

PAPAVERACEAE, THE POPPY FAMILY

A FAMILY OF MEDICINAL AND
BEAUTIFUL ORNAMENTALS

Although only containing a few hundred species, the Papaveraceae is renowned worldwide for its beautiful and useful plants

- The family is mainly in the Northern Hemisphere with numerous species in Eastern Asia as well as western North America, including California
- The family is noted for its alkaloids and opiates, which are widely used in medicine as well as misused as narcotics
- The only edible use of the family is for poppy seed bread and other pastries, the seeds ironically coming from the opium poppy
- The family is also noted for a plethora of beautiful garden ornamentals

Vegetatively, the poppy family is mainly herbaceous, with only a handful of woody members

- Besides the stems containing a clear to milky sap, the family is noted for a wide variety of leaf shapes, including
- Highly dissected fernlike leaves
- Spiny, thistlelike leaves, and
- Simple to deeply lobed leaves
- The plants range from short-lived diminutive annuals to small trees, the majority being biennials and perennials

As it was originally defined, the poppy family had an easy-to-learn floral formula:

- Often single, large flowers
- Sepals that fall off as the flower opens (*caducous*)
- Sepals that are half the number of petals, usually 2 sepals with 4 petals or 3 sepals with 6 petals
- Mostly numerous stamens with abundant pollen to replace the lack of nectar for pollinators
- A compound pistil of several carpels with a superior ovary and single style

But now matters are more complicated because the formerly separate fumitory family, Fumariaceae, has been lumped with the poppies

- Although some of the fumitories have similar chemical properties and leaves, the flower design is totally different
- Fumitories have bilaterally symmetrical not radial flowers
- Although the sepal number is half the petal number (two and four), the sepals remain on the flower
- The petals feature either a sac or spur at the base
- There are only 6 stamens in two pairs hidden inside the petals
- The pistil is also hidden within the petals
- However, both families have a capsule type fruit

We'll start with the more "typical" genera of Papaveraceae. The type genus *Papaver* contains several species such as the famous opium poppy, *P. somniferum*



Here you see the fat seed pod of opium poppy with a slit to allow the juice to flow out and coagulate, later to be processed



A popular garden perennial is the so-called oriental poppy, *P. orientale* from the Mideast. Here you see the numerous stamens and many stigma crests on top of the ovary



This seed pod of oriental poppy is typical of the shape in the genus *Papaver*. When ripe, the pod opens by pores that rim the perimeter of the capsule.



This cross-section of an oriental poppy ovary shows the many carpels inside, represented by radiating fertile tissue that bears the seeds



California has two native papavers, this one *P. californicum*, is called fire poppy because the seeds only sprout after fire



The flame poppy has a pale green spot at the base of each petal.



Until recently, our second *Papaver*, *P. heterophyllum* or wind poppy, was placed in a separate genus *Stylomecon*.



Wind poppy also responds to fire but also comes up in dry woods in the Coast Ranges in more ordinary situations. It is found on Mt. Diablo. Note the dark base of the petals.



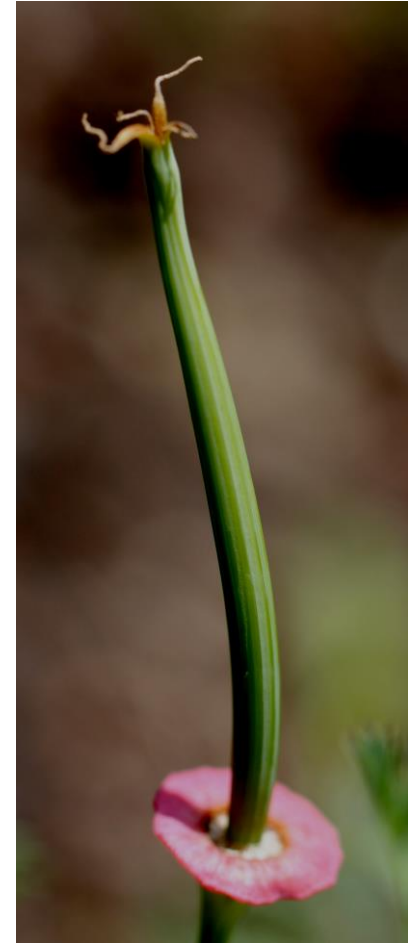
Closely related to the papavers is the genus *Meconopsis* from the mountains of Eastern Asia. This is *M. betoncifolia*, famed for its beautiful blue flowers, an unusual color in the family



