grass. Perennial herbs. Common native and introduced plants of meadows and hillsides.
36. Lemma hairs in tufted rows. . . . . **Rytidosperma penicillatum**
Wallaby grass, hairy danthonia. Introduced perennial herbs. New Zealand and Australia. Disturbed sites. [= *Danthonia pilosa*]
37. Lemmas ciliate on keels and exposed margins . . . . . **Secale cereale**
Rye. Annual herb. Common escaped Asian crop plant in waste places, fields, and along road sides where it is planted to control erosion.
37. Lemmas not ciliate. **37**
38. Spikelets ± turgid; glumes hard . . . . . **Triticum aestivum**
Wheat. Annual herb. Escaped Old World crop plant.
38. Spikelets not turgid; glumes not hard **38**
39. Palea margins prominently toothed or ciliate . . . . . **Brachypodium distachyon**
False brome. Annual herb. Eurasian introduction well-established in waste places.
39. Palea margins entire. . . . . **Elymus**
Wild-rye. Mostly perennial herbs. Native or introduced species of dry, open places and disturbed areas.

Group B: Inflorescence a series of two or more unbranched arms

1. Fertile floret 1, no reduced florets present (a tiny rudiment very rarely present in *Cynodon*) **2**
1. Fertile florets 1 or more, along with 1 or more vestigial florets (sometimes reduced to sterile lemmas) **6**
2. Rachilla extended as bristle beyond point of attachment of floret (caution: make a very careful dissection) . . . . . **Cynodon dactylon**
Bermuda grass. Stoloniferous or rhizomatous perennial. Occasional African introduction, especially along roadsides.
2. Rachilla not extended as bristle **3**
3. Fertile lemma thick, ± rigid. . . . . **Paspalum**
Dallis grass, knot grass. Perennial herbs. Occasional introduced plants of wet places.
3. Fertile lemma thin and flexible, membranous to papery **4**
4. Glume veins several, distinct. . . . . **Digitaria sanguinalis**
Hairy crab grass. Annual herb. Common European weed.
4. Glume veins 0-3 . . . . . **5**
5. Plants annual; glumes broad, keeled, and wrinkled; lemmas 5-veined. . . . . **Beckmannia syzigachne**
Slough grass. Annual herb. Uncommon native in wet places.
5. Plants perennial, often rhizomatous; glumes not as above; lemmas 1- or 3-veined . . . . . **Spartina**
Cord grass. Stout, perennial herbs. Native and introduced species of coastal salt marshes, especially around Humboldt Bay.
6. Fertile floret 1 . . . . . **7**
6. Fertile florets 2 or more **9**
7. Fertile lemma 3-veined. . . . . **Chloris**
Feather finger grass. Weedy annual introduced from tropical America.
7. Fertile lemma with several-many veins **8**
8. Fertile lemma membranous to firm, but not hard . . . . . **Digitaria sanguinalis**
Hairy crab grass. Annual herb. Common European weed of lawns and waste places. (Why twice? See 4)
8. Fertile lemma hard. . . . . **Paspalum**
Dallis grass, knot grass. Perennial herbs. Occasional introduced plants of wet places.
9. Inflorescence branches finger-like or clustered at tip of central axis . . . . . **Eleusine indica**
Goose grass. Annual herb. Occasional weed introduced from Europe.
9. Inflorescence branches arising singly at different nodes along central axis, not finger-like nor clustered at tip of axis **10**
10. Lemmas 3-veined (sometimes appearing 1-veined). . . . . **Leptochloa fascicularis**
Sprangletop. Annual herb of moist places, Lake County.
10. Lemmas 5- to several-veined . . . . . **Festuca**
Annual fescues. Common native and introduced weeds of many plant communities. [= *Vulpia*]

Group C: Inflorescence a well-developed panicle. Spikelets with 1 floret

1. Glumes vestigial or absent **2**
1. Glumes well-developed. **3**
2. Spikelets unisexual; stamens 6 . . . . . **Zizania palustris var. interior**
Wild-rice. This crop plant, native to North America, has been introduced as food for waterfowl and is now being grown in Lake and Mendocino counties as a source of wild-rice for our consumption. Doubtfully naturalized.
2. Spikelets bisexual; stamens 2 or 3 . . . . . **Leersia oryzoides**
Rice cut grass. Rhizomatous perennial. Rare native of marshes and stream banks.

3. Spikelets awnless or nearly so **4**
3. Spikelets awned **11**
4. Floret with prominent tuft of hairs at base **5**
4. Floret without prominent tuft of hairs at base (rarely present in some Agrostis) **7**
5. Spikelets 10-15 mm long; panicle dense; plants of coastal dunes . . . . . **Ammophila arenaria**
European beach grass. Rhizomatous perennial. Introduced from Europe to stabilize sand dunes.
5. Spikelets 3-8 mm long (rarely 10 mm); panicle open; plants of sites away from coastal dunes **6**
6. Rachilla extending behind palea as short, hairy bristle . . . . . **Calamagrostis**
Reed grass, pine grass, bluejoint. Tall, perennial herbs. Occasional natives near the coast, interior rocky sites, meadows, and subalpine areas.
6. Rachilla not extending behind palea . . . . . **Muhlenbergia**
Muhly. Annual or perennial herbs. Occasional natives, mostly of moist places.
7. Both glumes at least as long as lemma **8**
7. At least first glume shorter than lemma **10**
8. Glumes with thin, membranous wing . . . . . **Phalaris**
Harding grass, reed canary grass. Annual or perennial herbs. Native and introduced species, most commonly encountered in wet places, pastures, and along roadsides.
8. Glumes without thin, membranous wing **9**
9. Lemma 3-veined; palea and lemma ± equal in length . . . . . **Muhlenbergia**
Muhly. Annual or perennial herbs. Occasional natives, mostly of moist places.
9. Lemma 5- (rarely 3-) veined; palea vestigial or absent . . . . . **Agrostis**
Red top, bent grass, tickle grass, thin grass. Diverse annual or perennial herbs. Very common native and introduced grasses in many plant communities.
10. Lemma 1-veined . . . . . **Sporobolus cryptandrus**
Sand dropseed. Tufted perennial. Widely scattered native.
10. Lemma 3-veined . . . . . **Muhlenbergia**
Muhly. Annual or perennial herbs. Occasional natives, especially of moist places.
11. Lemma awn 3-parted (lateral branches sometimes much shorter than central one) . **Aristida oligantha**
Prairie three-awn. Tufted annual. Introduced from the eastern and central United States, where it is native. Occasional in dry, open places. Its presence often indicative of land misuse.
11. Lemma awn not 3-parted (rarely awnless) **12**
12. Glumes awned **13**
12. Glumes awnless **15**
13. Glume awn several times longer than body of glume (except in *Polypogon elongatus*) . . . . . **Polypogon**
Beard grass, rabbitfoot grass. Annual or perennials herbs. Common European introductions, especially on wet sites.
13. Glume awn shorter than body of glume **14**
14. Palea less than 2/3 as long as lemma, often vestigial . . . . . **Agrostis**
Red top, bent grass. Annual or perennial herbs. Common native and introduced species of many plant communities.
14. Palea well-developed, typically as along as lemma . . . . . **Muhlenbergia**
Muhly. Annual or perennial herbs. Occasional natives, mostly of moist places.
15. Lemma hard, typically enclosing palea at least edges of palea and caryopsis **16**
15. Lemma thin and flexible, not permanently enclosing palea and caryopsis. . . . . **Stipa**
Needle grass, rice grass, smilo. Tufted perennials. Common natives, mostly of dry, open places and introductions. [Including *Achnatherum, Nassella, Oryzopsis,* and *Piptatherum*]
16. Lemma awned from back or near base . . . . . **Agrostis**
Red top, bent grass. Annual or perennial herbs. Common natives and introduced grasses of many plant communities.
16. Lemma awned from or near tip **17**
17. Floret on short stalk within spikelet; rachilla projecting beyond floret as minute bristle . . **Cinna latifolia**
Wood reed grass, drooping wood reed. Tall perennial. Native of moist, wooded areas.
17. Floret sessile within spikelet; rachilla not projecting as a minute bristle. . . . . **Muhlenbergia**
Muhly. Annual or perennial herbs. Occasional natives, mostly of moist places.

Group D: Inflorescence a well-developed panicle. Spikelets with 2 or more florets

1. Glumes and lemma(s) of fertile floret(s) of dissimilar texture, one noticeably thicker **2**
1. Glumes and fertile lemma(s) of similar texture, one not noticeably thicker **4**
2. Glumes (at least those of sessile spikelet in pair or trio) leathery, ± equal in length; fertile lemma membranous . . . . . **Sorghum halepense**
Johnson grass. Rhizomatous, tetraploid perennial relative of the crop plants derived from this genus. Common Old World introduction in waste places and along road sides.
2. Glumes membranous, unequal (first small or sometimes absent); fertile lemma leathery to hard and shiny **3**
3. Spikelets subtended by bristles . . . . . **Setaria**
Foxtail, bristle grass. Annual or perennial herbs. European introductions found mostly in waste places and around agricultural fields.
3. Spikelets not subtended by bristles . . . . . **Panicum**
Panic grass. Annual or perennial herbs. Natives of meadows, moist places, and waste places.
4. Spikelets 3-5 (rarely many) per node. . . . . **Elymus**
Wild rye, rye grass. Perennial herbs. Natives of the coastal strand, grassy, and wooded areas.
4. Spikelets 1 per node **5**
5. Inflorescence a mixture of sterile and fertile spikelets, very different in appearance (not just in size) . . . . . **Cynosurus**
Dogtail, crested dogtail. Annual or perennial herbs. Weedy European introductions in fields and waste places.

5. Inflorescence of similar spikelet **6**
6. Spikelets unisexual or sterile, no bisexual floret(s) present **7**
6. Fertile florets 1 or more **9**
7. Florets modified into purple-based bulblets with long, awn-like tails . . . . . **Poa bulbosa**
Bulbous blue grass. Tufted perennial. Widespread European introduction in meadows and in waste places.
7. Florets without bulblets **8**
8. Lemmas with cottony or cobweb-like tuft of hairs at base . . . . . **Poa**
Blue grass. Tufted perennials. Natives of coastal dunes and interior sites.
8. Lemmas without cottony or cobweb-like hairs . . . . . **Distichlis spicata**
Salt grass. Rhizomatous perennial. Common native of coastal salt marshes and interior alkaline sites.
9. Fertile floret 1, accompanied by 1 or more staminate or sterile ones **10**
9. Fertile florets 2 or more **15**
10. Sterile or staminate florets above fertile; upper floret with a hooked or bent awn. . . . . **Holcus**
Velvet grass. Perennials (one species rhizomatous). Common European introductions, especially in more moist places.
10. Sterile floret(s) below fertile one (Caution: do a very careful dissection because the sterile florets can be easily overlooked!) **11**
11. Fertile floret awned **12**
11. Fertile floret awnless **13**
12. Fertile floret subtended by 1 awned, staminate floret . . . . . **Arrhenatherum elatius**
Tall oat grass. Moderately tall, perennial herbs. Often with bulb-like corms. Eurasian introduction that has escaped from cultivation.
12. Fertile floret subtended by 2 awnless, staminate florets . . . . . **Ventenata dubia**
North Africa grass. Introduced annual from Europe. Now known from Trinity Co. and northeastern California.
13. Sterile lemmas half as long as fertile one . . . . . **Phalaris**
Canary grass, Harding grass. Annual or perennial herbs. Natives and introduced European weeds of moist and waste places.
13. Sterile lemmas at least as long as fertile one **14**
14. Glumes unequal, second noticeably longer . . . . . **Anthoxanthum**
Sweet vernal grass. Annual or perennial, sweet-smelling herbs. Old World introductions escaped in lawns and in waste places.
14. Glumes ± equal in length . . . . . **Hierochloë occidentalis**
Vanilla grass, holy grass. Perennial, sweet-smelling herb. Common native of redwood and Douglas-fir/hardwood forests. This genus is increasingly included in *Anthoxanthum.*
15. Robust perennials, typically at least 2 m tall, bamboo-like, cane-like, or reed-like with large, terminal, often plume-like inflorescences; stems ± woody to tough and inflexible, typically 1-several cm in diameter **16**
15. Annuals or perennials, typically less than 1.5 m tall, not at all bamboo-like, nor cane-like, nor reed-like; stems strictly herbaceous **18**
16. Leaves basal; blades toothed . . . . . **Cortaderia**
Pampas grass. Robust perennials. *C. jubata* is a pernicious weed native to South America. It appears to be represented in our region only by pistillate plants. *C. selloana*, a popular ornamental, has escaped from cultivation and is becoming a more aggressive weed.
16. Stem leaves present, margins of blades not toothed **17**
17. Lemmas glabrous . . . . . **Phragmites australis**
Common reed, reed grass. Robust, rhizomatous/stoloniferous perennial. A cosmopolitan grass of wet places.
17. Lemmas hairy . . . . . **Arundo donax var. donax**
Giant reed. Robust perennial to 7 m tall. Cultivated as an ornamental, planted for beautification and erosion control, and now well-established along waterways, in ditches, and around lakes. An Old World introduction, where its stems were used to make reeds for clarinets and organ pipes.
18. Lemmas 3-veined **19**
18. Lemmas 5- to many-veined (sometimes so faint as to appear veinless) **20**
19. Florets 2 . . . . . **Muhlenbergia**
Muhly. Annual or perennial herbs. Occasional natives, especially of moist places.
19. Florets 3 or more . . . . . **Eragrostis**
Love grass. Native and introduced annuals.
20. Lemmas (some or all) awned **21**
20. Lemmas awnless **32**
21. Lemmas 1.5 cm or more long **22**
21. Lemmas less than 1.2 cm long **23**
22. Glumes longer than lemmas; awn (if present), arising from back of lemma . . . . . **Avena**
Wild oat, oat. Annual or perennial herbs. Cultivated oats escapes from fields; other species are widespread weeds from the Old World.
22. Glumes shorter than lemmas; awn terminal . . . . . **Bromus**
Brome, chess, cheat grass, rattlesnake grass, ripgut grass. Annual or perennial herbs. Common native and weedy species in a large and taxonomically difficult genus.
23. Lemmas awned from base to a point about half-way up **24**
23. Lemmas awned from tip, near tip, or from between teeth of bifid tip **25**
24. Lemmas sharp-pointed, their tips with 2 bristle-like teeth; rachilla not extended beyond attachment of upper floret . . . . . **Aira**
Hair grass. Delicate, annual herbs. Common European introductions in open and sandy places.
24. Lemmas blunt, minutely toothed to erose; rachilla extended beyond attachment of upper floret **Deschampsia**
Hair grass. Common natives of wet meadows and moist places.
25. First glume longer than lowest floret **26**
25. First glume no longer than lowest floret **27**
26. Rachilla noticeably hairy . . . . . **Trisetum**
Trisetum, yellow-oat. Perennial herbs. Natives of meadows.

26. Rachilla ± glabrous . . . . . **Danthonia**
Poverty oats, oat grass. Perennial herbs. Common natives and introduced grasses of meadows and hills.
27. Glumes dissimilar in shape (second wider when spread flat); first glume 1-veined, second glume 3- to 5-veined . . . . . **Koeleria macrantha**
June grass. Tufted perennial. Native of dry, open hillsides. [= *K. cristata*]
27. Glumes similar in shape; number of veins the same in both glumes **28**
28. Glumes papery; lemmas strongly-veined, their margins non-green, membranous; bulbs often present **Melica**
Onion grass, melic. Perennial herbs, some with bulbous bases. Frequent natives of wooded areas.
28. Glumes not papery; lemmas not strongly-veined, their margins not especially membranous; bulbs absent **29**
29. Spikelets typically more than 1.5 cm long; lemma tip bifid. . . . . **Bromus**
Brome, chess, cheat grass, rattlesnake grass, ripgut grass. Annual or perennial herbs. Common natives and naturalized weeds.
29. Spikelets typically less than 1 cm long; lemma tip entire **30**
30. Second glume as long as, or longer than, lowermost floret, or awn from below tip . . . . . **Trisetum**
Trisetum, yellow-oat. Tufted perennial herbs. Native grasses of wooded areas and occasional weeds.
30. Second glume shorter than lowermost floret. **31**
31. Spikelets in dense, 1-sided clusters at ends of stiff panicle branches; leaf sheaths closed . . . . . **Dactylis glomerata**
Orchard grass. Perennial herb. Widespread European weeds of lawns and waste places.
31. Spikelets not in 1-sided clusters at ends of stiff panicle branches; leaf sheaths closed . . . . . **Festuca**
Fescue, annual fescue. Annual or perennial herbs. Native and introduced European grasses of meadows, moist places, and wet sites.
32. Glumes and lemmas inflated and papery, attached at right angles to rachilla . . . . . **Briza**
Quaking grass, rattlesnake grass. Annual or perennial herbs. Weedy introductions from the Old World. *Briza maxima* is often gathered for dried arrangements.
32. Glumes and lemmas not inflated, nor papery, and not attached at right angles to rachilla **33**
33. Lemma veins prominent, ± equally-spaced, and parallel (not converging at tip). **34**
33. Lemma veins not equally-spaced and parallel, but converging at tip **35**
34. Grasses mostly of saline areas; second glume 3-veined; lemmas 5-veined; leaf sheaths open **Puccinellia**
Alkali grass. Annual or perennial herbs. Natives of wet or marshy sites, especially if more or less alkaline.
34. Grasses or wooded or freshwater sites; second glume 1-veined; lemmas 7- to 9-veined; leaf sheaths closed . . . . . **Glyceria**
Manna grass. Perennial, rhizomatous herbs. Common natives of aquatic or marshy places.
35. Glumes dissimilar in shape (second wider when spread flat). . . . . **Koeleria macrantha**
June grass. Tufted perennial herb. Native of dry, open hillsides.
35. Glumes similar in shape (although one may be longer) **36**
36. Callus and/or lemma base bearded or with web of fine, cottony hairs . . . . . **Poa**
Blue grass. Perennial (rarely annual) herbs. Common native and introduced grasses of many plant communities. A large and taxonomically difficult genus!!
36. Callus and/or lemma base not bearded or with cottony hairs **37**
37. Lemmas 5-veined (sometimes appearing 3-veined because of faintness of 2 intermediate veins). . . . **38**
37. Lemmas with 7 or more veins **40**
38. Rachilla thickened, remaining attached to disarticulating florets and projecting downward; lemmas ± rounded in cross-section . . . . . **Catapodium rigidum ssp. rigidum**
Fern grass. Tufted annual. Introduced from Europe. Reported, but no specimens from region seen.
38. Rachilla not thickened, not remaining attached to disarticulating florets; lemmas flattened **39**
39. Leaf blade tip resembling bow of boat . . . . . **Poa**
Blue grass. Perennial (rarely annual) herbs. Common native and introduced grasses of many plant communities. A large and taxonomically complex genus!!
39. Leaf blade tip flat, not shaped like bow of boat . . . . . **Festuca**
Fescue, annual fescue. Annual or perennial herbs. Common native and introduced grasses. [Includes *Vulpia*]
40. Glumes papery; lemmas strongly-veined with thin, non-green, membranous margin; bulbs often present **Melica**
Onion grass, melic. Perennial herbs, often with bulbous bases. Frequent natives of wooded areas.
40. Glumes not papery; lemmas not strongly-veined; lemma margins not thin and membranous; plants without bulbous bases **41**
41. Lemma tips bifid; leaf sheaths closed. . . . . **Bromus**
Brome, chess, cheat grass, rattlesnake grass, rip gut grass. Annual or perennial herbs. Common natives and introduced weedy species. A large and taxonomically difficult genus.
41. Lemma tips tapering to point; leaf sheaths open. . . . . **Festuca**
Fescue, annual fescue. Annual or perennial herbs. Common native and introduced grasses. [Includes *Vulpia* and *Schedonorus*]

GROSSULARIACEAE — **Gooseberry Family**. Shrubs, often spiny; leaves alternate, simple, variously lobed; flowers bisexual or unisexual; sepals 4 or 5, sometimes petaloid; petals 5; stamens 5; lower portions of sepals, petals, and stamens forming a rotate to tubular hypanthium; carpels 2, the ovary inferior; fruit a berry. **Ribes**. Gooseberry, currant. Shrubs with palmate leaves and large, sometimes edible, berries. Common and diverse natives; the second largest genus of shrubs in our region. Gooseberries have spines at the nodes, bristles on the internodes, and fruits that do not separate from the pedicels. Currants lack spines and bristles at the nodes and internodes, and their fruits separate from the pedicels.

