

**ONAGRACEAE, THE EVENING-PRIMROSE
FAMILY**

A FAMILY OF ORNAMENTALS DIVERSE
IN THE AMERICAS

The evening-primrose family, of modest size, is important in North and South America

- The family consists of annuals, perennials, and shrubs that have a wide range in habitat, occurring in California from coastal dunes to alpine situations and deserts as well as in wetlands
- Few of the members are important as food (fuchsias have edible berries) and a few produce seed used in Indian pinole, but the majority are valued for their contributions to gardens
- The family ranges from drought tolerant to needing year round water

The Onagraceae is one of the easiest to recognize by field characters

- The leaves are either opposite or alternate and often simple and unlobed although a few also have deeply lobed to nearly compound leaves
- The flowers are arranged in racemes, spikes, or panicles and are often showy, ranging in color from the yellows, reds, pinks, and whites to purple tinted but few have true blue flowers
- Each flower consists of 4 separate sepals and petals, 4 or 8 stamens, and an inferior ovary (a key feature to distinguish it from such families as Brassicaceae)
- The ovary is 4-chambered and ripens into a capsule or (occasionally) a fleshy berry

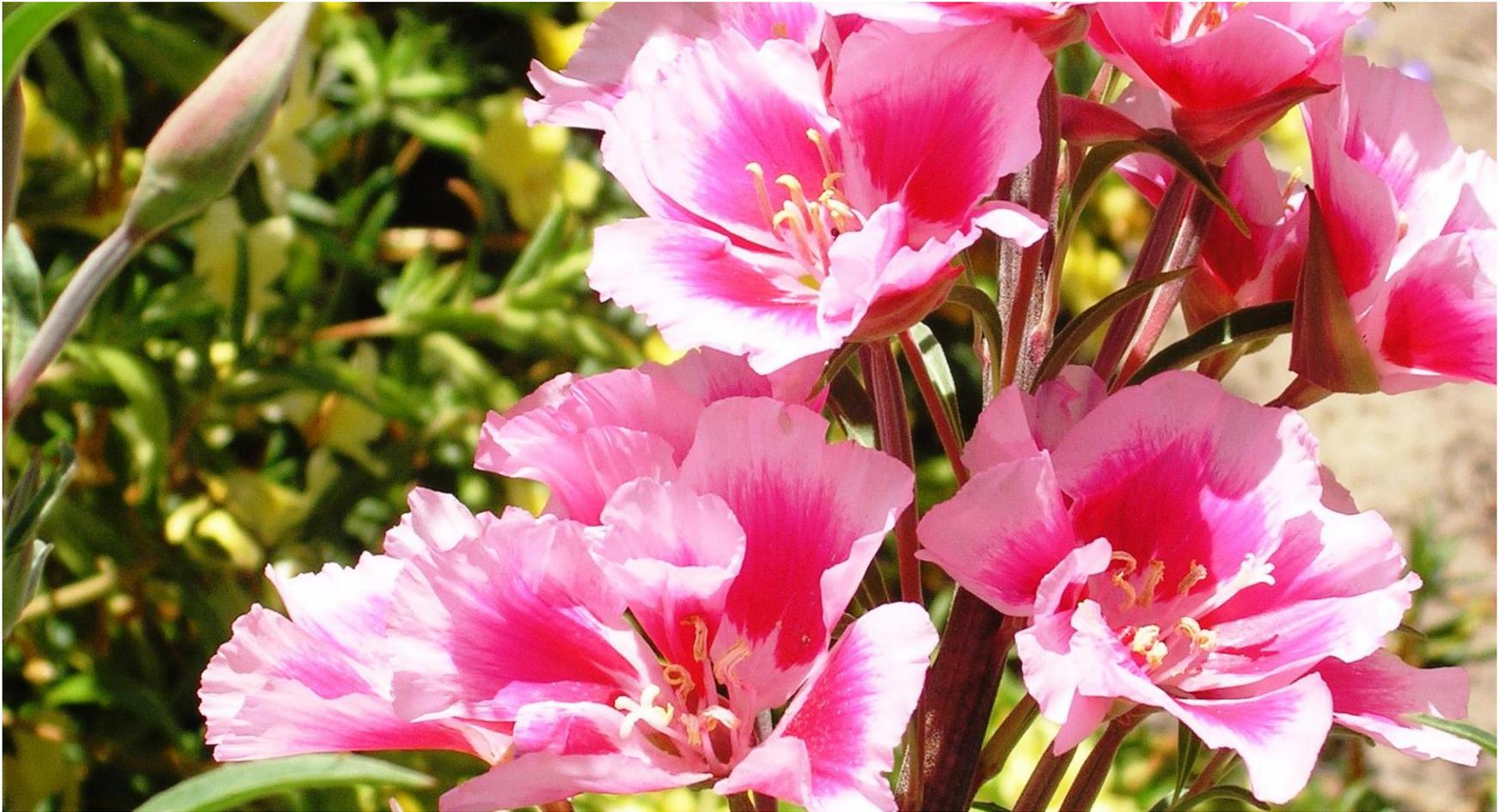
Here you see a flower of rock fringe (*Epilobium obcordatum*) with its 4 sepals and petals. The red tube at the base is the inferior ovary



We'll start our survey with the genus *Clarkia*, named for Capt. Clark of the Lewis and Clark expedition. Clarkias are all annual, often with pink or purple flowers. Here you see the well-known farewell-to-spring, *C. amoena*. This is the wild form but...