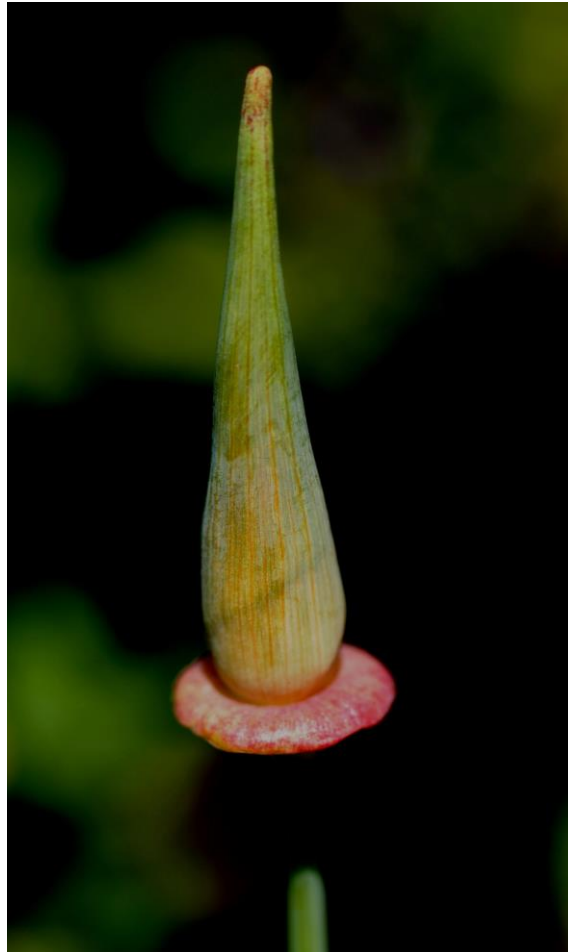
California's state flower, the California poppy, belongs to a different genus *Eschscholzia*. Here you see a massive field of it on the western fringe of the Mojave Desert



Eschscholzia is distinguished by highly cut, fernlike foliage and a slender explosive seed pod



Eschscholzia also have slender caplike sepals



Here is a typical flower of California poppy with satiny orange petals.



The distinctive coastal variety of California poppy, var. *maritima*, is a short-lived perennial with decidedly blue-tinted foliage and...



...shallower yellow flowers with an orange center.



Besides the California poppy, the genus has a number of other species such as this foothill poppy, *E. caespitosa*, a smaller annual of interior grasslands with smaller flowers and no rim below the flowers.



The frying pans poppy, *E. lobbii*, is a diminutive species from the Sierra foothills with flatter, yellower flowers.



The annual *E. parishii* with larger but still yellowish flowers is typical of our southern deserts, while...



...the Mojave desert is how to the trim-looking *E. glyptosperma* with tufted rosettes of basal leaves and large flowers



A third desert poppy, *E. minutiflora*, true to its name, bears tiny flowers and seeks rocky slopes.



Other annual native genera include *Meconella californica*, the fairy poppy, a diminutive plant with pure white flowers widely scattered but seldom abundant



Another genus is known as bear poppy. Here you see the rare *Arctomecon merriami* from the eastern desert mountains. Note the shaggy hairs on the leaves



Besides these small poppies, we have the single species, *Platystemon californicus*, known as cream cups. Cream cups are common in grassy fields throughout the foothills, often massed as you see here.



Cream cups have shaggy hairs and flowers that range from cream color to cream with bright yellow blotches. The leaves are narrow and simple.



From Eastern North American woods comes the bloodroot, *Sanguinea canadensis*, noted for the red juice in the root. Notice the distinctive leaves. This is among the first to bloom in the spring.



Bloodroot seeds have attached oil bodies (*elaiosomes*) which attract ants for dispersal. Some other poppies as well as bleeding hearts use the same seed dispersal strategy.



California is also home to more substantial poppies, mostly perennial, such as the dry growing prickly poppy, *Argemone munita*. It makes massive displays on rocky slopes especially after fire.



Prickly poppy can grow over 3 feet tall, sporting thistlelike spiny leaves, spiny sepals, and spine-covered fruits. The flowers measure several inches across.



A spiny leaf of prickly poppy



The spine-covered seed pods of prickly poppy



Prickly poppy flowers can be mistaken for the Matilija poppy from Southern California.