HALORAGACEAE — Water Milfoil Family. Submersed aquatic herbs; leaves alternate, highly-dissected; flowers unisexual or bisexual; sepals 4 or 8, separate; petals 0-4; stamens 8, in two sets of 4; carpels 2 or 4, united, the ovary inferior; fruit a nut or drupe. **Myriophyllum**. Water milfoil. Primarily natives of standing water.

HIPPOCASTANACEAE — Buckeye Family. Trees or shrubs; leaves opposite, palmately compound, deciduous; flowers bisexual, bilaterally symmetrical, in conspicuous terminal spikes; sepals 5, united; petals 4 or 5, separate;

stamens 5-8; carpels 3, united; fruits a leathery, 1-seeded capsule. **Aesculus californica**. California buckeye, California horse-chestnut. Native shrub or small tree of low elevations. Leaves shed by mid-summer. Seeds and other plant parts used by Native Americans as fish poisons. They are also toxic to warm-blooded animals. Sap can cause temporary blind-ness. When properly prepared, the seeds were also an important food. The family is closely related to Sapindaceae and sometimes included in it.

HIPPURIDACEAE — Mare's-Tail Family. Emergent perennial aquatic herbs; leaves whorled, simple; flowers solitary in upper leaf axils, inconspicuous, bisexual; perianth 0; stamen 1; carpel 1, the ovary inferior; fruit an achene. **Hippuris vulgaris**. Mare's-tail. Native perennial of quiet waters. The family is closely related to Plantaginaceae and sometimes included in it.

HYDRANGEACEAE — **Hydrangea Family**. Small trees, shrubs, ± woody vines; leaves alternate or opposite, simple; sepals 4-10, united; petals 4 or 5, separate; stamens 4-many, in several series; carpels 2-5, separate or partly united, the ovary inferior or half-inferior; fruit a capsule.

1. Erect shrubs . . . . . **Philadelphus lewisii**
   Mock orange. Deciduous shrub with fragrant, white flowers. Common native.
1. Trailing vines, rooting at nodes . . . . . **Whipplea modesta**
   Yerba de selva. Low, rambling vine with small, white flowers. Common native understory plant.

HYDROCHARITACEAE — **Frog's-bit or Waterweed Family**. Submersed aquatic herbs; leaves whorled, simple; flowers bisexual, subtended by a small spathe; sepals 3, separate; petals 3, separate; stamens 1-many; carpels 2-several, united, the ovary inferior; fruit berry-like.

1. Stipules fringed; stamens 3 . . . . . **Hydrilla verticillata**
   Hydrilla. Submersed aquatic similar in aspect to plants of the genus Elodea. Introduction from the Old World. This species is an aggressive weed and has become locally abundant in various areas in the U. S.
1. Stipules not fringed; stamens 9 . . . . . **Elodea**
   Water weed, elodea. Submersed aquatic. Native and introduced submersed aquatics. Source of popular aquarium plants.

HYDROCOTYLACEAE — Pennyroyal Family. Herbaceous perennials, sprawling, stems rooting at nodes; leaves simple, ± orbicular, stipulate; inflorescence of simple umbels, often subtended by whorls of flowers; flowers bisexual, radially symmetrical, epigynous; sepals 5, separate; petals 5, separate; stamens 5; carpels 2, united; fruit a schizo-carp. Closely related to Umbelliferae and Araliaceae, but differing in its habit, stipulate leaves, and lack of oil glands in its fruits. **Hydrocotyle**. Marsh pennywort. Perennial herbs with dark green, orbicular leaves. Natives of wet sites.

HYDROPHYLLACEAE — Waterleaf Family. Annual or perennial herbs, rarely shrubs; leaves alternate or opposite, often in basal rosettes, simple, flowers bisexual, frequently in coiled cymes (less often solitary); sepals 5, united; petals 5, united; stamens 5, epipetalous; carpels 2, united; fruit a capsule. The family is closely related to Boraginaceae and is sometimes included in it.

1. Flowers solitary **2**
1. Flowers in open or coiled cymes (pendulous in *Emmenanthe*) **7**
2. Stems and fruits bristly to prickly . . . . . **Pholistoma auritum**
   Fiesta flower. Loosely-branched annual. Flowers purple to lavender, 1-3 cm. wide. Native to slopes and canyons, Lake Co.
2. Stems and fruits not bristly to prickly **3**
3. Leaves toothed, lobed or compound . . . . . **Nemophila**
   Baby blue-eyes. Annual herbs of diffuse habit; flowers often showy. Natives of moist habitats.
3. Leaves ± entire **4**
4. Leaves in basal rosettes **5**
4. Leaves distributed along stems **6**
5. Plants stemless . . . . . **Hesperochiron**
   Monkey-fiddle. Perennial herbs with blue to white flowers. Natives of mid-elevation, dry meadows.
5. Plants with leaf-bearing stems near tips of branches . . . . . **Nama californicum**
   California fiddle-leaf. Small, annual herb with white flowers. Native of dry, sandy habitats.
6. Petioles present; flowers ± rotate . . . . . **Phacelia**
   Phacelia. Herbs with stiffly pubescent foliage. Common natives. A large, difficult genus!
6. Petioles absent; flowers funnel-shaped . . . . . **Nama**
   Nama. Perennial herb with purple flowers. Native of ridges and open slopes at mid-elevations.
7. Leaves deeply lobed or divided **8**
7. Leaves entire to shallowly lobed **10**
8. Flowers yellowish or reddish, pendulous at maturity . . . . . **Emmenanthe penduliflora**
   Whispering bells. Annual herb with cream-colored flowers. Native to low elevations.
8. Flowers whitish, blue or violet (rarely yellow), erect or in coiled cymes **9**
9. Leaves largely basal; roots fibrous; ovary 1-chambered, placentae not at all partition-like **Hydrophyllum**
   Waterleaf. Perennial herbs with blue to white flowers. Natives of moist habitats.
9. Leaves mostly cauline; tap-rooted; ovary appearing 2-chambered because of partition-like placentae . . . . . **Phacelia**
   Phacelia. Herbs with stiffly pubescent foliage. Common natives. A large, difficult genus!
10. Leaves opposite . . . . . **Draperia systyla**
    Violet draperia. Perennial herb with violet, tubular corolla. Native of rocky habitats at mid- to high-elevations.
10. Leaves alternate or basal **11**
11. Plants shrubby . . . . . **Eriodictyon californicum**

Yerba santa. Evergreen shrub with aromatic, glossy leaves. Common native of low elevation chaparral.
11. Plants herbaceous **12**
12. Leaf blade reniform; bulbs or tubers present . . . . . **Romanzoffia**
Romanzoffia, mist maiden. Perennial herbs with white flowers. Natives of moist rock outcrops and ocean bluffs.
12. Leaf blade not reniform, typically several times longer than wide; bulbs or tubers absent . . . . . **Phacelia**
Phacelia. Herbs with stiffly pubescent foliage. Common natives. A large, difficult genus!

HYPERICACEAE — St. John's Wort Family. Herbs; leaves opposite, simple, entire, with oil glands or ducts present, often seen as translucent dots in the blades; flowers bisexual; sepals 4 or 5, separate; petals 4 or 5, separate; stamens numerous, in a series of bundles; carpels 3 or 5, united; fruit a capsule. **Hypericum**. Klamath weed, St. John's wort. Herbs with glabrous leaves and yellow flowers. The most frequently encountered member of the family is *Hypericum perforatum*, Klamath weed, a major pest. This Old World introduction contains toxic pigments that cause photosensitization in sensitive animals and humans from medications.

IRIDACEAE — **Iris Family**. Perennial herbs, from rhizomes, bulbs, or corms, Leaves alternate, simple, basal, equitant. Flowers bisexual, radially or bilaterally symmetrical, segments united below to form a straight or curved perianth tube; sepals 3, petaloid; petals 3; stamens 3; carpels 3, united, style trifid and sometimes petaloid, ovary inferior. Fruit a capsule.

1. Inflorescence a single axillary flower; leaf blades thread-like . . . . . **Romulea rosea var. australis**
Rosy sand-croccus. Perennial herb from corms. Escaped ornamental. Native of South Africa.
1. Inflorescence a terminal, several-flowered spike, panicle, or umbel-like cyme; leaves linear to lanceolate **2**
2. Sepals and petals dissimilar; style branches conspicuous, petaloid . . . . . **Iris**
Iris. Perennial herbs with showy flowers. Common natives. Taxonomically difficult because of hybridization.
2. Sepals and petals similar; style branches inconspicuous, thread-like **3**
3. Flowers in umbel-like cymes; perianth tube rudimentary or absent **4**
3. Flowers in spikes or panicles **5**
4. Flowers reddish-purple; filaments united at base only . . . . . **Olsynium douglasii**
Purple-eyed-grass. Perennial herbs. Native of open slopes in wooded areas. [= *Sisyrinchium d.*]
4. Flowers blue or yellow; filaments united for most of their length. . . . . **Sisyrinchium**
Blue-eyed grass, golden-eyed grass. Perennial herbs. Natives of open slopes.
5. Style branches divided for about half their length . . . . . **Watsonia meriana**
Bulbil bugle-lily. Perennial large-flowered herb. Naturalized ornamental along the coast. [= *W. bulbillifera*]
5. Style branches apically notched. **6**
6. Flowers radial . . . . . **Sparaxis tricolor**
Harlequin flower. Perennial herb with dark-purple or yellow flowers tinged with brown-purple. Escaped ornamental.
6. Flowers bilateral **7**
7. Perianth tube funnel-shaped; tepals ± equal. . . . . **Crocosmia x crocosmiiflora**
Montbretia. Perennial herb with showy flowers. Escaped ornamental native to South Africa.
7. Perianth tube abruptly widen at base; 1 tepal about twice as long as the others **Chasmanthe floribunda**
African corn flag. Perennial herb with showy flowers. Escaped ornamental native to Africa.

JUGLANDACEAE — **Walnut Family**. Trees, often resinous and aromatic; leaves alternate, pinnately compound; flowers unisexual, the male in drooping catkins, the female in erect spikes; sepals 3, 4 or 6, separate; petals 0; stamens 3-many; carpels 2 or 3, united, the ovary inferior; fruit a nut or drupe (depending upon interpretation), enclosed in a husk or shell (involucre). **Juglans**. Walnut. Our plants may be hybrids between *J. nigra* and *J. hindsii.*

JUNCACEAE — **Rush Family**. Perennial or annual rhizomatous herbs, often of wet sites; leaves mostly basal, linear, sheathing at base, sometimes bladeless; flowers bisexual or unisexual, small, and green; perianth sepal-like, in two sets of 3; stamens 6 or 3; carpels 3, united; fruit a capsule.

1. Plants glabrous; leaf sheaths open. . . . . **Juncus**
Rush. Herbs with leafy or leafless green stems. Common natives of moist places.
1. Plants ± hairy; leaf sheath closed . . . . . **Luzula**
Wood rush. Perennial herbs with grass-like leaves. Natives of forest floors.

JUNCAGINACEAE — **Arrow-grass Family**. Perennial herbs of freshwater or maritime marshes; leaves linear, sheathing; flowers bisexual or unisexual; perianth sepal-like, in two sets of 3; stamens 6; carpels 3 or 6, separate or basally united, separating at maturity; fruit a follicle.

1. Flowers borne ± at water level, exceeded by leaves . . . . . **Lilaea scilloides**
Flowering-quillwort. Annual herb with linear leaves and greatly reduced unisexual flowers. Native to muddy or marshy habitats.
1. Flowers borne well above water level, much elevated above leaves. . . . . **Triglochin**
Arrow-grass. Perennial herbs with linear, sheathing leaves. Natives of coastal salt marshes. Plants are toxic because of glycosides that yield hydrogen cyanide.

LABIATAE (LAMIACEAE) — Mint Family. Herbs and shrubs, often with a minty or otherwise pleasant odor; stems often 4-sided; leaves opposite or whorled, simple; flowers bisexual, bilaterally symmetrical; sepals 5, united, sometimes 2-lipped; petals 5, united, 2-lipped; stamens 2 or 4 (didynamous), with both anther-halves equally developed, unequally developed, or one side absent, the tissue between the two halves (connective) sometimes much elongated and resembling a filament; carpels 2, each bilobed to produce a characteristically 4-lobed ovary; style 1, typically arising from the center of the 4 lobes; fruit usually 4 nutlets, or fewer by abortion.

1. Style terminal; nutlets attached to one another laterally; plants typically with terpentine or vinegar odor . . . . . **Trichostema**
Bluecurls. Strong-scented, summer-blooming herbs. Natives of dry slopes.
1. Style basal; nutlets basally attached; plants typically with pleasant, often minty, odor **2**
2. Calyx with inflated or helmet-like crest on its back . . . . . **Scutellaria**
Skullcap. Herbs with distinctive calyx. Natives of open, moist habitats.
2. Calyx without such modifications **3**
3. Corolla ± regular, with 4 or 5 ± equal lobes or 4 equal lobes and a 5th broader one **4**
3. Corolla strongly 2-lipped **6**
4. Inflorescence a dense terminal head, subtended by leafy bracts . . . . . **Monardella**
Pennyroyal. Perennial, gray-leaved herbs. Common natives of rocky habitats.
4. Inflorescence axillary or terminal and spike-like **5**
5. Fertile stamens 2; flowers white; plants odorless . . . . . **Lycopus**
Water-horehound. Perennial herbs with pinnatifid leaves. Natives of wet habitats.
5. Fertile stamens 4; flowers lavender to purplish; plants aromatic . . . . . **Mentha**
Mint, spearmint, peppermint. Perennial, strong-scented herbs. Natives and naturalized ornamentals.
6. Fertile stamens 2 . . . . . **7**
6. Fertile stamens 4 . . . . . **9**
7. Stamen connective much elongated, resembling short filament, upper arm bearing pollen sac on its end, shorter arm often absent . . . . . **Salvia**
Sage, creeping sage. Herbs and shrubs. Natives of dry habitats.
7. Stamen connective not as above, but bearing two pollen sacs **8**
8. Annuals; leaves rounded to spatula-shaped, 1-2 cm long . . . . . **Pogogyne**
Pogogyne. Small, annual, strong-scented herbs. Natives of drying depressions.
8. Perennials; leaves ovate to lanceolate-ovate, 3-8 cm long . . . . . **Pycnanthemum californicum**
Sierra mint. Perennial herb with leafy inflorescences. Native of moist places in canyons.
9. Inflorescence terminal, subtended or interrupted by reduced bracts smaller than foliage leaves **10**
9. Inflorescence axillary; if terminal, then interrupted by larger, leafy bracts **13**
10. Stamens clearly exserted, the upper anthers visible without dissection . . . . . **Agastache**
Giant hyssop, horsemint. Perennial herbs. Common natives of mountain meadows.
10. Stamens enclosed in curved upper lip of corolla, scarcely or not at all exserted above upper lip **11**
11. Upper stamen pair longer than lower pair; calyx 15-veined . . . . . **Nepeta cataria**
Catnip. Perennial herb with whitish leaves. Occasionally naturalized.
11. Upper stamen pair shorter than lower pair; calyx 5- to 10-veined **12**
12. Calyx irregular, 2-lipped . . . . . **Prunella vulgaris**
Self-heal. Low, perennial herb with bright green leaves. Native and introduced subspecies in our region. This plant has a long history of use in folk medicine in this country.
12. Calyx regular, 5-toothed . . . . . **Stachys**
Hedge-nettle. Perennial herbs with reddish flowers. Most common of native, coastal mints.
13. Plants woody, at least at base . . . . . **Lepechinia calycina**
Pitcher-sage. Shrub with woolly leaves. Lake Co.
13. Plants herbaceous **14**
14. Plants trailing **15**
14. Plants erect **16**
15. Flowers solitary in leaf axils . . . . . **Satureja douglasii**
Yerba buena. Trailing ground cover with pleasant scent. Native of shaded woods at low elevations.
15. Flowers in whorled clusters . . . . . **Glechoma hederacea**
Ground-ivy. Perennial herb with rounded leaves. Naturalized in moist, shaded habitats.
16. Calyx teeth blunt to pointed, but not spine-tipped . . . . . **Lamium**
Henbit, dead-nettle. Annual herbs. Naturalized in waste places.
16. Calyx teeth spine-tipped **17**
17. Calyx-teeth straight . . . . . **Stachys**
Hedge-nettle. Perennial herbs with reddish flowers. Most common of native coastal mints.
17. Calyx-teeth hooked . . . . . **Marrubium vulgare**
Horehound. Perennial herb with small white flowers. Common weed of highly disturbed areas.

LAURACEAE — Laurel Family. Trees and shrubs, often aromatic; leaves alternate, simple; flowers bisexual, radially symmetrical; sepals 3, separate; petals 3, separate; stamens 12; carpels 3, united; fruit a berry.

1. Foliage pungently aromatic; calyx 6-parted; stamens 9 . . . . **Umbellularia californica var. californica**
California bay, pepperwood, Oregon myrtle, California laurel, myrtlewood. Evergreen tree or shrub with bright green, aromatic leaves. Common native. Leaves often used in cooking as a substitute for bay leaves.
1. Foliage slightly aromatic at most; calyx 4-parted; stamens 12 or more . . . . . **Laurus nobilis**
Sweet bay, Grecian laurel. Evergreen green native to the Mediterranean. Escaped ornamental.

LEGUMINOSAE (FABACEAE) — Pea, Bean, or Legume Family. Herbs, shrubs, vines, and trees; leaves alternate, typically compound; flowers bisexual, radially symmetrical or bilaterally symmetrical; sepals 5, united; petals 5, separate (flowers radial) or the two lower ones united to form a keel (with the stamens and carpels lying within), two lateral petals differentiated as wings, and the upper petal a conspicuous banner or standard; stamens typically 10 (often 9 united by their filaments and 1 separate) or many (subfamily Mimosoideae); carpel 1, the ovary superior; fruit a legume or loment, dehiscent or indehiscent.