...the species has been selected and hybridized to create bold garden annuals that bloom a summer with conspicuous red patterning on the petals and large flower size



Here you see the naturally occurring form of *C. gracilis tracyi*. Originally these cup-shaped clarkias were put in the separate genus *Godetia*, and are still sometimes given that as a common name



Most godetias bloom in summer. This one, *C. imbricata* aka Vinehill clarkia, is confined to the Vinehill region just north of Sebastopol in Sonoma County.



A close view of *C. imbricata* displays the intricate purple patterning on the petals. Note the purple pollen.



Local to the Bay Area, the beautiful ruby-chalice clarkia, *C. rubicunda*, features a ruby-red splotch at the base of the petals. This species blooms all summer long.



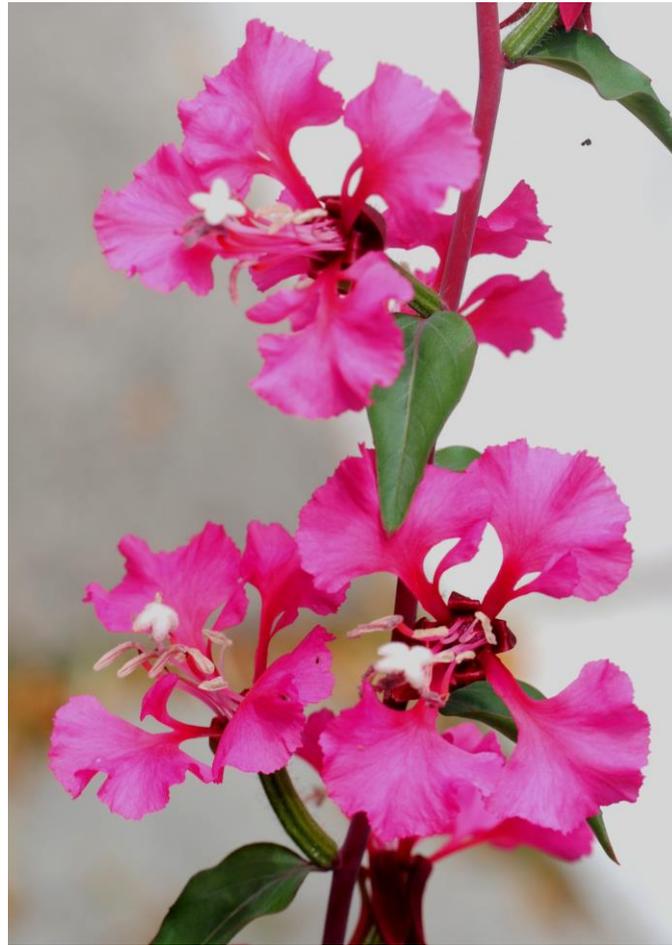
Most clarkias readily reseed in the garden. This northern species, *C. williamsonii*, is one of the last to stop blooming.



Before the godetias were combined with the clarkias, the original clarkias were characterized by having fat flowers with fan-shaped petals as seen here. The most common is the elegant clarkia, *C. unguiculata*, which has been...



...bred for color diversity and size with some forms double.



In the mountains, the diamond clarkia, *C. rhomboidea*, is abundant, featuring smaller flowers with diamond-shaped petals sprinkled with spots at the base.



Red ribbons, *C. concinna*, is a low-growing species on the edge of woods with bright pink flowers.



Red ribbons is characterized by petals split into three lobes and red, ribbon-shaped sepals



Fairy fans, *C. breweri*, also has lobed petals but the flowers are pale pink and highly fragrant. This gem occurs on steep scree slopes in the southeastern part of the Bay Area



The next genus, *Epllobium*, or willow herb, is a diverse genus with both annual and perennial species. Most of the annuals have small flowers such as this summer-weed, *E. brachycarpum*. Note that epilobium petals are deeply lobed and the flowers are usually pink or purple.



By contrast, the perennial epilobiums sometimes have showy flowers like this rock-fringe, *E. obcordatum*, whose sprawling stems fringe granite rocks in the high mountains.



Closey related to rock fringe is *E. rigidum*, which grows on red serpentine in the Siskiyou Mountains of Northwestern California.
Note the bluish green leaves.



