

RANUNCULACEAE, THE BUTTERCUP FAMILY

A FAMILY WITH GREAT DIVERSITY OF
FLOWER DESIGN

The Ranunculaceae or buttercup family is far-flung across the globe except in the tropics with many genera sporting different flower designs

- The family is noted for many garden ornamentals as well as toxic plants, whose poisonous principles, used in small doses, may be therapeutic
- None are used for food
- The family is nearly entirely herbaceous, most of the members perennial
- California is home to a number of genera with several beautiful species for the garden

Although the flower designs are diverse, several features help to make identification relatively easy

- The leaves are often either palmately lobed and veined or ternately compound, and lack stipules
- The flowers feature (usually) 5 separate sepals and petals (petals sometimes replaced by colored sepals), numerous spirally arranged stamens, and several to many simple pistils with superior ovaries
- The fruit typically becomes either a single-seeded achene or a multiseeded follicle (one native exception)
- The family most likely to be confused with it is the Rosaceae, whose herbaceous members often also have numerous stamens and simple pistils but rosaceous plants have stipules, and (in the herbaceous species) an apparently double calyx

Here is an example of similar flower design in the two families:
on the left is buttercup, on the right potentilla from the rose
family



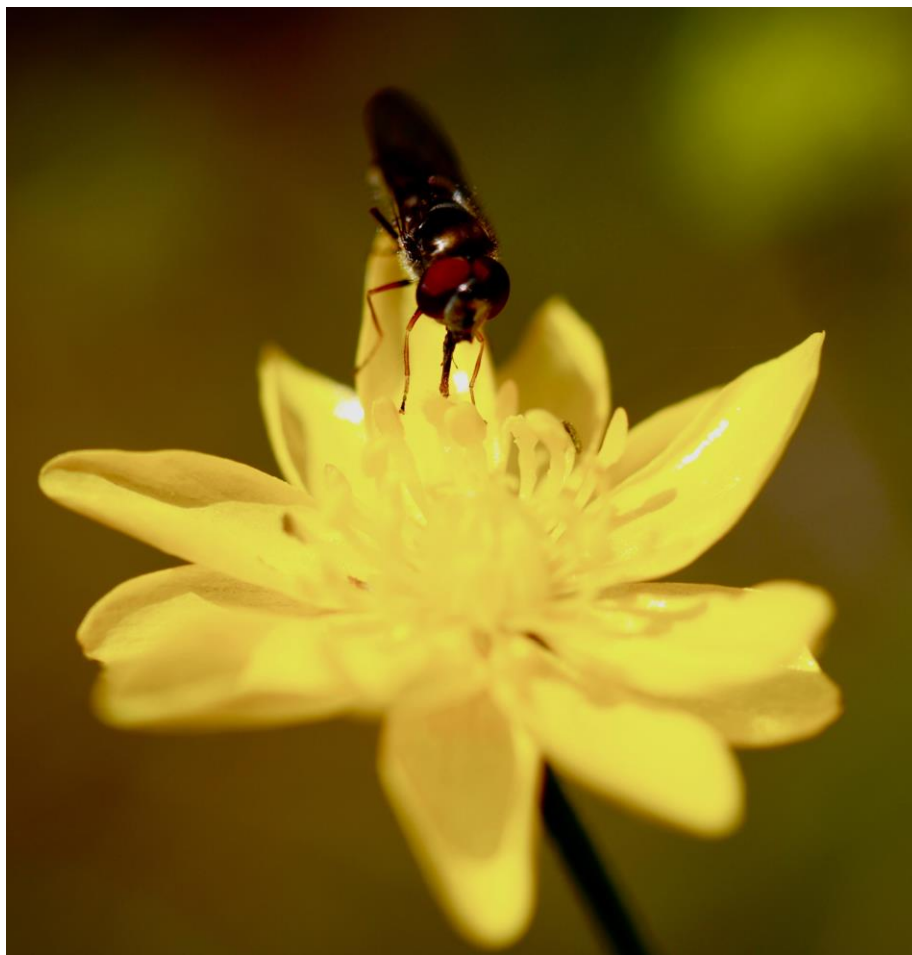
As mentioned, there are different flower designs in the Ranunculaceae, which relate to pollination