1. Leaves simple **2**
1. Leaves (except perhaps uppermost) compound **8**
2. Plants herbaceous; tendrils present . . . . . **Lathyrus aphaca**
Sweet pea. Glabrous, annual herb with slender, tendril-bearing stems. Occasionally naturalized in our area.

2. Plants woody; tendrils absent **3**
3. Thorns or spines present. **4**
3. Thorns or spines absent **5**
4. Leaves ± needle-like; flowers yellow . . . . . **Ulex europaeus**
Gorse, furze, prickly-broom. Spiny, yellow-flowered shrub. A major weed along Mendocino coast.
4. Leaves broad, flat; flowers purple . . . . . **Pickeringia montana ssp. montana**
Chaparral pea. Large purple-flowered shrub with evergreen leaves. Native of the chapparal.
5. Leaf blade rounded to reniform; flowers rose-pink to purple. . . . . **Cercis californica**
Western redbud. Deciduous shrub; flowers that appear before leaves. Common native. [= *C. occidentalis*]
5. Leaf blade lanceolate to narrowly oblong; flowers yellow, white, red or bicolored **6**
6. Stems round in cross-section; calyx not 2-lipped, but slit on upper side . . . . . **Spartium junceum**
Spanish broom. An almost leafless shrub with slender, rush-like stems and bright yellow flowers. Increasingly common roadside weed.
6. Stems ribbed or ridged in cross-section; calyx 2-lipped, but not slit on upper side **7**
7. Stems ± leafless; flowers usually solitary . . . . . **Cytisus scoparius**
Scotch broom. Shrubs with showy yellow flowers. Aggressive roadside weeds.
7. Stems leafy; flowers 3-9, in head-like clusters . . . . . **Genista monspesulana**
French broom. A pernicious weed, introduced from the Canary Islands. [= *Cytisus m.*]
8. Stems and/or leaves gland-dotted **9**
8. Stems not gland-dotted (sometimes glandular-hairy) **10**
9. Fruits prickly; leaflets at least 3X longer than wide . . . . . **Glycyrrhiza lepidota var. glutinosa**
Wild licorice. Perennial herb with glandular leaves. A naturalized species.
9. Fruits not prickly; leaflets no more than 2.5X longer than wide. . . . . **Psoralea**
Herbs and shrubs with heavy-scented foliage. Natives or various habitats. Segregate genera now recognized.
10. Leaflets 3 (rarely 2) **11**
10. Leaflets 4 or more **19**
11. Shrubs or trees **12**
11. Herbs (sometimes woody at base). **13**
12. Plants spiny. . . . . **Pickeringia montana ssp. montana**
Chaparral pea. Large shrub with evergreen leaves. Chapparal native.
12. Plants without spines . . . . . **Genista monspesulana**
French broom. Shrubs with showy yellow flowers. Aggressive roadside weeds.
13. Stamens separate to near base . . . . . **Thermopsis**
False-lupine. Perennial, yellow-flowered herbs. Natives of forest openings.
13. Stamens united by filaments into 1 or 2 groups **14**
14. Leaves palmately compound; leaflets ± sessile **15**
14. Leaves pinnately compound; stalk of central leaflet longer than those of lateral leaflets **16**
15. Flowers in umbels . . . . . **Lotus corniculatus**
Trefoil, bird's-foot-trefoil. Perennial, yellow-flowered herb. Roadside weed.
15. Flowers in dense head-like or spike-like racemes (sometimes reduced to a few- or 1-flowered inflorescence) . . . . . **Trifolium**
Clover. Herbs with trifoliolate leaves. Common natives and naturalized pasture plants.
16. Leaflet margins entire or notched . . . . . **Lotus**
Trefoil, bird's-foot-trefoil. Annual to semi-woody herbs with flowers typically in umbels. Natives and naturalized species. A large, taxonomically difficult genus!
16. Leaflet margins toothed **17**
17. Inflorescence an open, elongate raceme 2-10 cm long; stipules not fused to stem . . . . . **Melilotus**
Sweet-clover. Annual or biennial herbs with pinnately trifoliolate leaves. Common roadside weeds and pasture plants.
17. Inflorescence an umbel or head-like, less than 1.5 cm long; stipules fused to stem **18**
18. Fruits coiled; petals deciduous. . . . . **Medicago**
Alfalfa, bur-clover. Annual or perennial herbs. Common weeds and pasture plant.
18. Fruits not coiled; petals persistent . . . . . **Trifolium**
Clover. Herbs with trifoliolate leaves. Common natives and naturalized species. A large, taxonomically difficult genus.
19. Leaves palmately compound **20**
19. Leaves pinnately compound **21**
20. Inflorescence an open, elongate raceme (except in a few species) . . . . . **Lupinus**
Lupine. Herbs or shrubs with palmately compound leaves. Common natives. A large, taxonomically difficult genus!
20. Inflorescence a head (rarely head-like umbel or short spike) . . . . . **Trifolium**
Clover. While most clovers are trifoliolate, this lead takes you to the few with more than 3 leaflets. Uncommon natives.
21. Leaves 2-pinnately compound; stamens numerous . . . . . **Acacia**
Wattle. Ornamental trees with bright yellow flowers that appear in the winter months. Escaped ornamental.
21. Leaves 1-pinnately compound; stamens 10 . . . . . **22**
22. Plants woody . . . . . **Robinia pseudoacacia**
Locust, black locust. Deciduous tree with pendent racemes of white flowers. Naturalized ornamental. Seeds and bark are toxic.
22. Plants herbaceous (sometimes woody at base) **23**
23. Leaflets, excluding tendrils, even in number; leaves usually tendril-bearing, these sometimes bristle-like **24**
23. Leaflets odd in number; tendrils or bristles absent **25**
24. Style flattened, hairy on concave side . . . . . **Lathyrus**
Sweet pea, pea. Herbs with erect or twining stems. Common natives. A large, taxonomically difficult genus.
24. Style round in cross-section, with an apical tuft or ring of hairs or hairy on convex side . . . . . **Vicia**
Vetch. Herbs with twining stems. Common natives and naturalized species. Easily confused with sweet peas.

25. Flowers in umbels (sometimes solitary in leaf axils). . . . . **Lotus**
Bird's-foot-trefoil. Annual to semi-woody herbs with flowers typically in umbels. Natives and naturalized species. A large, taxonomically difficult genus.
25. Flowers in spikes or racemes (sometimes dense and head-like) . . . . . **Astragalus**
Loco weed, milkvetch. Herbs with fruits typically inflated. Common natives. Hundreds of species have been described in the western United States. Usually regarded as the most taxonomically difficult genus in the family. All should be considered highly poisonous.

[This key is based upon one written in 1975 by the Advanced Plant Taxonomy Class at Humboldt State University.]

LEMNACEAE — Duckweed Family. Small (only a few mm in diameter) to almost microscopic free-floating or submersed aquatic herbs of freshwater habitats, plant body (frond) globose, ± undifferentiated; roots simple and thread-like or absent; leaves absent; flowers minute (!), unisexual; sepals and petals absent; stamen 1 or 2; carpels 1; fruit a utricle. Closely related to the aroid family (Araceae) and merged with it by some authors.

1. Roots absent; fronds veinless **2**
1. Roots 1 to several per frond; veins 1–16 [21] per frond. **3**
2. Plants cylindrical to ± spherical, less than 1.3 mm wide. . . . . **Wolffia**
Water-meal. Perennial, free-floating aquatics. Native of ponds. The smallest flowering plants.
2. Plants flat, linear to oblong, 3–10 mm wide . . . . . **Wolfiella**
Mud-midget. Perennial, free-floating aquatic. Native of ponds.
2. Roots 1 per frond; veins 1–5. . . . . **Lemna**
Duckweed. Smaller, perennial, free-floating aquatic. Common natives of quiet waters.
2. Roots 2–21 per frond; veins 5–16 . . . . . **Spirodela**
Greater duckweed. Small, perennial, free-floating aquatics. Occasional native of quiet waters. [Includes *Landoltia*]

[Revised: 7 January 2014]

LENTIBULARIACEAE — Bladderwort Family. Annual or perennial herbs, of moist or aquatic habitats, typically insectivorous (passively by means of sticky surfaces or actively by means of bladders); leaves alternate or in rosettes, air leaves and water leaves often very different in aquatic forms; flowers bisexual, bilaterally symmetrical; sepals 2-5, separate; petals 5, united, often 2-lipped; stamens 2; carpels 2, united; fruit a capsule.

1. Plants aquatic; leaves divided; flowers yellow. . . . . **Urticularia**
Bladderwort. Insectivorous herbs bearing urn-shaped bladders that trap minute aquatic animal life. Natives of quiet waters.
1. Plants terrestrial; leaves simple; flowers lavender-purple (rarely white) . . . . . **Pinguicula macroceras**
Butterwort. Insectivorous herb with rosette of sticky leaves that trap insects on their surface. Rare native of Del Norte Co.

LILIACEAE — Lily Family. Mostly perennial herbs (sometimes quite large), from bulbs, rhizomes, and corms; leaves alternate, simple, often ± linear (basal in amaryllis subfamily and fibrous in century plant subfamily); flowers typically bisexual; sepals 3, often petaloid; petals 3, the 6 perianth segments often united into a tube; stamens 6 (rarely 3); carpels 3, united, the ovary superior, half-inferior or inferior; fruit a capsule or berry. Here treated in the broader, traditional sense. Numerous segregate families with differing circumscriptions are now recognized, a dozen or so in the northwest California flora alone!

0. Shrubs or trees . . . . . **Cordyline australis**
Cabbage tree, cabbage-palm. Robust, palm-like perennial. Naturalized ornamental.
0. Erect or twining herbs **1**
1. Leaves (or what passes for them) thread-like . . . . . **Asparagus officinalis**
Asparagus, garden asparagus. Native to Eurasia. Young spring shoots are the source of edible asparagus. Occasionally escaping from cultivation. What appear to be the leaves are actually highly modified stems. The true leaves are reduced and scale-like.
1. Leaves not at all thread-like **2**
2. Perianth 4-parted; stamens 4 . . . . . **Maianthemum dilatatum**
False lily-of-the-valley. Perennial, white-flowered herb. Common native of the redwood forest.
2. Perianth 6-parted (typically 3 + 3); stamens 6 or 3. . . . . **3**
3. Sepals green; petals white, pink, ± purple, or yellow. . . . . **Trillium**
Trillium, wake robin. Perennial herbs with three leaves. Common natives.
3. Sepals and petals similarly colored **4**
4. Flowers in simple umbels, subtended by 1 or more bracts **5**
4. Flowers in racemes, spikes or panicles **11**
5. Stamens 6. . . . . **6**
5. Stamens 3. . . . . **10**
6. Flowers 8-15 cm long . . . . . **Amaryllis belladonna**
Naked lady. Perennial herb with conspicuous pink flowers that appear after the leaves have withered. Native to American tropics, ours are escaped ornamentals.
6. Flowers less than 5 cm long **7**
7. Perianth segments separate to near bases **8**
7. Perianth segments united into a basal tube. **9**
8. Pedicels subtended by small bracts; plants without onion odor or taste . . . . . **Muilla maritima**
Sea muilla. Perennial herb. Uncommon native of open habitats. The generic name is *Allium* spelled backwards.
8. Pedicels not subtended by small bracts; plants with onion odor and taste . . . . . **Allium**

Wild onion. Perennial herbs with bulbous bases. Common natives of woodlands and grasslands. Horses are sometimes poisoned by wild onions, which they can consume in large quantities.

9. Stigma 3-lobed . . . . . **Dichelostemma pulchella**
Blue dicks, wild-hyacinth. Perennial, blue-flowered herb. Common native of woodlands and grasslands.

9. Stigma unlobed . . . . . **Triteleia**
Grass nut, Ithuriel's spear, golden brodiaea, white brodiaea. Perennial herbs, typically with yellow or white flowers. Common natives of woodlands and grasslands. [= *Brodiaea* in part]

10. Leaves flat, keeled on lower surface; stigma 3-lobed, winged on upper style . . . . . **Dichelostemma**
Snake-lily, twining-brodiaea, fire-cracker plant, Chinese firecrackers. Perennial herbs with blue or red flowers. Natives of woodlands and grasslands. [= *Brodiaea* in part]

10. Leaves narrow, rounded, not keeled; stigma 3-lobed, with elongate, recurved-spreading lobes **Brodiaea**
Brodiaea. Perennial, blue-flowered herbs. Natives of woodlands and grasslands.

11. Stamens 3. . . . . **Scoliopus bigelovii**
Slink pod, foetid adder's tongue. Perennial herb with brown flowers and brown-dotted leaves. Winter-blooming native of forests.

11. Stamens 6. . . . . **13**

13. Leaves basal, grass-like **14**

13. Well-developed stem leaves present, these not grass-like **22**

14. Bulbs or corms present. **15**

14. Rhizomes or otherwise thickened underground parts present **20**

15. Inflorescence a panicle **16**

15. Inflorescence a simple or branched raceme, or reduced to 1 or 2 flowers. **17**

16. Perianth segments separate . . . . . **Chlorogalum**
Soap plant, amole. Large, late spring-flowering perennial herbs with open inflorescences. Common natives of woodlands and grasslands. Used by Native Americans to stupify fish.

16. Perianth segments united at bases into a short tube . . . . . **Odontostomum hartwegii**
Doll's-lily. Erect, spring-flowering herb with racemes of white or yellowish flowers. Native of Coast Range. This genus is also placed in Tecophilaeaceae.

17. Leaves keeled . . . . . **Camassia**
Camas, camass, western camas. Perennial, blue-flowered herbs. Locally abundant in moist habitats. Bulbs eaten as a potato substitute. Its blue flowers distinguish it from death-camas, another member of this family.

17. Leaves flat **18**

18. Leaves 2 . . . . . **Erythronium**
Fawn-lily. Perennial, early spring-flowering herbs with a few large flowers. Locally abundant natives.

18. Leaves 3 or more. **19**

19. Leaves oblanceolate to oblong. . . . . **Fritillaria**
Fritillary. Perennial herbs with bell-shaped flowers. Early blooming natives of open habitats.

19. Leaves linear . . . . . **Hastingsia alba**
Rush-lily. Perennial, white-flowered herbs. Common native of mountain meadows. [= *Schoenolirion a*.]

20. Leaves flat, 5-10 dm long; pedicels more than 2.5 cm long . . . . . **Xerophyllum tenax**
Bear-grass, fire-lily, pine-lily, squaw-grass. Perennial, white-flowered herb with ± rigid, grass-like leaves. Common native of serpentine habitats.

20. Leaves equitant, 0.5-3 dm long; pedicels less than 2 cm long **2**

21. Upper portion of flowering stem glabrous; filaments woolly . . . . . **Narthecium californicum**
Bog-asphodel. Perennial, yellow-flowered herb. Native of bogs.

21. Upper portion of flowering stem glandular-hairy; filaments glabrous . . . . . **Triantha occidentalis**
Sticky false asphodel. Perennial, white-flowered herb. Native of wet meadows and bogs. [= *Tofieldia*]

22. Bulbs or corms present. **23**

22. Rhizomes or otherwise thickened underground parts present **27**

23. Sepals and petals dissimilar (petals typically larger, broader, and often bearded). . . . . **Calochortus**
Mariposa-lily, cat's ear, pussy ears, star tulip, beavertail-grass. Perennial herbs with showy flowers. Natives of woodlands and grasslands.

23. Sepals and petals not clearly differentiated by size, shape, or bearding **24**

24. Styles 3, separate to base. **25**

24. Style 1, lobed at summit. **26**

25. Flowers erect; perianth segments with prominent gland near base . . . . . **Zigadenus**
Zygadene, death-camas. Perennial herbs with greenish flowers. Common natives. This plant is highly toxic. Unfortunately, it may be confused with wild onions or camas by wild edible plant enthusiasts. [= *Zygadenus* and *Toxicoscordion*]

25. Flowers nodding; perianth segments without glands . . . . . **Stenanthium occidentale**
Western feather bells. Perennial herb with brownish flowers. Rare native of high elevation meadows.

26. Anthers attached below midpoint. . . . . **Fritillaria**
Fritillary, checker-lily, mission bells, adobe-lily. Perennial herbs with bell-shaped flowers. Early-blooming natives of open habitats.

26. Anthers attached at or very near midpoint . . . . . **Lilium**
Lily, tiger lily, leopard lily, panther lily. Perennial herbs with large, showy flowers. Natives of a taxonomically difficult genus.

27. Well-developed cauline leaves absent; leaves largely basal . . . . . **Clintonia**
Clintonia, queen's cup, bride's bonnet. Perennial herbs with red or white flowers. Common natives of forests.

27. Well-developed cauline leaves present; leaves largely basal. **28**

28. Flowers several-many in terminal panicle or raceme **29**

28. Flowers 1 to a few, axillary or in small clusters at ends of branched stems. **30**

29. Styles 3; leaves very prominently veined . . . . . **Veratrum**
Corn-lily, skunk cabbage, false hellebore. Large, perennial herbs with coarse leaves. Common natives of mid- and high-elevation meadows. Pregnant animals that feed on these plants will likely give birth to deformed offspring.

29. Style 1; leaves not especially prominently veined . . . . . **Maianthemum**
False Solomon's seal. Perennial herb with many small, white flowers. Common natives. [Includes *Smilacina*]
30. Flowers at end of branches; leaf bases typically oblique . . . . . **Prosartes**
Fairy bells. Perennial herbs with a few white or greenish flowers. Common natives of forests. [= *Disporum*]
30. Flowers axillary; leaf bases only slightly oblique at most . **Streptopus amplexicaulis var. americanus**
Twisted stalk. Perennial herb with zig-zag stem. Local native along mountain streams.

LIMNANTHACEAE — **Meadow-foam Family**. Annual herbs; leaves alternate, simple; flowers bisexual, radially symmetrical; sepals 3 or 5, separate; petals 3 or 5, separate; stamens 6 or 10; carpels 3 or 5, united, the ovary superior; fruit a nutlet. The family is endemic to North America and is especially well-represented in California.

1. Flowers 5-parted; petals longer than sepals . . . . . **Limnanthes**
Meadow foam. Annual, white-flowered herbs. Locally common in moist, open habitats.
1. Flowers 3-parted; petals shorter than sepals . . . . . **Floerkea prosperpinacoides**
False mermaid. Annual herb with inconspicuous flowers. Native of mid- to high-elevation forest openings.

LINACEAE — **Flax Family**. Annual or perennial herbs; leaves alternate or opposite, simple, entire; flowers bisexual, radially symmetrical; sepals 5, separate; petals 5, separate; stamens 5 or 10, united by their filaments; carpels 5, united, the ovary superior; fruit a capsule.

1. Petals blue; styles 5 . . . . . **Linum**
Flax. Herbs with leafy stems. Native and naturalized species.
1. Petals white, rose, pink, or yellow; styles 2 or 3 . . . . . **2**
2. Leaves opposite; styles united for much of their length; stigmas head-like . . . . . **Sclerolinon digynum**
Northwestern yellow-flax. Annual, yellow-flowered herb. Native of moist areas at mid-elevations.
2. Leaves (at least lower and middle) whorled; styles separate; stigmas united . . . . . **Hesperolinon**
Dwarf-flax. Annual herbs with glabrous leaves. Native species.