A second species, *A. corymbosa*, features dense clusters of flowers that are spicily fragrant. It is common on sand dunes in the Mojave Desert



Romneya coulteri, the Matilija poppy, produces the largest flowers of any native plant, and is found in the chaparral of Southern California mountains, where it's a fire follower



Matilija poppy is a woody perennial with characteristic pale green coarsely toothed leaves



The seed pods of Matilija poppy are covered with stiff hairs and although copious seeds are produced, most need fire to germinate. Meanwhile the parent plant proliferates by running roots.



The massive white flowers of Matilija poppy are crowned with numerous golden stamens laden with pollen to attract bees.



The only fully woody native genus is *Dendromecon*, the tree or bush poppy, also a fire follower in chaparral. The common species is *D. rigida*, which can grow to over 8 feet high.



D. rigida produces a plethora of flat, bright yellow flowers with 4 petals, mostly in spring.



Bush poppy has narrow, willowlike leaves



A second species, the island bush poppy (*D. harfordii*) is confined to the Channel Islands. It features larger flowers and leaves than its mainland brother.



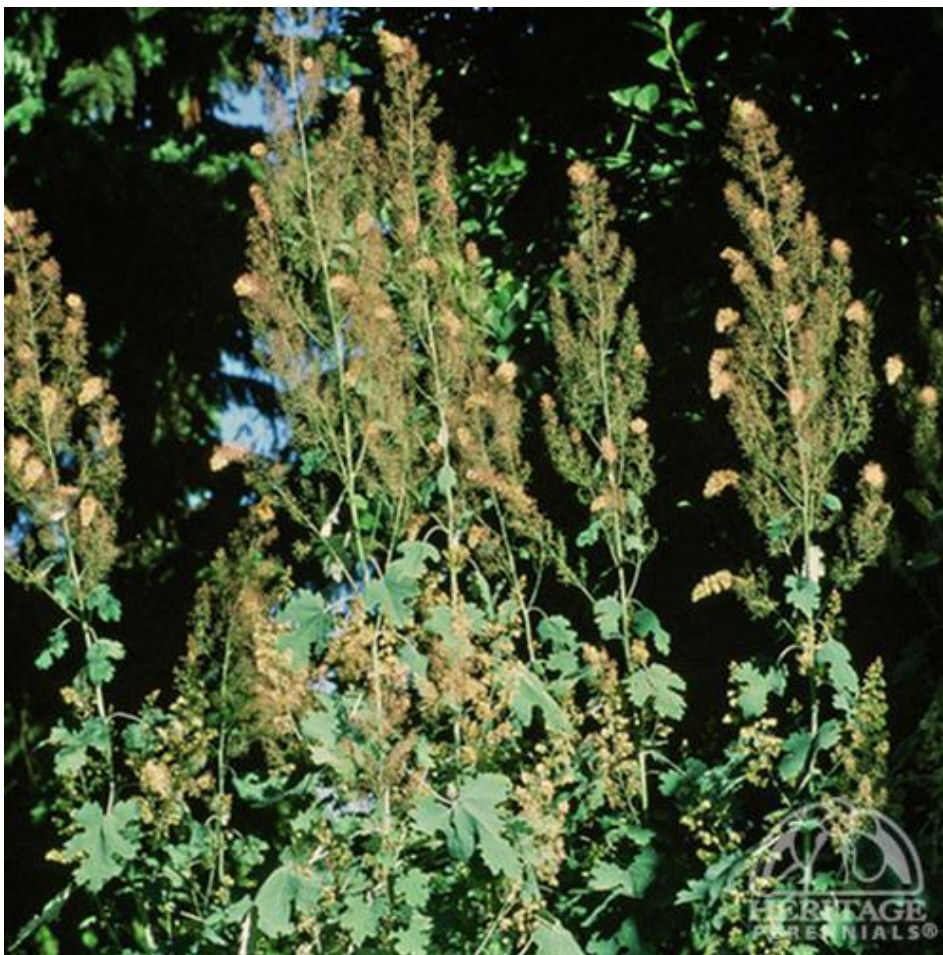
A close view of the beautiful flower of island bush poppy with its four petals.



Island bush poppy features broader, blue-tinted leaves. This species is the most commonly cultivated of the two.