- One line features rather flat flowers, the stamens and pistils open to all sorts of different pollinators. Genera include *Ranunculus*, *Anemone*, *Caltha*, and *Clematis*
- Another line has eliminated colorful petals and sepals and is wind pollinated. The principal genus for that design is *Thalictrum*
- Another line has added special nectar spurs to a symmetrical flower in the genus *Aquilegia*,
- Finally some genera have irregular flowers with hoods or spurs that attract butterflies and bumblebees. Our two genera are *Delphinium* and *Aconitum*

The type genus \square *Ranunculus* or buttercup features green sepals and colorful, usually yellow or white petals, and produces achene type fruits. Here you see the common California buttercup, *R. californicus*



California buttercup blooms in early spring and is widespread in oak woodlands and grasslands. Here you see a potential pollinator. Note that this species has 10 or more petals as compared to most other buttercups.



Typical buttercup leaves are deeply palmately lobed.



While California buttercup lives in dry woods, *R. orthorhynchus bloomeri* lives in coastal wetlands.



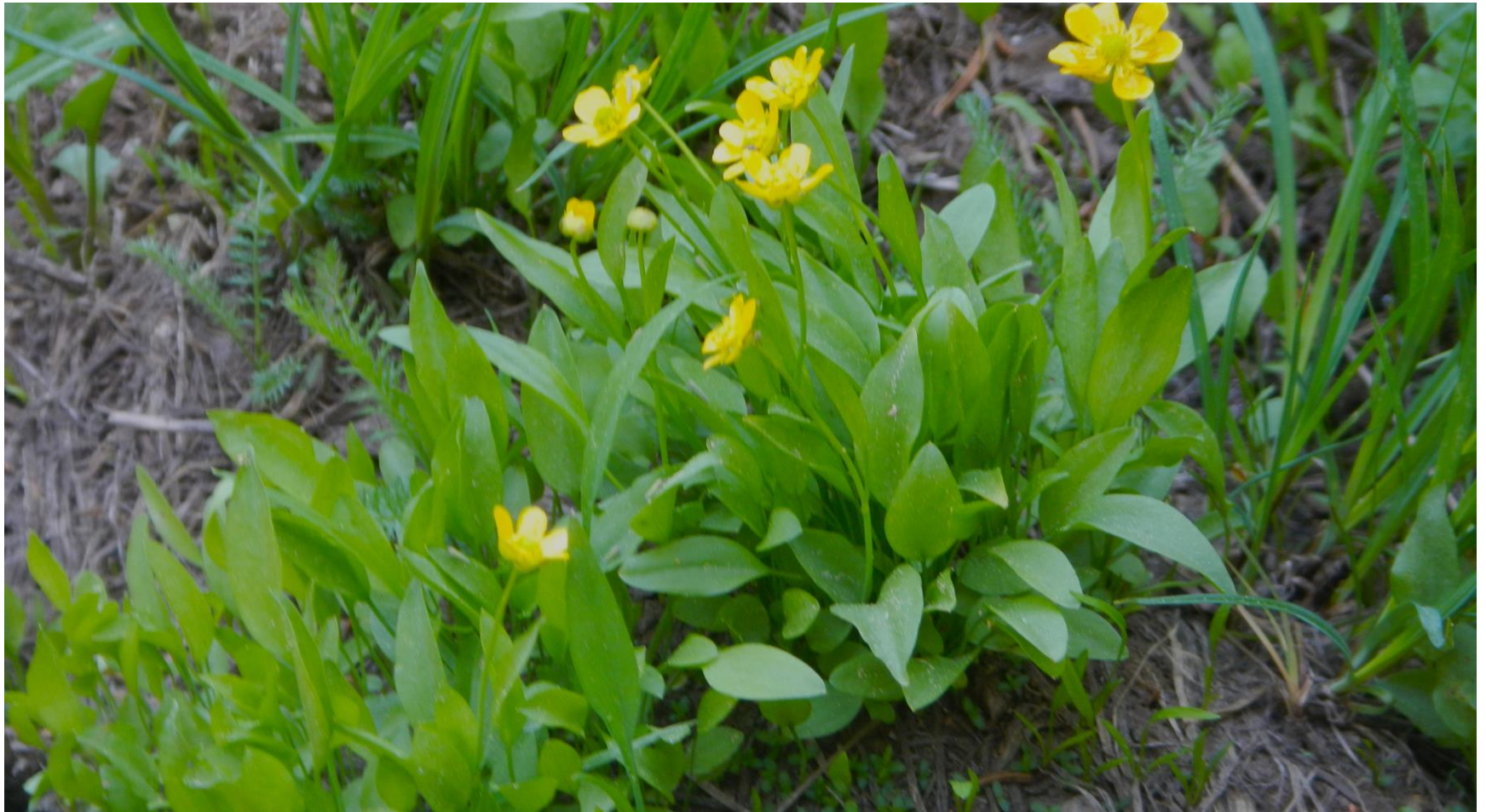
The creeping buttercup, *R. flammula* sports tiny flowers on creeping stems by marshes and other wetlands