LOASACEAE — **Blazing Star Family**. Perennial herbs; leaves alternate, simple; flowers bisexual, radially symmetrical; sepals 5, separate; petals 5, separate; stamens 5-many; carpels 3-7, united, the ovary inferior; fruit a capsule. **Mentzelia**. Blazing star. Herbs with rough foliage and conspicuous yellow flowers.

LYTHRACEAE — **Loosestrife Family**. Herbs; leaves alternate or opposite, simple, entire; flowers bisexual, radially or bilaterally symmetrical, perianth and androecium united into a hypanthium; sepals 4 or 6, separate; petals 4 or 6, separate, often appearing crumpled; stamens 8 or 12, in two sets of different lengths; carpels 2-6, united, the ovary superior; fruit a capsule.

1. Petals 6; leaves alternate . . . . . **Lythrum**
Loosestrife. Herb with pale green, glabrous foliage. Native of moist habitats.
1. Petals 4; leaves opposite **2**
2. Flowers in axillary clusters of 3-10 . . . . . **Ammania coccinea**
Valley red stem. Annual herb with narrow leaves. Uncommon native of wet habitats.
2. Flowers solitary in leaf axils . . . . . **Rotala ramosior**
Lowland rotala. Prostrate to erect herb native to wet sites.

MALVACEAE — **Mallow or Cotton Family**. Herbs and shrubs, often with stellate hairs; leaves alternate, simple, often palmately lobed and veined; flowers bisexual, radially symmetrical; sepals 3-5, ± united, often subtended by a set of sepal-like bracts (epicalyx); petals 5, separate; stamens many, united by their filaments; carpels 5-many, united, the ovary superior; fruit a capsule or schizocarp. As treated here, the family excludes Sterculiaceae.

1. Shrubs or small trees **2**
1. Herbs **3**
2. Style branches ending in capitate or truncate stigmas . . . . . **Malacothamnus**
Pink-flowered shrub. Native of the chaparral.
2. Style branches thread-like . . . . . **Lavatera**
Tree-mallow. Shrubs with rose-colored flowers. Naturalized.
3. Flowers yellow; petals with black basal spot . . . . . **Hibiscus trionum**
Flower-of-an-hour. Annual, large-flowered herb. Garden escape in Trinity Co.
3. Flowers white, pink, red, rose-purple or lilac; petals without basal spot **4**
4. Stigmas head-like or flattened **5**
4. Stigmas thread-like **7**
5. Carpels not hairy . . . . . **Malvella leprosa**
Alkali-mallow. Perennial herb of moist places. Widely distributed.
5. Carpels hairy **6**
6. Plants prostrate; leaves 5 cm or less in diameter . . . . . **Modiola caroliniana**
Bristly-mallow. Perennial, red-flowered herb. Widely naturalized.
6. Plants erect; leaves 10 cm or more in diameter . . . . . **Iliamna**
California globe-mallow, wild hollyhock. Perennial herbs with rose-purple to white flowers. Uncommon natives of the redwood, conifer forests, and woodlands.
7. Calyx-like bracts 0 or 1 (Caution! It may be divided into thread-like segments) . . . . . **Sidalcea**
Checker, checkerbloom, wild hollyhock. Pink-flowered herbs. Natives. A taxonomically difficult genus.
7. Calyx-like bracts 3 . . . . . **Malva**
Cheeses, cheese weed. Annual or biennial herbs with small, axillary flowers. Common weeds.

MARTYNIACEAE — Martynia Family. Herbs; leaves alternate, simple, glandular pubescent; flowers bisexual, bilaterally symmetrical; sepals 5, united; petals 5, united; stamens 4, in two sets of 2; carpels 2, united, 4-chambered, the ovary superior; fruit a capsule. **Proboscidea louisianica**. Unicorn plant, devil's claw. Coarse, annual herb with sticky leaves and stems. Its woody capsule with curved horns is distinctive. Uncommon agricultural weed in our area.

MELIACEAE — Mahogany Family. Trees or shrubs; leaves alternate, usually pinnately compound; flowers in panicles, regular, bisexual; sepals generally 3-5, united; petals 3-7, separate; stamens 5-10 or more; carpels 2-6, united, superior; fruit a drue (in ours), seeds often winged. **Melia azedarach**. China berry. Escaped ornamental tree. Asia.

MELIANTHACEAE — Melianthus Family. Trees and shrubs; leaves alternate, usually pinnately compound; flowers bisexual, irregular; sepals 5, fused at the base; petals 5; stamens 4 or 5; carpels 4 or 5, united, the ovary superior; fruit a capsule. **Melianthus major**. Honey bush. Escaped ornamental shrub. New Zealand.

MENYANTHACEAE — Buckbean or Bog-bean Family. Perennial aquatic herbs; leaves trifoliolate; flowers bisexual, radially symmetrical; sepals 5, separate; petals 5, united; stamens 5; carpels 2, united, the ovary superior; fruit a capsule. **Menyanthes trifoliata**. Buckbean, bog bean. Occasional in bogs, fens, and along lake margins.

MOLLUGINACEAE — Indian-chickweed or Carpetweed Family. Annual herbs, often weedy; leaves alternate, opposite or whorled, simple; flowers bisexual, radially symmetrical; sepals 4 or 5, separate; petals 0; stamens 5 or 10; carpels 2, united, the ovary superior; fruit a capsule. See Aizoaceae for other genera often assigned to Molluginaceae.

1. Plants glabrous . . . . . **Mollugo verticillata**
   Indian-chickweed. Annual, mat-forming herb. Naturalized in waste places.
1. Plants hairy . . . . . **Glinus lotoides**
   Lotus sweet juice. Annual, mat-forming herb. Naturalized in seasonal ponds.

MORACEAE — Mulberry Family. Trees and shrubs, typically with a milky latex; leaves alternate, simple; flowers small, unisexual, borne in our representative in a vase-like receptacle (syconium); sepals 4, minute; petals 0; stamens 4; carpels 2, united, the ovary superior; true fruit an achene, but the entire inflorescence forming a false fruit, the familiar fig, at maturity.

1. Flowers evident in pendant catkins . . . . . **Morus alba**
   White or Russian mulberry. Shrubs or trees native to the eastern and central U. S. Source of commercial mulberries. Leaves eaten by silkworms. Escaped fruit or shade tree.
1. Flowers enclosed within a fruit-like receptacle**. . . . . Ficus carica**
   Fig. Trees with conspicuous, lobed leaves and milky sap. Occasional escape from cultivation, as along State Route 16 in Lake Co.

MYRICACEAE — Wax-myrtle or Sweet Gale Family. Trees and shrubs; leaves alternate, simple, gland-dotted, aromatic; flowers bisexual, radially symmetrical; perianth absent; stamens 2-several; carpels 2, united, the ovary superior; fruit a drupe. **Morella californica**. Wax-myrtle. Evergreen shrub. Native of coastal habitats. [= *Myrica c.*]

MYRTACEAE — Myrtle Family. Trees and shrubs; leaves opposite, simple, entire, gland-dotted; flowers bisexual, radially symmetrical; sepals 4 or 5, united to form a lid that separates from the rest of the flower; petals 4 or 5, separate; stamens many; carpels 2 or 3, united, the ovary inferior; fruit a capsule. **Eucalyptus**. Eucalyptus, blue gum. Evergreen trees with stiff, lance-shaped leaves. Occasional escapes from cultivation.

NAJADACEAE — Water-nymph Family. Submersed annual aquatics; leaves linear, ± opposite or whorled, toothed; flowers small, unisexual; perianth absent; stamen 1; carpel 1, the ovary superior; fruit an achene. **Najas**. Water-nymph. Annual natives of ponds. The family is closely related to Hydrocharitaceae and sometimes included in it.

NYCTAGINACEAE — Four-0'clock Family. Perennial herbs; leaves opposite, simple, entire; flowers bisexual, radially symmetrical, often with brightly-colored bracts subtending them; sepals 5, petaloid separate; petals 0; stamens 5; carpel 1, the ovary superior; fruit an achene, often enclosed by persistent sepals.

1. Plants of coastal strand; stigma linear . . . . . **Abronia**
   Sand-verbena. Perennial herbs with sticky leaves. Natives of coastal dunes.
1. Plants of interior mountains; stigma rounded . . . . . **Mirabilis**
   Four-o'clock. Perennial, herbs with light-purple flowers. Native of interior woodlands.

NYMPHAEACEAE — Water-lily Family. Perennial, freshwater aquatics; leaves alternate, simple, floating on water's surface; flowers bisexual, radially symmetrical; sepals 3-many, separate; petals 3-many, separate; stamens many; carpels many, united, the ovary superior to partly inferior; fruit a follicle. As treated here, the family excludes Cabombaceae.

1. Flowers white; leaf venation ± palmate . . . . . **Nymphaea alba**

European white water-lily. Perennial, freshwater aquatics with rounded, floating leaf blades. Uncommon introduction.

1. Flowers yellow; leaf venation ± pinnate . . . . . **Nuphar polysepalum**
Yellow pond-lily, Indian pond-lily, wokas. Perennial herb with large, yellow flowers. Common native of ponds.

[Revised: 7 January 2014]

OLEACEAE — **Olive or Ash Family**. Shrubs and trees; leaves opposite, pinnately compound; flowers bisexual, radially symmetrical; sepals 4, united; petals 4, united; stamens 2 [4 or 5] (an unusual situation in North American woody plants); carpels 2, united, the ovary superior; fruit a samara or drupe.

1. Leaves pinnately compound; fruit a samara . . . . . **Fraxinus**
Ash. Common native trees and shrubs.
1. Leaves simple; fruit a drupe **2**
2. Corolla absent; flowers unisexual; stamens (if present) 4 or 5 . . . . . **Forestiera pubescens**
Desert-olive. Native shrub. Streambanks. Known in our area from recent collections in Colusa Co.
2. Corolla present; flowers bisexual; stamens 2 . . . . . **Ligustrum ovalifolium**
California privet. Naturalized ornamental shrub native to Japan.

[Revised: 7 January 2014]

ONAGRACEAE — **Evening-primrose Family**. Annual or perennial herbs, rarely shrubby as in *Fuchsia*; leaves alternate or opposite, simple; flowers bisexual, radially or bilaterally symmetrical; sepals 4; petals typically 4 (rarely 0, 2 or 5); stamens 8; perianth and androecium inserted on the rim of a hypanthium; carpels 4, united, the ovary inferior; fruit a capsule or few-seeded and nut-like.

1. Petals 0, 2 or 5 . . . . . **2**
1. Petals 4. . . . . **3**
2. Sepals, petals, and stamens 2 . . . . . **Circaea alpina ssp. pacifica**
Enchanter's-nightshade. Small perennial herb with small white flowers. Native of moist forests.
2. Petals 0 or 5; stamens 4 or more . . . . . **Ludwigia**
Marsh-purslane. Perennial herbs. Occasional natives of marshes.
3. Shrubs . . . . . **Fuchsia magellanica**
Fuchsia. Shrubs with pendent red, showy flowers. Escapes from cultivation. Native to South America.
3. Herbs (sometimes woody at base) **4**
4. Fruit nut-like, 1- to 4-seeded . . . . . **Clarkia heterandra**
Butterfly weed. Annual, pink-flowered herb. Native of foothill woodlands.
4. Fruit a many-seeded capsule **5**
5. Flowers scarlet; floral tube 2-3 cm long . . . . . **Epilobium canum**
California-fuchsia. Shrubby perennial herbs with scarlet flowers. Natives of rock outcrops. [Includes *Zauschneria*]
5. Flowers white, pink, purplish, lavender or yellow **6**
6. Seeds with tuft of hairs; leaves typically opposite . . . . . **Epilobium**
Willow herb, fire weed. Herbs with notched petals. Common natives.
6. Seeds without tuft of hairs; leaves typically alternate **7**
7. Ovary 2-chambered; petals 1-3 mm long . . . . . **Gayophytum**
Ground smoke. Slender, annual herbs with linear leaves. Natives of open habitats. Easily confused with some species of *Epilobium*.
7. Ovary 4-chambered; petals 5 mm or more long (except in *Boisduvalia stricta*) **8**
8. Anthers attached near their bases; petals pink, lavender, rose or occasionally whitish **9**
8. Anthers usually attached at middle; flowers yellow or white (sometimes reddish) **10**
9. Sepals erect; plants often hairy . . . . . **Epilobium**
Spike-primrose, willow herb. Annual herbs with small flowers. Natives. Formerly treated as *Boisduvalia*.
9. Sepals reflexed; plants ± glabrous . . . . . **Clarkia**
Clarkia, farewell-to-spring. Small, annual herbs with showy flowers. Natives of open habitats.
10. Stigma with linear lobes . . . . . **Oenothera**
Evening-primrose. Herbs, ours typically white-flowered. Natives.
10. Stigma disc- or head-like, but not lobed . . . . . **Camissonia**
Suncups. Herbs, typically with yellowish flowers. Natives. Recent work argues for recognizing several generic segregates of *Camissonia.*

ORCHIDACEAE — **Orchid Family**. Perennial, terrestrial herbs (unlike those in the tropics that are typically epiphytic), sometimes saprophytic; leaves alternate, simple, sometimes reduced to scales; flowers bisexual, bilaterally symmetrical; sepals 3, green or petaloid; petals 3, the lower one often modified into a pouch, sac or elaborate lip (labellum); stamens 1 or 2, the anthers often appearing as a cap-like structure, pollen usually agglutinated into waxy or mealy masses (pollinia); carpels 3, united (stigmas, styles, and androecium combined to form the column (gynandrium); fruit a capsule.

1. Mature leaves scale-like; plants white, brown, yellow or purplish **2**
1. Mature leaves well-developed; plants typically green **3**
2. Stems and flowers white to cream . . . . . **Cephalanthera austinae**
Phantom orchid. Perennial herb with white stems. Native of forests.
2. Stems and flowers brown, yellow or purplish . . . . . **Corallorhiza**
Coral root. Common perennial herbs with non-green stems. Natives of forests.
3. Leaf and flower 1 per plant . . . . . **Calypso bulbosa**

Calypso orchid. Perennial herb with a single purple flower. Native of forests. Blooming in early spring.
3. Leaves and flowers typically 2 or more per plant **4**
4. Flowers 2-few per plant, subtended by leafy bracts **5**
4. Flowers several to many per plant, forming spikes or racemes; only reduced bracts present **6**
5. Lower petal inflated and pouch-like . . . . . **Cypripedium**
Lady's-slipper orchid, California lady slipper. Perennial herbs with conspicuous, very attractive flowers. Natives of bogs and forests. Increasingly rare.
5. Lower petal not inflated nor pouch-like. . . . . **Epipactis**
Stream orchis. Perennial, green-flowered native herb. Occasional along streams.
6. Lip petal with well-developed sac-like to slender spur **7**
6. Lip petal not forming a sac-like to slender spur **8**
7. Leaves present at flowering time . . . . . **Platanthera**
Rein orchid. Perennial herbs with white or green flowers. Natives of moist habitats. [= *Habenaria*]
7. Leaves absent at flowering time . . . . . **Piperia**
Rein orchid. Perennial herbs with white flowers. Natives of forests.
8. Leaves 2; flowers greenish or purplish . . . . . **Listera**
Twayblade. Perennial herbs with greenish or purplish flowers. Uncommon natives in forests.
8. Leaves 3-several; flowers whitish **9**
9. Inflorescence glabrous, twisted . . . . . **Spiranthes**
Ladies. tresses. Perennial herbs with white flowers. Natives.
9. Inflorescence glandular-hairy, not twisted . . . . . **Goodyera oblongifolia**
Rattlesnake-plantain. Perennial herb with small, green flowers. Common forest native.

OXALIDACEAE — **Wood-sorrel or Oxalis Family**. Perennial herbs, their tissues containing oxalic acid that gives the plants a characteristic pungent taste; leaves trifoliolate; flowers bisexual, radially symmetrical; sepals 5, separate; petals 5, united; stamens 10, united by their filaments; carpels 5, united, the ovary superior; fruit a capsule. **Oxalis**. Wood sorrel, oxalis, sour-grass. Native and naturalized species.

PAEONIACEAE — **Paeony Family**. Perennial herbs; leaves alternate, simple; flowers bisexual, radially symmetrical; sepals 5, separate; petals 5-10, separate; stamens many; carpels 2-5, united, the ovary superior; fruit a series of follicles. **Paeonia brownii**. Paeony. Perennial herb with large, brownish flowers. Occasional native of chaparral.

PAPAVERACEAE — **Poppy Family**. Herbs and shrubs, often with a white or brightly-colored sap; leaves alternate, simple or variously dissected; flowers bisexual, radially symmetrical; sepals 2 or 3, typically early-deciduous; petals 4-12, in 1 or 2 series, crumpled; carpels 2-several, united, the ovary superior; fruit a capsule. As treated here, the family includes Fumariaceae.

1. Plants spiny. . . . . **Argemone munita ssp. rotundata**
Prickly-poppy. Perennial herb with large, white flowers. Occasional native.
1. Plants not spiny **2**
2. Flowers zygomorphic, with basal spurs or pouches **3**
2. Flowers regular, spurs or pouches absent **4**
3. Plants perennial; both outer petals with pouch-like bases. . . . . **Dicentra**
Bleeding-heart. Perennial herbs with heart-shaped flowers. Common natives.
3. Plants annual; only one outer petal pouch-like at base. . . . . **Fumaria**
Fumitory. Annual herbs with larkspur-like flowers. Escaped ornamentals. Old World.
4. Plants shrubby. . . . . **Dendromecon rigida ssp. rigida**
Tree-poppy. Shrub with orange flowers. Occasional native of chaparral.
4. Plants herbaceous **5**
5. Leaves finely dissected . . . . . **Eschscholzia**
California-poppy. Orange-flowered herbs. Common natives. *E. californica* is the state flower.
5. Leaves entire to pinnatifid. **6**
6. Style absent; stigma disc-like . . . . . **Papaver**
Poppy, corn poppy, opium poppy. Introduced herbs with large, showy flowers. The opium poppy (*P. somniferum*) is seen occasionally around older, abandoned home sites where it was once grown legally as an ornamental.
6. Style present; stigma linear to head-like **7**
7. Carpels 3 . . . . . **8**
7. Carpels 4 or more **9**
8. Leaves basal only; flowers yellowish . . . . . **Hesperomecon linearis**
Narrow-leaved meconella. Small, annual herb with cream-colored flowers. Native of open, grassy habitats. [= *Meconella*]
8. Leaves basal and cauline; flowers white . . . . . **Meconella**
Meconella. Small, slender-stemmed annuals. Leaves opposite. Natives of grassy slopes.
9. Leaves opposite, entire. . . . . **Platystemon californicus var. californicus**
Cream cups. Small, annual herb with yellow flowers. Common native of open, grassy habitats.
9. Leaves alternate, pinnately lobed or dissected . . . . . **Stylomecon heterophylla**
Wind-poppy. Native annual herb of grassy or brushy slopes. Known in our area from Lake Co.