Besides California's bush poppies, two other genera stand out for size. The first, the plume poppy (*Mackleya cordata*) comes from the mountains of Eastern Asia. The small flowers are borne in tall, plumelike clusters



Plume poppy leaves are deeply pinnately lobed.



The Mexican tree poppy, *Bocconia frutescens*, is even more impressive, a true small tree with similar leaves and open clusters of tiny, insignificant flowers. It is sometimes grown in the frost-free zones of Southern California.



Now let's turn to the former family known as Fumariaceae (fumitory family). The best known genus is *Dicentra* or bleeding heart. Here you see the eastern bleeding heart, *D. canadensis* with its two sets of different looking petals and nectar sacs at the base.



Here you see a cut-away view, showing the stamens and long simple pistil, both hidden inside the flower requiring a strong pollinator to enter.



Perhaps the best known of the bleeding hearts is the eastern Asian *D. spectabilis* whose chain of flowers look like hearts strung out.



California is home to the beautiful western bleeding heart, *D. formosa*, with its fernlike leaves and pink flowers.



Western bleeding heart lives in moist conifer forests. Here you see color variation in this stand in the high inner North Coast Ranges.



By contrast, short-horned steer's head, *D. pauciflora*, is a diminutive plant on rocky soils in the Klamath mountains. Note the outward trending petal lobes that give it its common name.



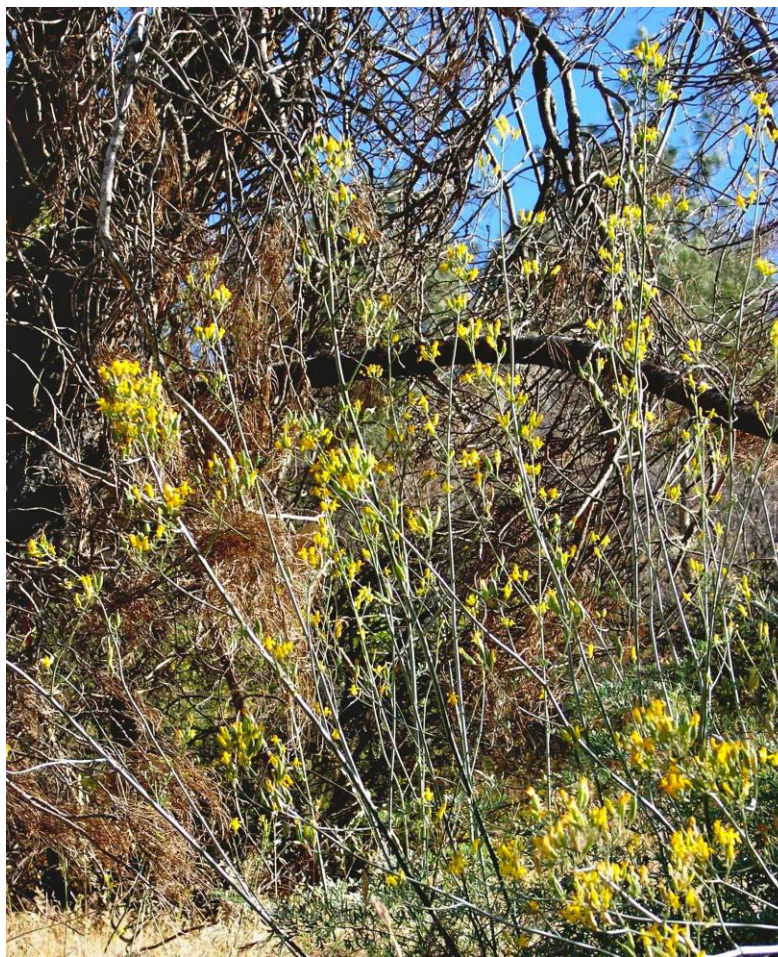
The short-horned steer's head also has much smaller leaves.



Most diminutive of all is the long-horned steer's head, *D. uniflora*, an inch's high plant from high mountains that blooms right after the snow melts.