Another creeping buttercup, *R. repens*, is an aggressive perennial from Europe spreading by runners in moist coastal woods



Several buttercups live in moist mountain meadows like this *R. alismaefolius*. Note the unlobed leaves, an unusual feature of this species.



Meanwhile, the alpine buttercup, *R. eschscholzii*, favors rocky slopes that are irrigated underneath by snow melt.



Perhaps the most unusual buttercup is the water buttercup, *R. aquatilis* that lives in slow streams and ponds, covering the water in season with snowy white flowers



Here you see the two kinds of leaves on water buttercup—
surface leaves that resemble other species and underwater
leaves that are divided into slender filaments



Our other genera with flat flowers lack petals and instead substitute colorful sepals to attract pollinators. *Anemone* or wind flower has several attractive species. Here you see a flower of woodland anemone, *A. deltooides* from northern conifer forests.



A close view of *A. deltoides* flower shows the numerous stamens and central mound of numerous, tiny green pistils



The more delicate rue-anemone, *A. oregana*, grows in coastal forests from the Bay Area northwards and features smaller white to purple-tinted flowers. Note the trifoliate leaves.



By contrast, *A. drummondii* or Drummond's anemone, lives on loose scree slopes in the high Klamath Mountains. It is actually easy to grow in containers and blooms in summer.



Occasional individuals of *A. drummondii* feature blue-purple flowers.



The western anemone or pasque-flower, *A. occidentalis*, is another high-mountain dweller, widely scattered from Mt Shasta south into the high Sierra. Note the feathery, much-divided leaves, a feature it share with *A. drummondii*



Western anemone has flowers on stalks to a foot high. This species has proven very difficult to cultivate.



Anemones produce achenes with fuzzy hairs, in the case of western anemone, plumed styles that carry seeds on the wind. Note the huge number of fruits from a single flower.



The so-called marsh marigoldm *Caltha howellii*, is not a marigold at all but rather, looks like a white anemone. It is distinguished by follicles in fruit and unique kidney-shaped leaves.



Here's a close view of a marsh marigold flower. The flowers appear just after snow melt in high, wet mountain meadows



Our last genus with flat flowers is *Clematis* or virgin's bower, noted for being a woody, deciduous vine, the only member of the family with this habit. Here you see a vine smothering a shrub.



Our most common species, *C. lasiantha*, grows in chaparral throughout the foothills and is usually dioecious. Here you see a male flower with its numerous stamens.



Like western anemone, *Clematis* produces numerous achenes per flower, each tipped by a long plumelike style for wind dispersal.



A second clematis is *C. ligusticifolia*, a widespread riparina species that blooms in summer rather than spring.



Although both clematises have similar fruits, the flowers of *C. ligusticifolia* are much smaller than those of *C. lasiantha*.



The genus *Thalictrum* meadowrue is mainly wind pollinated, featuring greenish flowers with long protruding stamens and pistils. Here you see the highly ternately compound leaves of foothill meadowrue, *T. polycarpum*, in early spring



Our common meadowrues, *T. fendleri* from mountain meadows and *T. polycarpum* from foothill woodlands are both dioecious. Here you see the long stamens of the male flowers.



The female flowers ripen into green, one-seeded achenes in fruit



The columbines in the genus *Aquilegia* (meaning eagle for the nectar spurs) are a unique group with 5 spreading colored sepals, 5 petals, each ending in a nectar spur, and numerous long stamens. Here you see the widespread red columbine, *A. formosa*



Red columbine makes a splendid forest garden plant, living in woods in the coastal foothills and climbing into the high Sierra. This flower is a favorite with hummingbirds.



The serpentine red columbine, *A. eximia*, is scattered on serpentine seeps, featuring similar looking red flowers and blue-green leaves.



Columbine leaves are often bluish green and ternately compound, overall similar in pattern to meadowrue.