PARNASSIACEAE — Grass-of-Parnassus Family. Annual or perennial herbs. Leaves simple, typically alternate; flowers bisexual, actinomorphic; sepals 5, basally connate; petals (4) 5; stamens (3) 5; carpels 3 or 4, united, ovary superior; fruit a capsule. **Parnassia.** Grass-of-Parnassus. Perennial, white-flowered herbs of late summer. Natives of wet habitats. Traditionally considered a subfamily of Saxifragaceae.

PAULOWNIACEAE — Princess Tree Family. Mostly woody plants (ours a tree); leaves typically opposite, simple or compound; flowers bisexual, bilaterally symmetrical; sepals 5, united; petals 5, united; stamens 4, didynamous and epipetalous; carpels 2, united; fruit a capsule. **Paulownia tomentosa.** Royal paulownia. Ornamental tree with large, heart-shaped leaves and bright purple flowers. Sparingly naturalized. Sometimes included in Scrophulariaceae. Doubtfully naturalized in the region.

PHYTOLACCACEAE — **Pokeweed Family**. Perennial herbs; leaves alternate, simple, large; flowers bisexual, radially symmetrical; sepals 4 or 5; petals 0; stamens 3-many; carpels several, united, the ovary superior; fruit a berry. **Phytolacca americana**. Pokeweed, poke, pokeberry. Native to the eastern U. S. The fruits of pokeweed are used as a source of a dye; the leaves are often mentioned in the literature of wild edible plants for use as a potherb. Because of damage to the cellular components of the circulatory system, such uses should be discontinued.

PITTOSPORACEAE — Pittosporum Family. Trees and shrubs; leaves simple, spirally arranged, often leathery and evergreen; flowers bisexual, radially symmetrical; sepals 5, separate; petals 5, often connate at base; stamens 5; carpels 2-5, united, the ovary superior; fruit a capsule or berry. **Pittosporum.** Pittosporum, tawhiwhi. Escaped ornamental trees.

PLANTAGINACEAE — **Plantain or Plantago Family**. Annual or perennial herbs, sometimes diminutive and grass-like; leaves basal, venation seemingly parallel; flowers bisexual, radially symmetrical; sepals 4, united; petals 4, united; stamens 4, epipetalous; carpels 2, united, the ovary superior; fruit a capsule; seeds often mucilaginous. One genus in our region, **Plantago**. Plantain, plantago. Common natives and weeds, especially of lawns. We follow Takhtajan (2009) in not expanding the family to include most of the plants traditionally assigned to Scrophulariaceae, Callitrichaceae, and Hippuridaceae.

PLATANACEAE — **Sycamore Family**. Large, white-barked trees; leaves alternate, simple, palmately lobed and veined, with dilated petiole base concealing buds; flowers unisexual, borne in pendulous, spherical heads; perianth absent; stamens 3 or 4; carpels 6-9, united, the ovary superior; fruit an aggregate of achenes. **Platanus racemosa**. California sycamore, western sycamore, plane tree. Native along stream beds.

PLUMBAGINACEAE — **Leadwort Family**. Perennial herbs; leaves alternate, simple; flowers bisexual, radially symmetrical; sepals 5, separate; petals 5, separate; stamens 5; carpels 5, united, the ovary superior; fruit a utricle or capsule.

1. Inflorescence a loose panicle; leaves broad . . . . . **Limonium californicum**
   Sea-lavender. Perennial herb with violet flowers. Native of coastal salt marshes.
1. Inflorescence head-like; leaves linear. . . . . **Armeria maritima ssp. californica**
   Thrift. Perennial herb with tuft of linear leaves. Native of coastal dunes.

POLEMONIACEAE — **Phlox Family**. Herbs and shrubs; leaves alternate or opposite, simple to compound; flowers bisexual, radially symmetrical; sepals 5, united; petals 5, united, rotate to salverform; stamens 5; carpels 3, united, the ovary superior; fruit a capsule.

1. Leaves pinnately compound . . . . . **Polemonium**
   Jacob's ladder. Perennial, blue-flowered herbs. Common natives of high elevations.
1. Leaves entire to divided, but not compound **2**
2. Calyx-tube of ± uniform texture **3**
2. Calyx-tube hyaline with green ribs. **5**
3. Leaves palmately lobed or cleft . . . . . **Linanthus**
   Linanthus. Annual herbs with seemingly whorled, linear leaves. Common natives of open, grassy areas.
3. Leaves entire to pinnately divided . . . . . **Collomia**
   Collomia. Herbs with sticky seeds. Natives.
4. Leaves (at least lower ones) opposite **5**
4. Leaves mostly alternate **8**
5. Stamens unequally inserted; leaves entire . . . . . **Phlox**
   Phlox. Perennial, often mat-forming herbs. Common natives.
5. Stamens equally inserted; leaves mostly palmately-cleft **6**
6. Plants annual, herbaceous . . . . . **Linanthus**
   Linanthus. Annual herbs with seemingly worled, linear leaves. Common natives of open, grassy habitats.
6. Plants perennial, shrubby **7**
7. Stems hairy, but not glandular . . . . . **Leptosiphon nuttallii**
   Shrubby, perennial, white-flowered herb. Native of dry, rocky habitats. [= *Linanthus n.*]
7. Stems conspicuously glandular . . . . . **Leptodactylon pungens**
   Prickly-phlox. Shrubby, perennial, white-flowered herb. Native of dry, rocky habitats. [= *Leptodactylon p.*]
8. Calyx-lobes ± equal **9**
8. Calyx lobes unequal **13**
9. Leaf lobes spine-tipped. . . . . **Ipomopsis**
   Scarlet-gilia. Biennial or perennial herbs with pinnately-dissected leaves. Natives of dry, open areas.
9. Leaf lobes not spine-tipped . . . . . **Gilia**
   Gilia. Small, annual herbs with comparatively large flowers. Common natives of open, grassy habitats. As treated here, the genus includes species once placed in Allophyllum.
10. Inflorescence with fine, interwoven hairs; anthers typically well over 0.5 mm long . . . . . **Eriastrum**
    Eriastrum. Herbs with woolly foliage. Natives of open habitats.
10. Inflorescence glabrous to villous, but not with fine, tomentose hairs; anthers 0.5 mm or less long. . . . . **Navarretia**

Navarretia. Annual herbs with alternate leaves. Natives of open habitats.

POLYGALACEAE — **Milkwort Family**. Perennial herbs; leaves alternate, simple; flowers bisexual, bilaterally symmetrical, (superficially resembling a paplionoid legume), subtended by a bract or pair of small bracts; sepals 5, separate, the inner 2 often enlarged and petaloid; petals 3, joined to staminal column, the lower one fringed; stamens 8, united by their filaments into a tube that is split along one side; carpels 2, united, the ovary superior; fruit a capsule. **Polygala**. Milkwort. Common forest natives.

POLYGONACEAE — **Smartweed or Knotweed Family**. Herbs and shrubs, rarely vines; stems often with swollen nodes; leaves alternate or opposite, simple, typically with a membranous, frayed sheath (ocrea) forming a collar at each node; flowers bisexual, radially symmetrical; sepals 5 or 6 (in two sets of 3), separate, petaloid; petals 0 (inner set of 3 sepals easily mistaken for petals); stamens 3-9, in more than one series; carpels 3, united, the ovary superior; fruit a flattened or 3-sided achene.

1. Vine; flowers unisexual . . . . . **Muehlenbeckia complexa**
   Maidenhair vine, lacy wire vine. Escaped ornamental native to New Zealand.
1. Herbs or shrubs; flowers typically bisexual **2**
2. Leaves rounded; stigmas 2 . . . . . **Oxyria digyna**
   Mountain-sorrel. Perennial herb with round leaves. Native of high elevations rocky areas.
2. Leaves linear to broadly elliptic; stigmas 3 . . . . . **3**
3. Stems with frayed, membranous collar (ocrea) above nodes; nodes usually swollen; flowers not subtended by or enclosed within involucral bracts **4**
3. Stems without frayed, membranous collar above nodes; nodes not swollen; flowers typically subtended by or enclosed within involucral bracts **6**
4. Leaves opposite; flowers subtended by single, 2-winged bract . . . . . **Pterostegia drymarioides**
   Woodland thread-stem. Small, annual herb. Native in shade of shrubs.
4. Leaves alternate or basal; flowers subtended by a set of 2-4 bracts **5**
5. Involucral bracts spine- or bristle-tipped . . . . . **Chorizanthe**
   Spine flower. Small, annual herbs. Natives of dry habitats.
5. Involucral bracts without spines or bristles . . . . . **Eriogonum**
   Buckwheat, false buckwheat. Herbs or shrubs with ± leafless stems. Common natives. A large and taxonomically difficult genus.
6. Perianth 6-parted (in 2 series of 3) . . . . . **Rumex**
   Dock, sour dock, sheep sorrel. Herbs of various habit. Common native and naturalized species.
6. Perianth 3- to 5-parted. . . . . **Polygonum**
   Knotweed, smartweed. Herbs of various habit; some aquatic. Common natives. [Includes *Aconogonum, Bistorta, Fallopia,* and *Persicaria*]

PONTEDERIACEAE — Pickerel Weed Family. Perennial aquatic herbs of freshwater sites; leaves opposite or whorled, with sheathing bases; flowers bisexual, radially symmetrical; perianth 3 + 3, petaloid, free or connate; stamens 3; ovary 1-chambered; fruit a capsule. **Heteranthera dubia.** Water star-grass, mud-plantain. Uncommon aquatic of the North Coast.

PORTULACACEAE — **Purslane Family**. Annual or perennial herbs; leaves alternate, simple, sometimes ± fleshy; flowers bisexual, radially symmetrical; sepals 2-several, separate or united; petals 4-6, separate; stamens 4-many; carpels 2-8, united, the ovary superior or half-inferior; fruit a capsule. As treated here, the family includes Montiaceae.

1. Flowers yellow; ovary half-inferior . . . . . **Portulaca oleracea**
   Purslane. Prostrate, ± succulent, annual herb. Common weed.
1. Flowers white or pink to rose-red. **2**
2. Flowers in coiled inflorescence; style 1. . . . . **Cistanthe**
   Pussypaws. Herbs with a dense, coiled spike of flowers. Common natives. [= *Calyptridium*]
2. Flowers solitary or in open, branched inforescences; styles 3-8 . . . . . **3**
3. Fruits opening by a lid; sepals 2-6 (rarely 8); stamens 5-many . . . . . **Lewisia**
   Lewisia, bitter root. Showy native, perennial herbs with fleshy basal leaves.
3. Fruits splitting into 3 sections at maturity; sepals 2; stamens 1-5. . . . . **4**
4. Flowers subtended by leafy bracts . . . . . **Calandrinia ciliata**
   Red maids. Annual, red-flowered herb. Native species, but often found in disturbed habitats.
4. Flowers bractless or with rudimentary bracts **5**
5. Plants perennial; corms often present; cauline leaves 2 . . . . . **Claytonia**
   Claytonia, spring beauty, miner's lettuce. Glabrous herbs with ± fleshy leaves. Common natives.
5. Plants annual; corms absent; cauline leaves 3 or more . . . . . **Montia**
   Montia, toad-lily, water-chickweed. Glabrous herbs with ± fleshy leaves. Common natives.

POTAMOGETONACEAE — Pondweed Family. Annual or perennial aquatic herbs of freshwater sites; stems often jointed; leaves alternate or opposite, simple basally sheathing, blades floating on water's surface or submersed; flowers small, unisexual or bisexual, radially symmetrical; sepals 4, separate, clawed; petals 0; stamens 1, 2, or 4, episepalous; carpels (1) 4 (8), separate, the ovary superior; fruit 1-4 achenes or druplets. As treated here, the family includes Zannichelliaceae.

1. Leaves all or mostly alternate, leaf blade floating on water's surface; flowers bisexual . . . **Potamogeton**
   Pondweed. Common natives of open water.
1. Leaves all or mostly opposite; leaf blades submersed; flowers unisexual . . . . . **Zannichellia palustris**
   Horned-pondweed. Native of pools and shallow streams.

PRIMULACEAE — **Primrose Family**. Herbs; leaves opposite, whorled or basal, simple, often gland-dotted; flowers bisexual, radially symmetrical; sepals 5, separate; petals 5-7, united (rarely absent); stamens 5, attached opposite the petals; carpels 5, united, ovary superior or half-inferior, placentation free-central; fruit a capsule or pyxis. Recent research suggests that *Anagallis, Glaux,* and *Trientalis* are not distinct from *Lysimachia*. Family limit remains unsettled. Some authors assign several of our genera to Myrsinaceae.

1. Leaves in 1 whorl at stem apex (somewhat separated in *Trientalis arctica*); flowers typically 6- or 7-parted . . . . . **Trientalis**
   Star flower. Perennial, pink-flowered herbs. Common natives of forests.
1. Leaves basal or distributed along the stem; flowers 5- (rarely 6-) parted **2**
2. Leaves basal; flowers in umbels **3**
2. Stem leaves well-developed; flowers solitary or racemose in leaf axils **5**
3. Petals reflexed . . . . . **Dodecatheon**
   Shooting star. Perennial, pink-flowered herbs. Common natives of grasslands and meadows.
3. Petals spreading to erect **4**
4. Flowers white; corolla lobes ca 1 mm long . . . . . **Androsace**
   Rock-jasmine. Annual, white-flowered herb. Uncommon native annuals of dry, grassy slopes and meadows.
4. Flowers magenta, with yellow throat; corolla lobes 8-10 mm long . . . . . **Primula suffrutescens**
   Sierra primrose. Perennial herb. Native of highest elevations of the Trinity Alps.
5. Petals absent; sepals petal-like . . . . . **Glaux maritima**
   Sea milkwort. Low, fleshy, perennial herb with minute flowers. Native of coastal salt marshes and dunes.
5. Sepals and petals both present and clearly differentiated **6**
6. Plants perennial; flowers yellow . . . . . **Lysimachia thrysiflora**
   Tufted loosestrife. Perennial herb of wet areas.
6. Plants annual; flowers pink or blue . . . . . **Anagallis**
   Pimpernel, scarlet pimpernel. Small, annual herbs. Natives of moist, seasonal depressions and a ± prostrate, weedy herb.

RANUNCULACEAE — **Buttercup or Crowfoot Family**. Mostly herbs, occasionally woody vines; leaves typically alternate (opposite in Clematis and a few species of Ranunculus), palmately lobed, divided or compound, bases often sheathing; flowers bisexual, the floral parts inserted on an elongate receptacle, radially or bilaterally symmetrical, with or without nectar spurs; sepals 3-several, separate, often petaloid; petals 0-many, separate, often intergrading with sepals; stamens many; carpels usually many, separate (less often a smaller number and united); fruit a follicle, achene, or berry.

1. Woody vines . . . . . **Clematis**
   Clematis, leather flower, virgin's bower. Woody vines with showy, white flowers. Common natives. Source of popular ornamentals.
1. Herbs **2**
2. Flowers minute, sepals spurred; leaves linear to thread-like . . . . . **Myosurus**
   Mousetail. Small annual, linear-leaved herbs. Natives of seasonally moist habitats.
2. Flowers conspicuous, sepals not spurred; leaves with well-developed simple to compound blades **3**
3. Flowers bilaterally symmetrical **4**
3. Flowers radially symmetrical **5**
4. Petals 2; upper sepal forming a hood . . . . . **Aconitum columbianum var. columbianum**
   Monks-hood, aconite, wolf's bane. Perennial, typically blue-flowered herbs. Natives of meadows and forest margins. Toxic. Its occurrence may explain the paucity of vampire attacks in our area.
4. Petals in 2 pairs; upper sepal forming a spur that encloses upper pair of petals . . . . . **Delphinium**
   Larkspur, delphinium, stagger weed. Perennial herbs with blue or red flowers. Common natives of forest openings; a number of species are grown as garden ornamentals. A large and taxonomically difficult genus. All should be considered toxic because of their alkaloids.
5. Petals conspicuously spurred . . . . . **Aquilegia**
   Columbine. Perennial herbs with red and yellow flowers. Common natives of moist habitats.
5. Petals not spurred **6**
6. Leaves simple, entire to deeply-cleft **7**
6. Leaves compound **10**
7. Sepals and petals present **8**
7. Sepals petal-like; petals absent **9**
8. Petals shorter than sepals; rhizomes yellow . . . . . **Coptis laciniata**
   Oregon goldthread. Perennial herb with greenish-white flowers. Local native of forests.
8. Petals longer than sepals; rhizomes, if present, not yellow . . . . . **Ranunculus**
   Buttercup. Herbs with bright-yellow flowers. Common natives of open habitats. A large, taxonomically difficult genus. Toxic.
9. Leaves rounded . . . . . **Caltha**
   Marsh-marigold. Perennial, white-flowered herb. Native of wet meadows at mid- and high-elevations.
9. Leaves with 5-11 palmate lobes . . . . . **Trautvetteria carolinensis var. occidentalis**
   False bugbane. Perennial herb whose flowers have showy stamens. Uncommon native.
10. Sepals and petals present **11**
10. Sepals petal-like; petals absent **12**
11. Petals shorter than sepals; rhizomes yellow . . . . . **Coptis laciniata**
    Oregon goldthread. Perennial herb with greenish-white flowers. Local native of forests.
11. Petals longer than sepals; rhizomes, if present, not yellow . . . . . **Ranunculus**
    Buttercup, crowfoot. Herbs with bright yellow flowers. Common natives of open habitats. A large and taxonomically difficult genus.
12. Stamens more conspicuous than sepals, which fall at maturity **13**

12. Stamens less conspicuous than perianth. **14**
13. Flowers white; fruit a berry . . . . . **Actaea rubra ssp. arguta**
Baneberry. Perennial herb with poisonous fruits. Occasional native of moist habitats.
13. Flowers green; fruit an achene . . . . . **Thalictrum**
Meadow-rue. Perennial, green-flowered herb. Native of moist habitats.
14. Leaves basal . . . . . **Enemion**
Siskiyou rue-anemone. Perennial herb whose flowers have stalked follicles as fruits. Uncommon native of forests.
14. Leaves ± subtending flowers . . . . . **Anemone**
Anemone, wind flower, pasque flower. Perennial, white-flowered herbs. Common natives of forests and high elevation meadows.

RESEDACEAE — **Mignonette Family**. Glabrous herbs; leaves alternate, simple; flowers bisexual, radially symmetrical; sepals 2-8, separate; petals 0-8, separate; stamens 3-many; carpels 2-7, united, the ovary superior; fruit a capsule. **Reseda**. Mignonette. Perennial herbs with inconspicuous white or yellow flowers. Established in waste places.

RHAMNACEAE — **Buckthorn Family**. Shrubs and small trees; leaves alternate, simple; flowers small, bisexual, radially symmetrical, greenish-yellow or brightly-colored; sepals 5; petals 5; stamens 5, borne on a disc, attached opposite the petals; perianth and androecium united to form a hypanthium; carpels 3, united, the ovary superior or ± inferior; fruit a capsule or drupe-like berry.