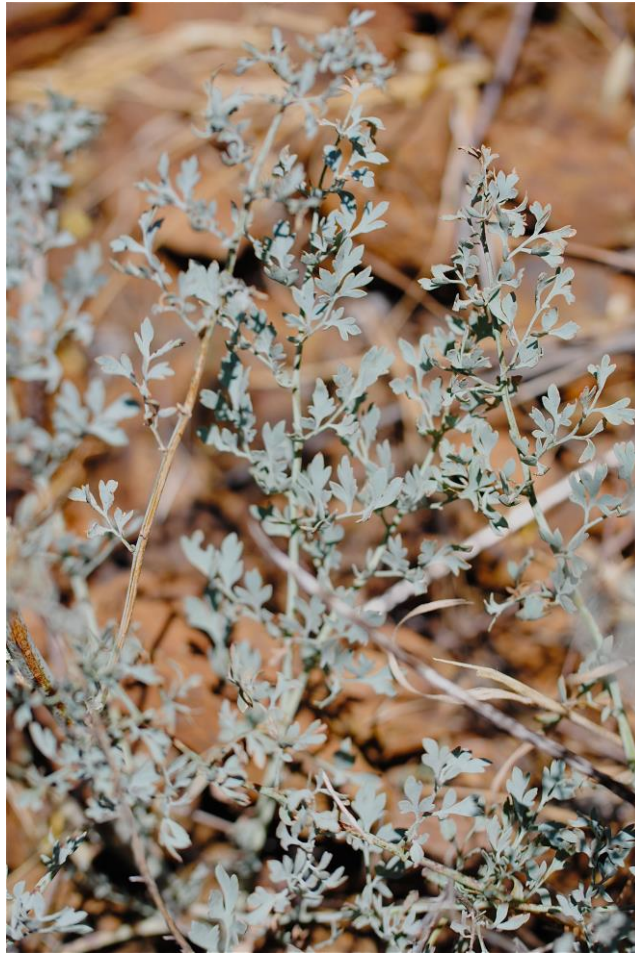
Recently, the genus *Dicentra* has been subdivided so that California's formerly large species are now in the genus *Ehrendorferia*. Here you see golden eardrops, *E. chrysantha*, a stout perennial fire follower growing to 5 feet tall.



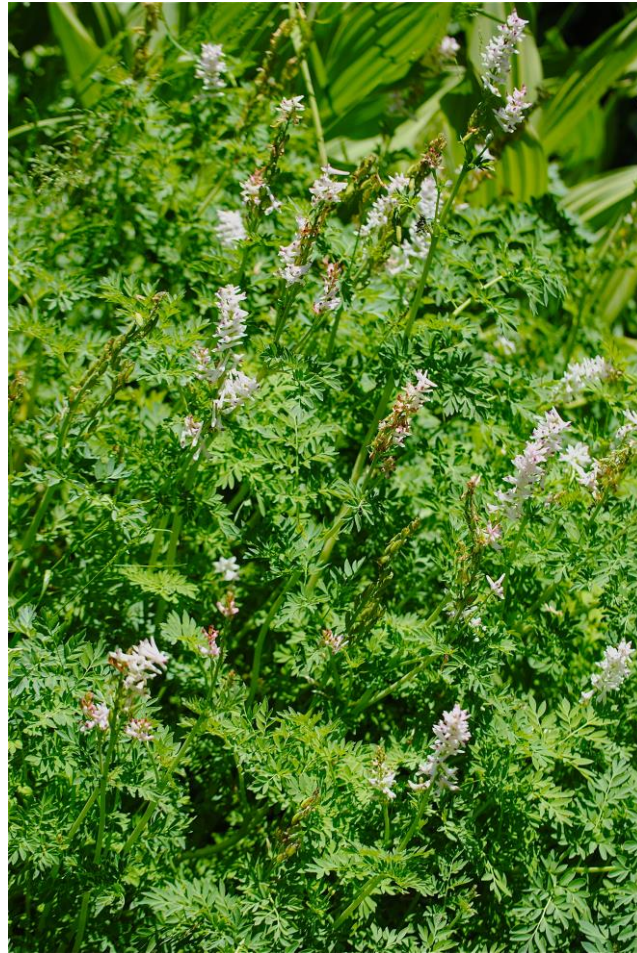
Golden eardrop flowers are upright and bright yellow, easily distinguishing it from the dicentras.



Golden eardrop leaves are large, fernlike, bluish-green and somewhat reminiscent of California poppy leaves



A second genus in this group is *Corydalis* (no well established common name), a genus centered in Eastern Asia. Here you see the robust *C. caseana* an uncommon perennial on the edge of bogs in the mountains of Northeastern California.



C. caseana leaves resemble those of *Dicentra spectabilis*, while the flowers...



...have a single, pointed spur at the back instead of the two pouches found in dicentras