A. pubescens, the alpine columbine, has horizontally held pale flowers with extra long nectar spurs. It is hawkmoth pollinated.



Often alpine columbine also has a pale yellow form



Where alpine and red columbines overlap in distribution, hybrids may occur. This clump of alpine columbine shows the influence of the red columbine by its pink sepals. Happily, the alpine columbine grows well in Bay Area gardens.



The baneberry, *Actaea rubra*, is an unusual member of the buttercup family that doesn't fit any particular mold. Living in moist forests, it sends up large highly compound leaves in midspring.



Baneberry blooms in late spring to early summer with narrow panicles of tiny white flowers.



Unlike any other Ranunculaceae, baneberry produces shiny red berries, which are highly toxic but add a flash of color to the summer garden.



Another unusual member of Ranunculaceae is the gold-thread, *Coptis laciniata*, which forms sprawling semiwoody colonies in the deep shade of coastal forests



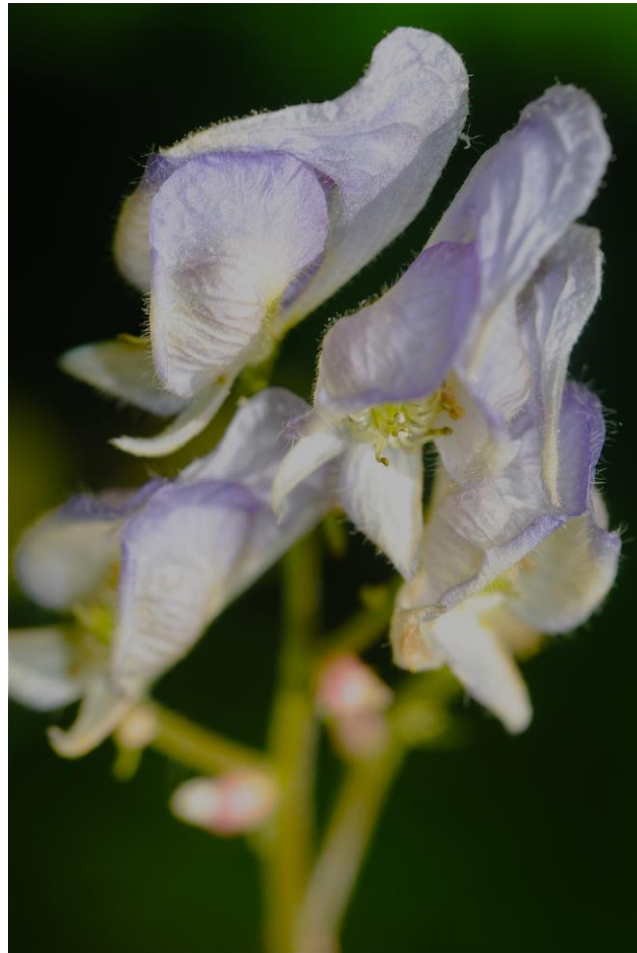
Goldthread's umbels of tiny white flowers are followed by papery follicles