1. Fruit dry; leaves with 1-3 pairs of lateral veins; flowers white, creamy, or blue . . . . . **Ceanothus**
California-lilac, coyote bush, buckbrush, squaw carpet, deer brush, snow brush, whitethorn, blue blossom. Shrubs with showy inflorescences. Widespread natives. A large and taxonomically difficult genus. Other species are popular here as ornamental ground covers. This is the largest shrub genus in our region.
1. Fruit fleshy; leaves with several pairs of lateral veins; flowers greenish-yellow. **2**
2. Terminal bud scales present; petals generally absent; style exserted . . . . . **Rhamnus**
Coffee berry. Chaparral, woodlands, wet sites.
2. Terminal bud scales absent; petals present; style included. . . . . **Frangula**
Coffee berry, cascara. Shrubs or small trees. Chaparral, woodlands, serpentines.

ROSACEAE — **Rose Family**. Trees, shrubs, herbs, and vines; stems sometimes modified into thorns or spines or the epidermis armed with prickles; leaves alternate, simple or compound; flowers typically bisexual, radially symmetrical; sepals 5; petals 5; stamens many, less often 5 or 10; perianth and androecium united to form a hypanthium; carpels 1, 5 (united) or many and separate, the ovary superior or inferior; fruit an achene, follicle, drupe, pome or aggregate.

1. Trees, shrubs or vines **2**
1. Herbs, erect to spreading **22**
2. Leaves compound **3**
2. Leaves simple **7**
3. Vines, often with prickly stems and leaves . . . . . **Rubus**
Blackberry, thimble berry, Himalaya berry, salmon berry, raspberry, collectively known as brambles. Well-developed vines with conspicuous flowers and fleshy, often edible fruits. Common natives and naturalized species.
3. Erect shrubs or trees **4**
4. Ovary inferior . . . . . **Sorbus**
Mountain-ash. Shrubs with pinnately compound leaves. Common natives.
4. Ovary superior. **5**
5. Carpels enclosed in vase-like, leathery hypanthium . . . . . **Rosa**
Rose. Pink-flowered shrubs. Common native and naturalized species. A taxonomically difficult genus.
5. Carpels clearly visible on surface of receptacle **6**
6. Plants typically prickly; fruit fleshy. . . . . **Rubus**
Brambles, blackberry, thimble berry, salmon berry, raspberry, Himalaya berry; collectively called brambles. Shrubs with prickly stems and leaves. Common natives and naturalized species.
6. Plants without prickles; fruit dry . . . . . **Dasiphora fruticosa**
Bush or shrubby cinquefoil. Yellow-flowered shrub. Native at high elevations. [= *Potentilla f.*]
7. Ovary inferior **8**
7. Ovary superior. **13**
8. Branches (at least some of them) modified into thorns **9**
8. Branches not modified into thorns **10**
9. Styles united at base; endocarp papery to leathery . . . . . **Malus fusca**
Apple. Pink-flowered trees. Natives and naturalized species.
9. Styles separate from one another; endocarp bony. . . . . **Crataegus douglasii**
Hawthorn. Somewhat spiny tree with white flowers. Native along streams.
10. Leaves evergreen, leathery, and sharply-toothed . . . . . **Heteromeles arbutifolia**
Toyon, Christmas berry. Shrub with bright-red, persistent berries. Native to chaparral. [= *Photinia a.*]
10. Leaves deciduous, entire to bluntly-toothed **11**
11. Leaf blade toothed along margin; fruits 3 cm or more in diameter . . . . . **Malus**
Apple. Pink-flowered trees. Native and naturalized species.
11. Leaf blades entire or toothed on upper half only; fruits 1.5 cm or less in diameter **12**
12. Leaf blade toothed on upper half only; fruits blue-black. . . . . **Amelanchier alnifolia**
Service berry. White-flowered shrubs. Common natives.
12. Leaf blades entire; fruits orange to red . . . . . **Cotoneaster**

Cotoneaster. Unarmed introduced shrubs. Escaped ornamentals
13. Style hairy, 1 cm or more long **14**
13. Style ± glabrous, less than 0.5 cm long **15**
14. Leaves deeply 3-cleft; petals present . . . . . **Purshia tridentata var. tridentata**
Antelope bush. Yellow-flowered shrub. Common native of Great Basin habitats.
14. Leaves not 3-cleft; petals absent . . . . . **Cercocarpus**
Mountain-mahogany. Shrubs or small trees with long-tailed fruits. Natives.
15. Carpels numerous; fruit an aggregate of drupelets . . . . . **Rubus parviflorus**
Thimbleberry. White-flowered, spineless shrub. Common native of forests.
15. Carpels 1-5; fruit a single drupe or a series of achenes or follicles **16**
16. Fruits of 1-5 follicles **17**
16. Fruits a drupe or a series of achenes or drupelets **19**
17. Floral tube with forked hairs . . . . . **Physocarpus capitatus**
Ninebark. Shrub with corymb of white flowers. Native of forest margins.
17. Floral tube without forked hairs **18**
18. Fruits several-seeded; stamens well-exserted; flowers pink . . . . . **Spiraea**
Spirea. Pink-flowered shrubs. Natives of moist habitats.
18. Fruits 1-seeded; stamens not well-exserted; flowers white to cream . . . . . **Holodiscus**
Cream bush or ocean spray. Shrubs with showy racemes of small, white to cream flowers. Common natives that are difficult to distinguish from one another.
19. Fruit an achene **20**
19. Fruit a drupe or drupelet **21**
20. Leaves ± linear . . . . . **Adenostoma fasciculatum**
Chamise. Shrub with dark green leaves. Locally abundant native of chaparral.
20. Leaves obovate to ovate . . . . . **Holodiscus**
Cream bush or ocean spray. Shrubs with showy racemes of small, white to cream flowers. Common natives that are difficult to distinguish from one another.
21. Carpel 1; leaves typically toothed . . . . . **Prunus**
Cherry. White-flowered trees and shrubs. Natives, escaped ornamentals and fruit trees.
21. Carpels typically 5; leaves entire . . . . . **Oemleria cerasiformis**
Oso berry, Indian-plum. Shrub with nodding racemes of white flowers. Native. [= *Osmaronia c.*]
22. Leaves simple **23**
22. Leaves compound **24**
23. Annual herb; leaves less than 7 mm long, without clearly defined petiole . . . . . **Aphanes arvensis**
Lady's mantle. Small, annual herb with urn-shaped flowers. Native of open habitats.
23. Prostrate perennial ground-cover; leaves 1 cm long or wide, with well-developed petioles **Rubus lasiococcus**
Dwarf bramble. Herb with trifoliolate leaves. Native of mid-elevation forests.
24. Robust perennial 1-2 m tall; lower leaves 3-pinnately compound . . . **Aruncus dioicus var. acuminatus**
Goat's beard. Large herb with panicles of white flowers. Common native of moist habitats.
24. Annuals to perennials, but seldom exceeding 1 m tall; lower leaves 1- or 2-pinnately compound or palmately compound **25**
25. Leaflets 3 . . . . . **26**
25. Leaflets 4-many **29**
26. Stamens 5 . . . . . **Sibbaldia procumbens**
Creeping sibbaldia. Perennial herb with small, yellow flowers. Native of highest elevations in Trinity Alps in our area.
26. Stamens 10 or more **27**
27. Fruit a dry achene . . . . . **Potentilla**
Cinquefoil. Mainly perennial, yellow-flowered herbs. Common natives.
27. Fruit or receptacle fleshy **28**
28. Receptacle fleshy; styles deciduous; fruit an achene . . . . . **Fragaria**
Wild strawberry. Perennial herbs with a pink, fleshy receptacle that is often mistaken for a fruit. Common natives.
28. Receptacle not fleshy; styles persistent; fruit an aggregate of drupelets . . . . . **Rubus lasiocarpus**
Cut-leaved bramble. Herb with trifoliolate leaves. Native of mid-elevation forests.
29. Leaves 2-3 times ternately dissected . . . . . **Leutkea pectinata**
Partridge-foot. Small, perennial herb with much-dissected leaves. Native of high elevations.
29. Leaves palmately compound, pinnately compound or pinnately dissected **30**
30. Stamens 5 or 10 . . . . . **31**
30. Stamens 20 or more **32**
31. Stamens 10; filaments dilated . . . . . **Horkelia**
Horkelia. Perennial herbs with pinnately compound leaves. Natives.
31. Stamens 5; filaments not dilated . . . . . **Ivesia**
Mouse-tail. Perennial herbs with highly compound leaves. Natives.
32. Carpels 1-10 . . . . . **33**
32. Carpels numerous **36**
33. Floral tube with prickles **34**
33. Floral tube not prickly **35**
34. Prickles backwardly barbed; petals 0; sepals typically 4 . . . . . **Acaena nova-zelandiae**
Biddi-biddi. Perennial herb with spiny fruits. Introduced near Arcata, Humboldt Co.
34. Prickles hooked, but not barbed; petals and sepals 5 . . . . . **Agrimonia gryposepala**
Agrimony. Perennial, yellow-flowered herb. Native of mid-elevations in Mendocino Co.
35. Sepals and petals 5 . . . . . **Ivesia**
Mouse-tail. Perennial herbs with highly compounded leaves. Natives.
35. Sepals 4; petals 0 . . . . . **Sanguisorba**

Burnet. Perennial herbs with bur-like fruits. Native and naturalized species.
36. Style and achene glabrous . . . . . **Potentilla**
Cinquefoil. Mainly perennial, yellow-flowered herbs. Common natives.
36. Style or achene or both hairy . . . . . **Geum**
Avens. Perennial herbs with long-tailed achenes when in fruit. Natives of mid-to high-elevation.

[Revised: 21 August 2014]

RUBIACEAE — **Madder Family**. Trees, shrubs, and herbs; leaves opposite or whorled, simple, entire, stipules often leaf-like; flowers bisexual, radially symmetrical; sepals 4 or 5, separate; petals 4 or 5, united; stamens 4 or 5, epipetalous; carpels 2, united, the ovary inferior; fruit a capsule or berry.

1. Trees or shrubs . . . . . **Cephalanthus occidentalis**
Button bush. Shrub or small tree with heads of white flowers. Native along lake shores and stream banks.
1. Herbs (if woody, only at base). **2**
2. Leaves opposite. . . . . **Kelloggia gallioides**
Milky kelloggia. Delicate, perennial herb with small, pink flowers. Common native of mid-elevations.
2. Leaves whorled **3**
3. Flowers in dense spikes . . . . . **Crucianella angustifolia**
Cross wort. Grass-like, annual herb with whorled leaves. Introduced near Igo in Shasta Co.
3. Flowers in heads of cymes **4**
4. Flowers in few-flowered clusters, subtended by deeply divided involucre . . . . . **Sherardia arvensis**
Field-madder. Annual herb, much like Galium in general appearance. Naturalized.
4. Flowers solitary or in simple to complex cymes; involucre absent . . . . . **Galium**
Bedstraw. Herbs with rough, whorled leaves. Common natives. A large and taxonomically complex genus.

RUPPIACEAE — **Ditch-grass Family**. Submersed perennial aquatic herbs; leaves alternate, simple, slender; flowers small, unisexual; perianth absent; stamens 2; carpels 4, separate, the ovary superior; fruit a nutlet. **Ruppia maritima**. Ditch-grass. Natives of coastal brackish or alkaline waters.

RUTACEAE — **Rue or Citrus Family**. Trees and shrubs; leaves alternate or opposite, simple or compound, glandular-dotted and often strongly aromatic; flowers bisexual, radially symmetrical; sepals 4 or 5, separate or united at bases; petals 4 or 5, separate; stamens 8 or 10, attached to staminal disc; carpels 4 or 5, united, the ovary superior; fruit a drupe, berry or hesperidium (in *Citrus* and its relatives). **Ptelea crenulata**. California hop tree, wafer-ash. Shrub with trifoliolate leaves. Native of low elevation, interior canyons.

SALICACEAE — **Willow Family**. Trees and shrubs; leaves alternate, simple; flowers unisexual, subtended by fringed or hairy bracts, a cup-like disc or glands; in erect or pendulous catkins that appear before the leaves; calyx absent or perhaps represented by disc or glands associated with flowers; petals 0; stamens 2 to several; carpels 2, united, the ovary superior; fruit a capsule.

1. Bud scales numerous; catkin bracts toothed . . . . . **Populus**
Poplar, aspen. Trees with triangular leaves. Common natives.
1. Bud scales 1; catkin bracts entire . . . . . **Salix**
Willow. Trees and shrubs, typically with elongate leaves. Widespread natives. A large and complex genus.

SARRACENIACEAE — **Pitcher Plant Family**. Perennial, insectivorous herbs; leaves tubular, the blades reduced; flowers large, in ours solitary and nodding, subtended by bracteoles, bisexual, radially symmetrical; sepals 4 or 5, separate; petals 5, separate; stamens several-many; carpels 5 or 6, united, ovary superior, style expanded into an umbrella-like structure; fruit a capsule. **Darlingtonia californica**. Pitcher plant or cobra-lily. Native of seeps.

SAXIFRAGACEAE — **Saxifrage Family**. Mostly perennial, scapose herbs; leaves alternate, basal; flowers bisexual, radially symmetrical; sepals 5; petals 5 (rarely 0), often clawed; stamens mostly 3, 5 or 10; perianth and androecium united below to form a hypanthium; carpels 2, united toward the base, the ovary superior; fruit a capsule.

1. Leaves peltate, 1-4 dm broad . . . . . **Darmera peltata**
Indian-rhubarb. Perennial herb with large leaves and scapose inflorescences. Native to streams and rivers.
1. Leaves not peltate, blade rarely over 1 dm broad **2**
2. Stamens 4 or 8; petals 0; flowers solitary in leaf axils . . . . . **Chrysosplenium glechomaefolium**
Golden-saxifrage. Small, perennial, greenish-flowered herb. Native of wet, mucky habitats.
2. Stamens 3, 5 or 10; petals present; flowers typically in well-elevated terminal inflorescences **3**
3. Petals thread-like or divided into narrow, linear segments **4**
3. Petals entire to cleft **7**
4. Stamens 10. . . . . **5**
4. Stamens 3 or 5 . . . . . **6**
5. Hypanthium well-developed, urn- to bell-shaped. . . . . **Tellima grandiflora**
Fringe cups. Perennial, pink-flowered herb. Native of forests.
5. Hypanthium poorly-developed, not extending above ovary. . . . . **Tiarella trifoliata**
Sugar scoop. Perennial, white-flowered herb. Native of forests.
6. Stamens 3. . . . . **Tolmiea menziesii**
Piggyback plant, pig-a-back plant. Perennial herb with brown flowers. Native of forests.
6. Stamens 5. . . . . **Bensoniella oregona**
000. Perennial, white-flowered herb. Rare native.

7. Stamens 5. . . . . **8**
7. Stamens 10. . . . . **11**
8. Ovary 1-chambered, with 2 (rarely 3) parietal to semi-basal placentae **9**
8. Ovary 2- (rarely 3- to 5-) chambered, with axillary placentae. **10**
9. Petals deeply-cleft . . . . . **Mitella**
Miterwort. Perennial herbs with delicate flowers. Natives of shaded, moist sites.
9. Petals entire . . . . . **Heuchera**
Alum root. Perennial, small-flowered herbs. Natives, commonly of rock outcrops.
10. Scaly rhizomes present. . . . . **Boykinia**
Perennial herbs with cymes of white flowers. Natives of wet habitats.
10. Scaly rhizomes absent; bulblets typically present at base of plants **. . . . . Suksdorfia ranunculifolia**
Buttercup suksdorfia. Small, perennial, white-flowered herbs. Native of wet rock outcrops.
11. Petals palmately cleft or divided; stigmas or styles 3. . . . . **Lithophragma**
Woodland star. Perennial herbs with a few flowers on a slender stalk. Common natives of woodlands.
11. Petals entire; stigmas or styles 2. . . . . **12**
12. Leaf blade jointed, falling before petiole . . . . . **Saxifragopsis fragarioides**
000. Joint-leaved saxifrage, strawberry saxifrage. Native perennial of rock crevices in the mountains of Humboldt and Siskiyou counties.
12. Leaf blade not jointed, not falling before petiole . . . . . **Saxifraga**
Saxifrage. Typically white-flowered, perennial herbs. Common natives, especially of rock out-crops. [Includes *Micranthes* and *Cascadia*].

SCROPHULARIACEAE — **Figwort or Snapdragon Family**. Herbs and shrubs; leaves alternate or opposite, simple, entire to pinnately dissected; flowers usually bisexual, bilaterally symmetrical, often 2-lipped, some with spurs, sacs or pouches; sepals 4 or 5, united; petals 4 or 5, united into a short to long floral tube; stamens usually 4, in two sets of 2, less frequently 2 or 5 (the fifth may be rudimentary), the two anther-halves equally or unequaled developed; carpels 2, united, the ovary superior; fruit a capsule or berry. Most of the plants traditionally assigned to this family have been transferred to Orobanchaceae, Phrymaceae, and Plantaginaceae by several recent authors. We follow Takhtajan (2009) in maintaining the traditional family concept, and also in accepting his inclusion of Orobanchaceae.

1. Plants pale yellow, purplish, or reddish brown; well-developed leaves absent. **2**
1. Plants green; well-developed leaves present. **3**
2. Filament bases hairy; anther bases blunt . . . . . **Boschniakia**
Ground cone. Foliage brown. Ours parasitic on *Arbutus menziesii, Gaultheria*, and *Arctostaphylos*. [= *Kopsiopsis*]
2. Filaments not hairy; anthers bases ± pointed . . . . . **Orobanche**
Broomrape. Native herbs with purple or yellow flowers.
3. Plants shrubby. **4**
3. Plants herbaceous [rarely woody at very base] **6**
4. Fertile stamens 2 . . . . . **Veronica speciosa**
Hebe. Purple-flowered shrub with opposite leaves. Garden escape. [= *Hebe s.*]
4. Fertile stamens 4 . . . . . **5**
5. Flowers reddish; filament bases conspicuously hairy **. . . . . Keckiella**
Bush-penstemon. Shrubby perennials. Common natives of interior rock outcrops. [= *Penstemon* in part]
5. Flowers yellow or yellow-orange; filament bases not hairy . . . . . **Mimulus aurantiacus**
Orange bush monkey flower. Much-branched, glandular shrub. Common native of coastal rocky areas. [= *Diplacus au.*]
6. Plants acaulescent; corolla rotate . . . . . **Limosella aquatica**
Mudwort. Stoloniferous perennial. Infrequent native of muddy edges of ponds.
6. Plants with well developed stems; corolla ± tubular to distinctly 2-lipped **7**
7. Stems trailing . . . . . **Cymbalaria muralis**
Kenilworth-ivy. Trailing vine with snapdragon-like flowers. Garden escape.
7. Stems erect. **8**
8. Fertile stamens 5 . . . . . **Verbascum**
Mullein. Tall, biennial or perennial herbs with yellow flowers. Common weeds.
8. Fertile stamens 2 or 4 . . . . . **9**
9. Fertile stamens 4 . . . . . **10**
9. Fertile stamens 2 . . . . . **27**
10. Fifth rudimentary stamen present **11**
10. Rudimentary stamen absent **13**
11. Flowers maroon; 5th stamen reduced to scale or knob on upper corolla lip . . . . . **Scrophularia**
California bee plant. Coarse perennial herbs. Common natives.
11. Flowers blue, purple, red, white or yellow; 5th stamen a hairy rudiment **12**
12. Filament bases glabrous (1 or 2 may have tiny hairs) . . . . . **Penstemon**
Penstemon, beard tongue. Perennial herbs with showy flowers. Common natives. A large, taxonomically difficult genus!
12. Filament bases conspicuously hairy . . . . . **Nothochelone nemorosa**
Woodland beard-tongue. Perennial, purple-flowered herb. Native of mid- to high-elevation. [= *Penstemon n.*]
13. Leaves alternate or basal **14**
13. Leaves (at least lower) opposite **20**
14. Corolla 4-5 cm long, barely (if at all) 2-lipped. . . . . **Digitalis purpurea**
Foxglove. Tall, perennial herb with showy flowers. Common roadside weed and popular ornamental. Source of the digitalis glycosides and, therefore, highly poisonous.

14. Corolla rarely over 3 cm long; distinctly 2-lipped **15**
15. Flowers spurred . . . . . **Kickxia elatine**
Sharp-leaved fluellin. Perennial, white-flowered herbs. Naturalized along the coast.
15. Flowers not spurred, but lower corolla lip sometimes with sac or pouch **16**
16. Stamens with 2 pollen sacs, equal in size and position; calyx lobes 5 (rarely 2 or 4); basal leaves often present; principal leaves with at least 5 teeth or segments per side . . . . . **Pedicularis**
Lousewort, elephant's head, Indian warrior. Perennial herbs with dissected leaves. Common natives.
16. Stamens with 1 pollen sac (if two, dissimilar in position and often in size -- 1 attached in middle and seemingly terminal, 1 by its apex and pendulous or lying along upper part of filament) **17**
17. Plants perennial; lower corolla lip much smaller and shorter than upper lip . . . . . **Castilleja**
Indian paintbrush. Perennial herbs with colorful bracts surrounding flowers. Root parasites. Common natives.
17. Plants annual; upper and lower corolla lips of same length **18**
18. Upper corolla lip forming a beak open at its front . . . . . **Triphysaria**
Johnny-tuck, owl's-clover. Annual herbs with showy bracts. Common natives. [= *Orthocarpus* in part]
18. Upper corolla lip forming a hood closed at its front **19**
19. Calyx spathe-like, 0- to 2-lobed; lower corolla lip entire . . . . . **Cordylanthus**
Bird's-beak. Annual herbs with yellow roots and brown flowers. Common late-blooming natives.
19. Calyx tubular, unequally 4-cleft; lower corolla lip minutely 3-toothed . . . . . **Orthocarpus**
Owl's-clover. Annual herbs with showy bracts. Common natives.
20. Stigmas separate, flattened or plate-like **21**
20. Stigmas united into head-like or dot-like structure **22**
21. Calyx ridged or somewhat winged . . . . . **Mimulus**
Monkey flower, bush monkey flower. Herbs and shrubs with showy flowers. Common natives. Shrubby species, often segregated in the genus *Diplacus*, more common on rock outcrops and in coastal scrub.
21. Calyx not ridged nor winged . . . . . **Mimetanthe pilosus**
Downy monkey flower. Native annual herb. Widespread in sandy and gravelly areas. [= *Mimulus p.*]
22. Corolla spur, pouch or sac absent **23**
22. Corolla spur, ± swollen pouch or sac present **24**
23. Corolla yellow . . . . . **Parentucellia viscosa**
Yellow weed. Annual, yellow-flowered herb with sticky foliage. Common weed.
23. Corolla purple and white . . . . . **Bellardia trixago**
Bellardia. Pubescent annual with sessile flowers in bracteate spikes. Recent Mediterranean introduction. Disturbed places in Humboldt and Mendocino cos.
24. Corolla pouch on upper side near base **25**
24. Corolla pouch or spur on lower side **26**
25. Lower corolla lip 2-lobed; stamens included . . . . . **Collinsia**
Blue-eyed Mary, Chinese houses. Annual herbs with bicolored flowers. Common natives.
25. Lower corolla lip 3-lobed; stamens exserted . . . . . **Tonella tenella**
Small-flowered tonella. Annual herb easily confused with *Collinsia*. Common native in early season.
26. Corolla with inflated pouch . . . . . **Antirrhinum**
Snapdragon. Herbs with distinctive flowers. Natives and garden escapes.
26. Corolla with narrow spur . . . . . **Linaria**
Toadflax. Herbs with spurred flowers. Native and garden escapes.
27. Leaves basal . . . . . **Veronica californica**
Snow queen. Perennial, lavender-flowered herb, blooming during winter. Native of forests. [= *Synthyris reniformis*]
27. Leaves alternate along well-developed stem **28**
28. Corolla slightly bilateral, but not 2-lipped; stigmas united . . . . . **Veronica**
Speedwell. Blue- or white-flowered herbs. Common native and introduced species.
28. Corolla 2-lipped; stigmas separate. **29**
29. Pollen-sacs borne on 1 side of flattened or enlarged connective . . . . . **Gratiola**
Hedge-hyssop. Native, ± glandular annuals. Natives of muddy sites.
29. Pollen-sacs not borne on 1 side of flattened or enlarged connective . . . . . **Lindernia dubia**
False pimpernel. Annual, blue-flowered herb. Native of stream banks. Sometimes placed in its own family.

SIMAROUBACEAE — **Quassia Family**. Shrubs and small trees; leaves alternate, pinnately compound; flowers bisexual, radially symmetrical; sepals 3-7, united; petals 3-7, separate; stamens 2X number of petals; carpels 4 or 5, united, the ovary superior; fruit in ours a samara. **Ailanthus altissima**. Tree-of-heaven. Widely naturalized, especially in Trinity Co.

SMILACACEAE — **Greenbrier Family**. Perennial, ± woody, prickly vines; leaves alternate, simple, blades with prominent curved veins; flowers greenish or yellowish, unisexual, radially symmetrical, in axillary umbels; sepals 3, separate; petals 3, separate; stamens 6; carpels 3, united, the ovary superior; fruit a berry. **Smilax**. Greenbrier, greenbriar. Natives of thickets and stream banks.

SOLANACEAE — **Nightshade or Potato Family**. Herbs and shrubs; leaves alternate, simple; flowers bisexual, radially symmetrical; sepals 5, united; petals 5, united, corollas rotate, bell-shaped or funnel-shaped; stamens 5, often brightly colored, epipetalous; carpels 2, united, the ovary superior; fruit a berry or capsule. Many members of the family contain toxic glycoalkaloids or tropane alkaloids that render them mildly to extremely poisonous.

1. Plants woody, at least at base **2**
1. Plants strictly herbaceous **5**
2. Plants climbing; corolla white . . . . . **Salpichroa origanifolia**
Lily-of-the-valley vine. Perennial vine from a fleshy root. Naturalized. South America.

2. Plants erect **3**
3. Corolla open, saucer-shaped . . . . . **Solanum**
3. Corolla funnel-shaped **4**
4. Corolla rose-red . . . . . **Cestrum**
Cestrum. Shrubs with showy flowers. Naturalized.
4. Corolla yellow . . . . . **Nicotiana glauca**
Tree tobacco. Glabrous shrub or small tree with tubular, yellow flowers. Probably naturalized.
5. Corolla ± rotate **6**
5. Corolla bell-shaped, tubular, or funnel-shaped **8**
6. Anthers without sterile tips . . . . . **Solanum**
Nightshade. Herbs with blue or white flowers. All species of this genus should be considered toxic.
6. Anthers with sterile tips **7**
7. Leaves simple; corolla with 5 green spots at base . . . . . **Leucophysalis nana**
Dwarf false ground-cherry. Perennial, white-flowered herb. Sandy habitats of Great Basin communities.
7. Leaves compound; corolla without 5 green spots at base . . . . . **Solanum lycopersicum**
Tomato. Aromatic, yellow-flowered annual herb. Garden escape. [= *Lycopersicon esculentum*]
8. Flowers in branched, terminal inflorescences . . . . . **Nicotiana**
Tobacco, wild tobacco. Herbs with elongate, cream-colored flowers. Native and naturalized species.
8. Flowers solitary [paired] in leaf axils **9**
9. Calyx tube at least 3 cm long . . . . . **Datura stramonium**
Jimson weed, loco weed, datura. Coarse herbs with large, white or violet flowers. Naturalized. Its seeds, widely known for their psychoactive properties, are highly toxic.
9. Calyx tube less than 2 cm long or sepals separate . . . . . **Physalis**
Ground-cherry. Annual herbs with dull-yellow flowers. Naturalized.

[Revised: 9 January 2014]

SPARGANIACEAE — **Bur-reed Family**. Rhizomatous, aquatic herbs; leaves alternate, simple, ± linear, erect or floating on water's surface; flowers unisexual, in separate spherical heads, the staminate above the pistillate; perianth of 3 or 6 similar parts; stamens 3 or 6; carpel 1, the ovary superior; fruit nut-like. **Sparganium**. Bur-reed. Natives of shallow lakes. Some authors merge this family with Typhaceae.

STAPHYLEACEAE — Bladdernut Family. Trees and shrubs; leaves opposite, pinnately compound; flowers regular, bisexual; sepals 5, separate or fused at base; petals 5, separate; carpels 2-4, ovary superior; fruit a drupe or berry. **Staphylea bolanderi.** Sierra bladdernut. White-flowered shrub of wooded sites.

STERCULIACEAE — Cacao Family. Trees, shrubs, and herbs, often with stellate pubescence; leaves alternate, simple; flowers bisexual, radially symmetrical; sepals 3–5, united; petals 5, separate or united with staminal tube; stamens 5, united by their filaments; carpels 5, united, the ovary superior; fruit a capsule. **Fremontodendron californicum**. Dry, mostly granitic slopes. Fremontia or flannel bush. The sepals are probably more accurately termed bracts and the perianth consists only of brightly-colored sepals. The family is closed related to Malvaceae and sometimes included in it. [=*Fremontia*]

STYRACACEAE — **Storax Family**. Shrubs; leaves alternate, simple; flowers bisexual, radially symmetrical; sepals 4 or 5, united basally; petals 4 or 5, united; stamens 8 or 10; carpels 3-5, united, the ovary inferior; fruit a drupe. **Styrax officinalis**. Snowdrop bush, storax. Shrub with fragrant, white flowers. Native of the chaparral.

TAMARICACEAE — **Tamarisk or Salt-cedar Family**. Shrubs, ± conifer-like in habit; leaves alternate, simple, scaly; flowers bisexual, radially symmetrical; sepals 4 or 5, united; petals 5, separate; stamens many; carpels 3 or 5, united, the ovary superior; fruit a capsule. **Tamarix**. Tamarisk, salt-cedar. Pink-flowered shrub. Naturalized in roadside ditches and waterways.

TECOPHILAEACEAE — Doll's-lily Family. Perennial herbs from a rounded corm, ours enclosed by a membranous to fibrous layer; leaves basal, simple, narrowly-lanceolate; flowers perfect, 3-parted, slightly zygomorphic; stamens 6, 5 of them in a semi-circle; ovary half-inferior; fruit a capsule. **Odonstostomum hartwegii.** Hartweg's doll's-lily. Spring-flowering herb with racemes of white or yellowish flowers. Native to woodlands, especially those on clay soils or serpentine.

TROPAEOLACEAE — **Tropaeolum Family**. Herbs; leaves alternate, simple; flowers bisexual, bilaterally symmetrical; sepals 5, separate; petals 5, separate; stamens 8; carpels 3, united, the ovary superior; fruit a schizocarp. **Tropaeolum majus**. Nasturtium. Annual, orange-flowered herb. Escaped ornamental.

TYPHACEAE — **Cat-Tail Family**. Perennial, rhizomatous herbs of marshes and open water; leaves typically basal, linear, erect, 2-ranked; flowers unisexual, borne in a brownish, terminal, tightly compacted, cylindrical inflorescence, the staminate above and the pistillate below; sepals reduced to a series of threads, bristles or scales; petals 0; stamens 2-5; carpel 1, stipitate (stalk with silky hairs), the ovary superior; fruit an achene or nutlet. **Typha**. Cat-tail. Natives of marshes and seeps.

UMBELLIFERAE [APIACEAE] — **Carrot, Parsley, or Umbel Family**. Biennial or perennial aromatic herbs; stems typically stout, ridged, with hollow internodes; leaves alternate, simple to variously compound, with sheathing leaf bases; flowers typically bisexual, radially symmetrical, usually in compound umbels (less frequently in simple umbels or in heads); sepals 5, small, separate; petals 5, separate, often yellow or white; stamens 5; carpels 2, united, ovary inferior, styles 2, fleshy and united to form a stylopodium; fruit a schizocarp, separating into two 1-seeded mericarps, each suspended on a carpophore, dry remnants of vascular strands. Much of the systematics of the family is based upon details of fruit structure and ornamentation. The two mericarps that form

the schizocarp are initially joined along a suture (commisure). The surface of each mericarp typically has 5 primary ridges -- 2 lateral ridges at its edges, 2 intermediate ridges above them, and a central, dorsal ridge. Four secondary ridges may be found among the 5 primary ones. Oil passages (vittae) may occur in the valleys between ridges.

Caution: Contact with some plants in this family can cause dermatitis in sensitive individuals.

1. Leaves simple, entire to slightly toothed or spiny **2**
1. Leaves palmately or pinnately lobed, cleft, parted, divided or compound **4**
2. Inflorescence a head, subtended by conspicuous bracts; leaves often spiny . . . . . **Eryngium**
Eryngo. Spiny-leaved herbs. Natives of seasonally-moist habitats.
2. Inflorescence a compound umbel (rarely a simple umbel or an interrupted spike); leaves not spiny . . . **3**
3. Leaf blades ± round in outline, toothed . . . . . **Hydrocotyle**
Marsh pennywort. Perennial herbs with dark green leaves. Natives of wet habitats. Some authors now place *Hydrocotyle* in Araliaceae or in its own family, Hydrocotylaceae.
3. Leaf blades narrow and entire . . . . . **Lilaeopsis occidentalis**
Western lilaeopsis. Perennial herb with scale-like leaves. Native aquatic.
4. Leaf lobes, divisions or leaflets 3-several, well-defined and easily counted **5**
4. Leaves divided into numerous ± small, often narrow segments, leaflets ill-defined and not easily counted **20**
5. Leaflets 3, each 1-4 dm wide at maturity . . . . . **Heracleum lanatum**
Cow-parsnip. Robust perennial herb with conspicuous compound umbels of white flowers. Common native.
5. Leaflets 4 or more, each seldom over 0.5 dm wide at maturity **6**
6. Leaves deeply palmately-cleft, biternate or palmately compound; umbellets head-like **7**
6. Leaves pinnately compound; umbellets not head-like **8**
7. Fruits with prickles or tubercules; tap root absent . . . . . **Sanicula**
Sanicle. Herbs with basal leaves. Common natives.
7. Fruits winged; tap root present . . . . . **Glehnia littoralis ssp. leiocarpa**
American silvertop. Perennial, rosette-forming herb. Native of coastal dunes.
8. Plants arising from tap root, tuber or stout caudex **9**
8. Plants from fibrous to thickened, fascicled roots; tap roots or well-developed caudex absent **18**
9. Plants less than 2 dm tall; leaves ± basal **10**
9. Plants typically well over 2 dm tall; stem leaves present **11**
10. Fruits dorsally compressed, lateral wings present . . . . . **Lomatium**
Biscuit-root. Perennial herbs. Common natives. A large and taxonomically difficult group.
10. Fruits slightly laterally compressed, lateral wings absent . . . . . **Tauschia**
Umbrella-wort. Perennial herbs. Uncommon natives.
11. Umbellets head-like; rays well-developed . . . . . **Sphenosciadium capitellatum**
Ranger's buttons. Perennial herb with white flowers in tight, head-like clusters. Uncommon native of mountains.
11. Umbellets not head-like; rays and pedicels well-developed **12**
12. Fruits bristly or prickly (except in *Osmorhiza occidentalis*) **13**
12. Fruits without bristles or prickles **14**
13. Fruits winged; bristles hooked . . . . . **Yabea microcarpa**
California hedge parsley. Annual herb. Occasional native. [= Caucalis m.]
13. Fruits not winged; bristles not hooked . . . . . **Osmorhiza**
Sweet cicely. Aromatic, perennial herbs. Common natives.
14. Lateral ribs of fruit prominently winged, the dorsal ribs poorly-developed **15**
14. Lateral, dorsal, and intermediate ribs of fruit winged or otherwise prominent **17**
15. Leaflets mostly linear (if wider, ternate-pinnately divided) . . . . . **Lomatium**
Biscuit-root. Perennial herbs. Common natives. A large and taxonomically difficult genus.
15. Leaflets ± ovate **16**
16. Flowers white; dorsal and intermediate ribs of fruit 5; plants aquatic . . . . . **Oxypolis occidentalis**
Cowbane, Perennial herb. Native of shallow water.
16. Flowers yellow; dorsal and intermediate ribs 3; plants terrestrial . . . . . **Pastinaca sativa**
Parsnip. Biennial or perennial herb. Garden escape.
17. Leaflets lobed or toothed . . . . . **Angelica**
Angelica. Stout, perennial herbs with white flowers. Common natives.
17. Leaflets deeply-cleft or divided . . . . . **Ligusticum**
Lovage. Perennial herbs with glabrous foliage. Common natives in mountains.
18. Rootstock bases thickened, divided by cross-wise partitions into compartments; primary lateral veins directed toward leaf sinus . . . . . **Cicuta**
Water hemlock. Perennial herbs with glabrous foliage. Natives of wet habitats. Water hemlocks are considered the most violently toxic plants in North America, causing severe muscular seizures.
18. Rootstock bases not thickened and not compartmentalized (somewhat so in *Oenanthe*); primary lateral veins not directed to leaf sinus **19**
19. Leaves 1-pinnately compound . . . . . **Sium suave**
Water-parsnip. Perennial herb. Native of wet habitats in central Siskiyou Co. Plants toxic.
19. Leaves 2-pinnately compound . . . . . **Oenanthe sarmentosa**
Water dropwort, Pacific oenanthe. Perennial herb with glabrous foliage. Common native of wet habitats. Often confused with water hemlock. Occasionally with the chambered rootstock so characteristic of that species.
20. Stems purple-blotched . . . . . **Conium maculatum**
Poison hemlock or spotted hemlock. Tall, perennial herb with finely dissected leaves. Common native, especially near the coast. Purple blotching is highly diagnostic. The plants are toxic, causing ascending paralysis and death.