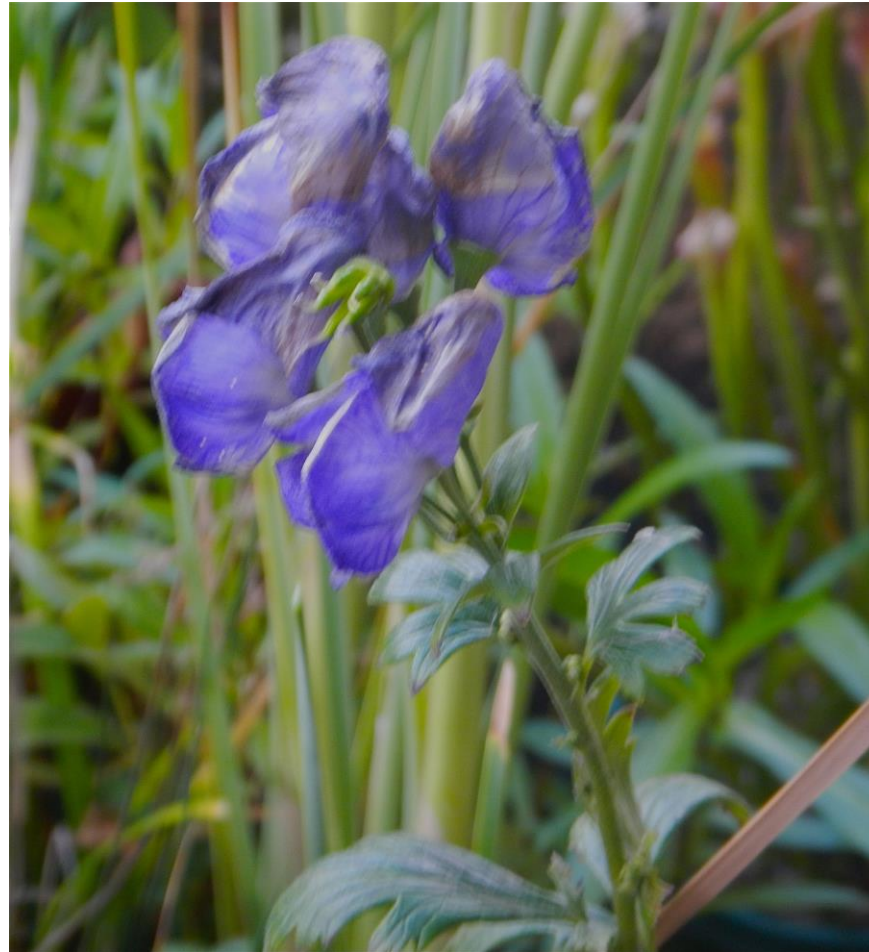
Our last two genera are the ones with irregular flowers. We'll start with *Aconitum columbianum* or monkshood, which favors wet meadows and streamside in the mountains.



The name monkshood refers to the hooded upper sepal, the other sepals smaller and of a different shape. Meanwhile, the petals have been modified into small, nectar-secreting glands hidden inside the sepal hood.



Only one species of monkshood lives in California but there is considerable color variation in the flowers. Bumblebees are the primary pollinators.



While there's only one species monkshood, California is home to quite a number of larkspurs in the genus *Delphinium* (the name means dolphin for the sleek shape of the flowers)

- Larkspurs all share a similar floral plan: 5 showy sepals, the upper producing a long nectar spur, and 4 smaller, two-lipped petals partially hiding the numerous stamens
- Larkspurs occur from coastal bluffs and grasslands into the high mountains, sometimes in woodlands, sometimes in wet meadows, and other times in rocky scree
- Identification of species from keys is difficult because you're required to dig up the plant to see whether it has easily removed tuberous roots or a strong tough taproot.
- Larkspurs seldom last long in gardens but are very ornamental
- Larkspur flower colors include white, purple, blue, scarlet red, yellow, and pink

Here you see a close side view of desert larkspur, *D. parishii* flower, revealing the petals partially hiding the stamens



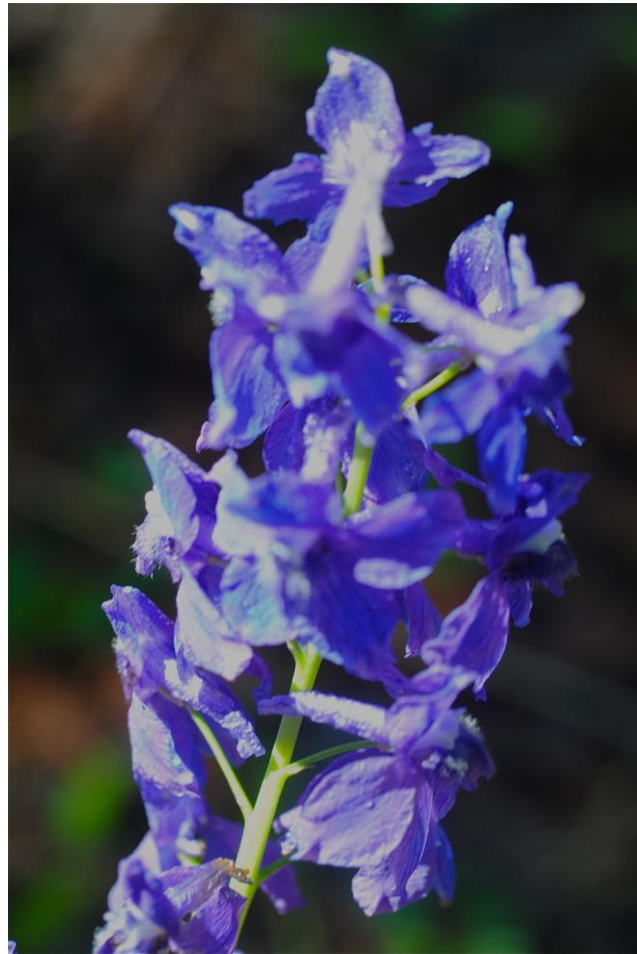
Two common blue to purple foothills larkspurs are *D. patens* on the left, and *D. variegatum* or royal larkspur on the right



The seep larkspur, *D. uliginosum*, is an unusual blue-flowered species blooming in early summer on temporary streams on serpentine rock on Walker Ridge and other parts of the inner north Coast Ranges.