20. Stems not purple-blotched **21**
21. Fruits with bristles, spines, bumps, or pimples **22**
21. Fruits without barbs, bristles, spines, or pimples **27**
22. Beak of mature fruit at least 10X longer than body of fruit . . . . . **Scandix pecten-veneris**
Shepherd's needle. Annual herb with geranium-like fruits. Roadside weed.
22. Beak no longer than body of fruit or fruit beakless. **23**
23. Plants glabrous **24**
23. Plants ± hairy **25**
24. Fruits with tubercules or hooked bristles . . . . . **Sanicula**
Sanicle. Herbs with basal leaves. Common natives.
24. Fruits winged, ± pimply . . . . . **Apiastrum angustifolium**
Wild-celery. Annual herb with slender stalks. Native of dry slopes.
25. Fruits with short beak. . . . . **Anthriscus caucalis**
Bur-chervil. Annual herb with ± spherical fruit. Roadside weed.
25. Fruits beakless. **26**
26. Involucral bracts conspicuous, leaf-like, and pinnately-divided; bristles of fruits barbed at apex, but usually not hooked . . . . . **Daucus**
Carrot, wild carrot. Annual or perennial, white-flowered herbs. Common native and garden escape.
26. Involucral bracts, when present, inconspicuous; bristles hooked . . . . . **Torilis**
Hedge-parsley. Annual herb with hairy foliage. Naturalized.
27. Fruits round to somewhat laterally-compressed in cross-section; fruit ribs not prominently winged . . **28**
27. Fruits ± dorsally-compressed; some or all ribs winged. **36**
28. Flowers yellow **29**
28. Flowers white, pinkish or ± purple **30**
29. Ultimate leaflet segments thread-like; plants with licorice odor . . . . . **Foeniculum vulgare**
Sweet-fennel or wild fennel. Tall, perennial, highly aromatic, yellow-flowered herb. Very common roadside weed.
29. Ultimate leaflet segments linear to ovate; plants without licorice odor. . . . . **Tauschia**
Umbrella-wort. Perennial herbs. Uncommon natives.
30. Plants of coastal bluffs, marshes or dunes . . . . . **Conioselinum chinense**
Hemlock-parsley. Perennial herb. Native of coastal habitats.
30. Plants not maritime **31**
31. Petals conspicuously unequal . . . . . **Coriandrum sativum**
Coriander or cilantro. Annual herb with spherical fruits. Garden escape.
31. Petals ± equal **32**
32. Sepals present, typically prominent **33**
32. Sepals rudimentary or absent **35**
33. Involucre present. . . . . **Perideridia**
Yampah. Perennial herbs with narrow leaves and large tap roots. Late-blooming natives of meadows.
33. Involucre absent **34**
34. Fruit ribs unequal, laterals conspicuously corky-thickened . . . . . **Orogenia fusiformis**
California orogenia. Perennial herb with large tap root. Native.
34. Fruit ribs equal, not thickened . . . . . **Tauschia**
Umbrella-wort. Perennial herbs. Uncommon natives.
35. Plants annual; if perennial, with celery odor . . . . . **Apium graveolens**
Celery. Herbs with glabrous leaves. Localized weeds.
35. Plants biennial or perennial, but without celery odor . . . . . **Tauschia**
Umbrella-wort. Perennial herbs. Uncommon natives.
36. Lateral ribs winged; dorsal poorly-developed . . . . . **Lomatium**
Lomatium. Perennial herbs. Common natives. A large, taxonomically difficult genus.
36. Lateral and dorsal fruit ribs winged . . . . . **Cymopterus terebinthina**
Spring-parsley. Perennial, yellow-flowered herb. Native of dry, rocky slopes.

URTICACEAE — **Nettle Family**. Perennial herbs, with or without stinging hairs; stems often ribbed, fibrous; leaves alternate or opposite, simple; flowers small, greenish, unisexual, radially symmetrical, in axillary cymes; sepals 4 or 5, separate; petals 0; stamens 4 or 5, attached opposite sepals; carpel 1, ovary superior; fruit an achene.

1. Leaves alternate; stinging hairs absent . . . . . **Parietaria pensylvanica**
Pellitory. Annual, non-stinging herb with pubescent foliage. Occasional native.
1. Leaves opposite; stinging hairs present **2**
2. Calyx of pistillate flowers 4-parted. . . . . **Urtica**
Stinging nettle or nettle. Perennial herbs with square stems and opposite leaves. Common natives of wet habitats and weedy species. The stinging mechanism involves hairs that function like microscopic hypodermic needles to inject acetylcholine, histamines, and tryptamines.
2. Calyx of pistillate flowers sac-like, 2- to 4-toothed, enclosing the ovary . . . . . **Hesperocnide tenella**
Western nettle. Annual herb native to oak woodlands, chaparral, and scrub. Historic collection. Presumed extinct.

VALERIANCEAE — Valerian Family. Annual or perennial herbs; leaves opposite, simple to pinnately divided, bases often sheathing; flowers bisexual, bilaterally symmetrical, often spurred; sepals vestigial or absent; petals 5, united; stamens 1-4, epipetalous; carpels 3, united; fruit an achene. Sometimes treated as a subfamily of Caprifoliaceae.

1. Calyx present **2**

1. Calyx absent **3**
2. Corolla with sac at base; stamens 3; leaves pinnately divided or parted . . . . . **Valeriana**
Valerian. Perennial, strong-scented herbs. Natives of woods and meadows.
2. Corolla with tubular spur at its base; stamen 1; leaves entire. . . . . **Centranthus ruber**
Red-valerian. Perennial, red-flowered herb. Garden escape. Increasingly common along State Route 299.
3. Ovary 3-chambered; stem forked at summit; inflorescence flat-topped . . . . . **Valerianella locusta**
Mountain-heliotrope. Pubescent herb. Naturalized.
3. Ovary 1-chambered; stem not forked at summit; inflorescence a head or interrupted spike . . **Plectritis**
Plectritis or sea blush. Annual herbs with glabrous foliage. Common natives of grassy areas.

VERBENACEAE — **Vervain Family**. Ours herbs; stems often 4-sided (plants then easily confused with mints); leaves opposite or whorled, simple; flowers bisexual, bilaterally symmetrical, corolla salver-shaped to 2-lipped; sepals 5, united; petals 5, united; stamens 4, in two sets of 2; carpels 2, united, the ovary superior; fruit a drupe, capsule, or nutlet.

1. Plants low, mat-forming; inflorescence axillary . . . . . **Phyla nodiflora var. reptans**
Mat-grass, lippia, garden lippia. Mat-forming herb with rose to white flowers. Occasional garden escape.
1. Plants erect; inflorescence terminal . . . . . **Verbena**
Vervain. Blue-flowered herbs. Native and naturalized species.

VIOLACEAE — Violet Family. Perennial herbs; leaves alternate, simple often variously lobed or dissected; flowers usually bisexual, showy, bilaterally symmetrical, spurred, sometimes with much less conspicuous, self-pollinated flowers also present; sepals 5, ± separate; petals 5, unequal, the lower one often enlarged and spurred; stamens 5 (abaxial one often spurred), their filaments fused around ovary; carpels 3, united, the ovary superior; fruit a capsule. **Viola**. Violet. Small, perennial herbs with showy blue, white, yellow or bicolored flowers. Common natives. The genus is easily recognized; species determination can be a challenge.

VISCACEAE — Mistletoe Family. Ours terrestrial or epiphytic, parasitic, shrubs; leaves simple, opposite leathery, with ± parallel veins (scale-like in *Arceuthobium*); flowers small, bisexual or unisexual (plants monoecious or dioecious); perianth generally 2- to 4-parted, not clearly differentiated into sepals and petals, inserted on a cup-like receptacle; stamens 2 - 4; carpel 1 (alternately interpreted as 3 or 4 united carpels); fruit a drupe or berry. *Viscum*, European mistletoe, is naturalized in Sonoma Co. and should be watched for in our region. Recent studies argue for transferring our mistletoes to Santalaceae.

1. Stems ± angled (at least when young); leaves scale-like, less than 1 mm long; fruit flattened, borne on a curved pedicel; anthers 1-chambered. . . . . **Arceuthobium**
Dwarf mistletoe. Perennial parasites on plants of the pine family. Common natives.
1. Stems not angled; leaf blades well-developed, more than 5 mm long; fruit ± spherical, sessile; anthers 2-chambered. . . . . **Phoradendron**
Leafy mistletoe. Perennial parasites of plants of the cypress family and various flowering plants, especially oaks.

VITACEAE — **Grape Family**. Woody vines; stems tendril-bearing, these representing the main axis (lateral ones continuing as what appears to be the main stem); leaves alternate, simple, palmately lobed in ours; flowers bisexual, radially symmetrical, borne in cymes opposite the leaves; sepals 4 or 5, small; petals 4 or 5, separate; stamens 4 or 5, attached opposite the stamens; carpels 2, united, the ovary superior; fruit a berry. **Vitis californica**. Grape. Naturalized and natives vines that climb over trees along streams.

ZOSTERACEAE — **Eel-grass Family**. Submersed perennial aquatics of marine and brackish waters; leaves alternate, simple, grass-like; flowers inconspicuous, unisexual, subtended by a spadix; perianth absent; stamen 1; carpel 1, the ovary superior; fruit an achene.

1. Plants dioecious; spadix bordered by conspicuous flaps . . . . . **Phyllospadix**
Surf-grass. Perennial herbs. Natives of the rocky intertidal zone.
1. Plants monoecious; spadix without conspicuous flaps. . . . . **Zostera marina**
Eel-grass. Perennial herbs. Native of shallow marine bays.

ZYGOPHYLLACEAE — **Caltrop Family**. Erect or prostrate herbs, shrubs; leaves typically opposite, pinnately compound; flowers bisexual, radially symmetrical; sepals 5, separate; petals 5, separate; stamens 5, 10 or 15, their filaments often with appendages; carpels 5, united, the ovary superior; fruit a capsule.

1. Stems erect; leaflets 2 . . . . . **Zygophyllum fabago**
Bean-caper. Perennial herb with woody base. Disturbed sites. Native to Mediterranean and Asia.
1. Stems prostrate; leaflets 6-12 . . . . . **Tribulus terrestris**
Puncture vine, goat head. Prostrate, spreading herb. The spines on its fruits are capable of penetrating soles of feet, worn tennis shores and bicycle tires. In addition to causing mechanical injury, the plants contain a toxin that has caused great loss of sheep.

SECTION 7: FAMILY NAMES – COMMON TO TECHNICAL

The purpose of this list is to allow you to access the main checklist, which is arranged by the technical names of plant families, by using their common names.

Adder's-tongue	Ophioglossaceae
Agave	Liliaceae
Alder	Betulaceae
Aloe	Liliaceae
Amaryllis	Liliaceae
Aralia	Araliaceae
Aroid	Araceae
Arrow-grass	Juncaginaceae
Arrowhead	Alismataceae
Arum	Araceae
Ash	Oleaceae
Asparagus	Liliaceae
Asphodel	Liliaceae
Aster	Compositae
Avocado	Lauraceae
Balsam	Balsaminaceae
Barberry	Berberidaceae
Bastard toadflax	Comandraceae
Bean	Leguminosae
Beech	Fagaceae
Bee plant	Cleomaceae
Bellflower	Campanulaceae
Bignon [-ia]	Bignoniaceae
Bindweed	Convolvulaceae
Birch	Betulaceae
Birthwort	Aristolochiaceae
Bittersweet	Celastraceae
Bladdernut	Staphyleaceae
Bladderwort	Lentibulariaceae
Blazing star	Loasaceae
Bluebell	Campanulaceae
Bogbean	Menyanthaceae
Borage	Boraginaceae
Boxwood	Pittosporaceae
Bracken fern	Dennstaedtiaceae
Brake fern	Pteridaceae
Brodiaea	Liliaceae
Broomrape	Scrophulariaceae
Buckbean	Menyanthaceae
Buckeye	Hippocastanaceae
Buckthorn	Rhamnaceae
Bur-reed	Sparganiaceae
Buttercup	Ranunculaceae
Cactus	Cactaceae
Caltrop	Zygophyllaceae
Cape pondweed	Aponogetonaceae
Carnation	Caryophyllaceae
Carpet weed	Molluginaceae
Carrot	Umbelliferae
Cashew	Anacardiaceae
Catalpa	Bignoniaceae
Cat-tail	Typhaceae
Cedar	Cupressaceae
Century plant	Liliaceae
Chain fern	Blechnaceae
Chenopod	Chenopodiaceae
Cliff brake fern	Pteridaceae
Club-moss	Lycopodiaceae
Cotton	Malvaceae
Crossosoma	Crossosomataceae
Crowberry	Ericaceae
Crowfoot	Ranunculaceae
Crucifer	Cruciferae
Cucurbit	Cucurbitaceae
Currant	Grossulariaceae
Cypress	Cupressaceae
Daisy	Compositae
Datisca	Datiscaceae
Deer fern	Blechnaceae
Ditch-grass	Ruppiaceae
Dodder	Convolvulaceae
Dogbane	Apocynaceae
Dogwood	Cornaceae
Doll's-lily	Tecophilaeaceae
Duckweed	Lemnaceae
Durango root	Datiscaceae
Dutchman's pipe	Aristolochiaceae
Ebony	Ebenaceae
Eel-grass	Zosteraceae
Eucalyptus	Myrtaceae
Euphorb	Euphorbiaceae
Evening-primrose	Onagraceae
False mermaid	Limnanthaceae
Fig	Moraceae
Flax	Linaceae
Forget-me-not	Boraginaceae
Foxglove	Scrophulariaceae
Frankenia	Frankeniaceae
Frog's bit	Hydrocharitaceae
Four o'clock	Nyctaginaceae
Fumitory	Papaveraceae
Gentian	Gentianaceae
Geranium	Geraniaceae
Ginseng	Araliaceae
Gooseberry	Grossulariaceae
Goosefoot	Chenopodiaceae
Gourd	Cucurbitaceae
Grape	Vitaceae
Grass	Gramineae
Grass-of-Parnassus	Parnassiaceae
Grass wrack	Potamogetonaceae
Greenbrier [-briar]	Smilacaceae
Harebell	Campanulaceae
Heath	Ericaceae
Hemp	Cannabaceae
Hickory	Juglandaceae
Holly	Aquifoliaceae
Holly fern	Dryopteridaceae
Honey bush	Melianthaceae
Honeysuckle	Caprifoliaceae
Hops	Cannabaceae
Horned pondweed	Potamogetonaceae
Hornwort	Ceratophyllaceae
Horse chestnut	Hippocastanaceae
Horsetail	Equisetaceae
Hyacinth	Liliaceae
Hydrangea	Hydrangeaceae
Hydrophyll	Hydrophyllaceae
Ice plant	Aizoaceae
Indian-chickweed	Molluginaceae
Indian pipe	Ericaceae
Iris	Iridaceae
Ivy	Araliaceae
Jewel weed	Balsaminaceae
Juniper	Cupressaceae
Knotweed	Polygonaceae
Laurel	Lauraceae
Leadwort	Plumbaginaceae
Legume	Leguminosae
Lily	Liliaceae
Loasa	Loasaceae
Lobelia	Campanulaceae
Loosestrife	Lythraceae
Madder	Rubiaceae
Mahogany	Meliaceae
Mallow	Malvaceae
Maple	Aceraceae
Mare's-tail	Hippuridaceae
Marijuana	Cannabaceae
Martynia	Martyniaceae
Meadow foam	Limnanthaceae
Melianthus	Melianthaceae
Mignonette	Resedaceae
Milfoil	Haloragaceae
Milkweed	Apocynaceae
Milkwort	Polygalaceae
Mint	Labiatae
Mistletoe	Viscaceae
Moonwort fern	Ophioglossaceae
Morning-glory	Convolvulaceae
Mosquito fern	Azollaceae
Mulberry	Moraceae
Mustard	Cruciferae
Myrtle	Myrtaceae
Naiad	Naiadaceae
Nasturtium	Tropaeolaceae
Nettle	Urticacee
Nightshade	Solanaceae
Oak	Fagaceae
Oleander	Apocynaceae
Oleaster	Elaeagnaceae
Olive	Oleaceae
Onion	Liliaceae
Orchid	Orchidaceae
Orpine	Crassulaceae
Oxalis	Oxalidaceae
Paeony [-ia]	Paeoniaceae
Parsley	Umbelliferae
Pea	Leguminosae
Pennyroyal	Hydrocotylaceae
Philodendron	Araceae
Phlox	Polemoniaceae
Pickerel weed	Pontederiaceae
Pigweed	Amaranthaceae
Pine	Pinaceae
Pink	Caryophyllaceae
Pitcher plant	Sarraceniaceae
Pittosporum	Pittosporaceae
Plane tree	Platanaceae
Plantago	Plantaginaceae
Plantain	Plantaginaceae
Poison-oak	Anacardiaceae
Pokeweed	Phytolaccaceae
Polypody fern	Polypodiaceae
Pondweed	Potamogetonaceae
Poplar	Salicaceae

Poppy	Papaveraceae
Potato	Solanaceae
Primrose	Primulaceae
Princess tree	Paulowniaceae
Pulse	Leguminosae
Pumpkin	Cucurbitaceae
Purslane	Portulacaceae
Quassia	Simaroubaceae
Quillwort	Isoëtaceae
Rock-rose	Cistaceae
Rose	Rosaceae
Rue	Rutaceae
Rush	Juncaceae
Russian-olive	Elaeagnaceae
Salt-cedar	Tamaricaceae
Sandalwood	Santalaceae
Saxifrage	Saxifragaceae
Scouring-rush	Equisetaceae
Scroph	Scrophulariaceae
Sedge	Cyperaceae
Silk tassel	Garryaceae
Silverbell	Styracaceae
Smartweed	Polygonaceae
Smilax	Smilacaceae
Soapberry	Sapindaceae
Sorrel	Oxalidaceae
Spice bush	Calycanthaceae
Spider flower	Cleomaceae
Spiderwort	Commelinaceae
Spike-moss	Selaginellaceae
Spikenard	Araliaceae
Spindle tree	Celastraceae
Spleenwort	Aspleniaceae
Spurge	Euphorbiaceae
Squash	Cucurbitaceae
Staff tree	Celastraceae
Starwort	Callitrichaceae
Stinging nettle	Urticaceae
St. John's wort	Hypericaceae
Stonecrop	Crassulaceae
Storax	Styracaceae
Styrax	Styracaceae
Sumac	Anacardiaceae
Sundew	Droseraceae
Sunflower	Compositae
Sweet flag	Acoraceae
Sweetgale	Myricaceae
Sword fern	Dryopteridaceae
Sycamore	Platanaceae
Tamarisk	Tamaricaceae
Teasel	Dipsacaceae
Thrift	Plumbaginaceae
Touch-me-not	Balsaminaceae
Trillium	Liliaceae
Twinflower	Caprifoliaceae
Umbel	Umbelliferae
Unicorn plant	Martyniaceae
Valerian	Valerianaceae
Verbena	Verbenaceae
Vervain	Verbenaceae
Violet	Violaceae
Walnut	Juglandaceae
Water-clover fern	Marsileaceae
Water hawthorn	Aponogetonaceae
Waterleaf	Hydrophyllaceae
Water-lily	Nymphaeaceae
Water milfoil	Haloragaceae
Water nymph	Hydrocharitaceae
Water-plantain	Alismataceae
Water shield	Nymphaeaceae
Water starwort	Callitrichaceae
Waterwort	Elatinaceae
Wax myrtle	Myricaceae
Willow	Salicaceae
Wintergreen	Ericaceae
Wood fern	Thelypteridaceae
Wood sorrel	Oxalidaceae
Yew	Taxaceae

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