The northern larkspur, *D. trolliifolium*, is a robust plant living on the edge of moist forests



The spectacular meadow larkspur, *D. glaucum*, is a common sight in high mountain meadows growing up to 5 feet high in summer.



The California larkspur, *D. californicum*, despite attractive delphinium-like leaves has rather disappointingly drab, hairy flowers on 3-foot stalks and lives in brushy woods in the Bay Area



Our only yellow larkspur, *D. luteum*, is a dwarf growing on coastal bluffs near Bodega Bay but is easy to grow in gardens.



Closely related is the scarlet larkspur (*D. nudicaule*), a hummingbird flower common on rocky semi-shaded slopes in the foothills.



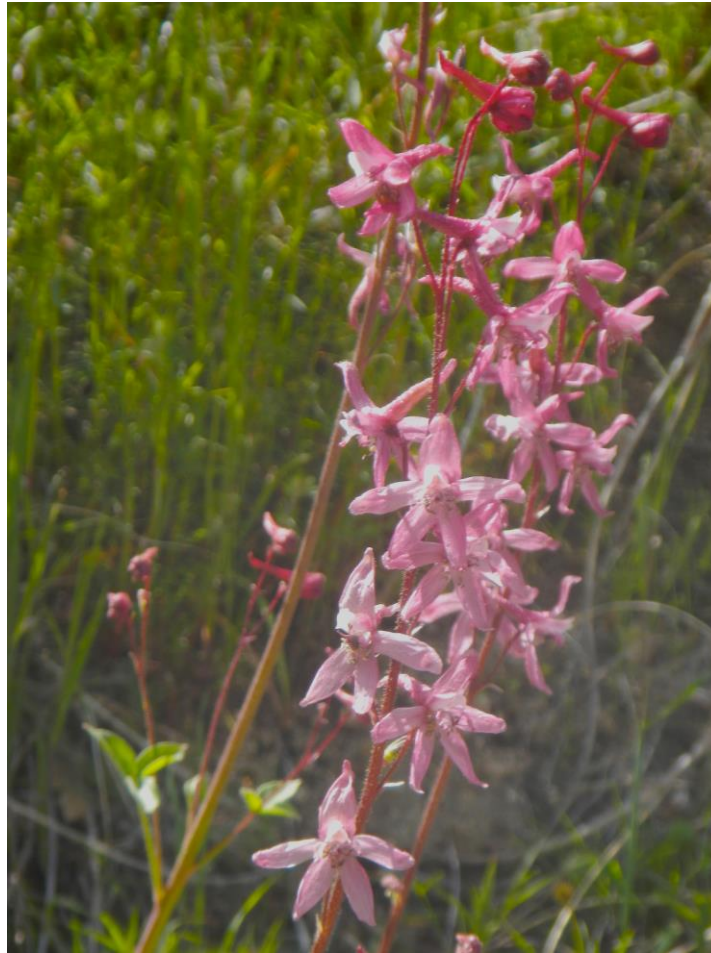
Scarlet larkspur leaves are typical of the genus, broad, rounded in outline and deeply palmately lobed.



A similar species from Southern California, *D. cardinale* or cardinal larkspur, produces taller flowering stalks to 4 or more feet high, blooms in summer, and grows in dry chaparral



Finally, the rare pink larkspur, *D. purpusii*, makes an appearance on semishaded rocky slopes in Kern River canyon and similar places in the southern Sierra foothills.



Altogether then, the buttercup family provides the gardener with many attractive and often easy-to-grow species

- A few buttercups are found in the trade, along with the red columbine, the baneberry, the foothill meadowrue, and a few larkspurs including the scarlet larkspur
- Although alpine columbine, the various anemones, and many larkspurs as well as monkshood are difficult to source, most grow perfectly well in Bay Area gardens