The flowers of *E. rigidum*.



A third sister species, *E. sisiyouense*, replaces rock-fringe in the Klamath Mountains



The circumboreal fireweed, noted for its ability to revegetate burned over forests, also lives in the mountains. It forms large colorful colonies in summer, growing to 6 feet high



Formerly known as *E. angustifolium*, fireweed differs by having unlobed petals and now is placed in the genus *Chamaenerion*.



All the epilobiums (as they once were) feature capsules with numerous hairy seeds, adapted for wind dispersal.



Formerly the woody perennials known as California or hummingbird fuchsias were placed in their own genus, *Zauschneria*. Now they're lumped with the epilobiums. This tall one with gray leaves was formerly *Z. cana*.



Hummingbird fuchsias feature long, trumpet-shaped red flowers, the sepals and petals both red, with protruding stamens and stigmas for hummingbird pollination.



Forms of hummingbird fuchsia have been selected for white or pink flowers, but the original reds pack much more punch in the garden.



The northern hummingbird fuchsia, *E. septentrionale* or *Z. septentrionale*, is a sprawling ground cover with dramatic flowers in summer and fall. These “fuchsias” are winter dormant and need to be cut to the ground when finished blooming.



The true fuchsias belong to the genus *Fuchsia*, and come from the mountains of Mexico south to South America. They are mostly evergreen shrubs or small trees with pairs of broad, shiny leaves. They feature pink or red flowers with a long hypanthium and colored sepals and petals, attractive to hummingbirds



Although much hybridized, the species fuchsias are more resistant to pests. This one, *F. boliviana*, has particularly long slender flowers.



Fuchsia thymifolia, from the mountains of Central America, features small rounded leaves and small bright red flowers. Note the knob-shaped ovaries.



A few fuchsias have reached New Zealand, where some unusual forms have evolved. This, *F. procumbens*, is a true dwarf, forming an inches' high ground cover with upright flowers of an unusual color combination.



Like all fuchsias, *F. procumbens* produces red berrylike fruits eaten and spread by birds.



Two closely related genera in the Onagraceae feature yellow, white, or pale pink flowers and were formerly lumped into the evening-primrose genus *Oenothera*. Now the day-bloomers with a head-shaped stigma belong to *Camissonia*, aka suncups.



A couple of Bay Area suncups are perennial, such as the beach suncups, *C cheiranthifolia*, with bright yellow flowers.



Suncups seed pods take on many forms like the curved ones of beach suncups seen here.



Golden eggs or coast suncups, *C. ovata*, form neat rosettes on a taproot and bright yellow flowers in early spring in coastal grasslands.



Many of the annual sun cups live in deserts like this brown-eyes,
C. clavaeformis.



The related bottle-scrubber, *C. boothii*, has curiously spotted leaves and dense clusters of white flowers, followed by...



...seed pods that form a sort of bottle scrubber



The tall *C. brevifolia* grows in the deserts when rains are plentiful, featuring large bright yellow flowers on long racemes



Suncups also occur in the mountains ie this rosetted *C. tanacetifolia*, named for its leaves resembling the tansy (genus *Tanacetum*)



In contrast to the suncups, the evening-primroses, *Oenothera*, have evening and early morning flowers with a cross-shaped stigma. Most widespread, often in temporarily moist areas, is *O. elata hookeri*, or Hooker's evening primrose, a biennial.



In this side view of Hooker's evening-primrose, you see the long hypanthium tube below the sepals and petals, and the exserted cross-shaped stigma. The flowers are visited by hummingbirds



This close view of evening-primrose pollen shows how it sticks together in long chains.



Most of our oenotheras live in deserts and attract hawkmoths. Here you see the annual birdcage evening-primrose, *O. deltoides*



A similar species that is perennial, *O. caespitosa*, starts life as a leaf rosette



This close view of *O. caespitosa* shows the cross-shaped stigma and the long stamens



The seed pods of *O. caespitosa* look like hand grenades



Rare in California but common in the Midwest, the genus *Gaura* is a popular perennial in gardens with butterfly-like white flowers all through summer



Gaura leaves often have dark red spots.



Gaura flowers have slightly asymmetrical petals



We'll finish our survey with a couple of atypical genera in the family, such as this enchanter's nightshade, *Circaea alpina*, which forms low carpets in moist shade with pairs of broad leaves and tiny white flowers with only 2 petals.



The other “oddball” genus is *Ludwigia* or water-primrose, an often invasive exotic of wetlands. Although one species is native, the ones usually seen, for example in the Delta, are from South America.



Ludwigia flowers differ from their cousins in having 5 or 6 petals rather than four, but are otherwise typical of the family.



These examples of Onagraceae are not complete, but the major genera have been covered. California is rich in species as is the western half of the U.S.

- Many species of evening-primroses, clarkias, suncups, and epilobiums remain to be tested in gardens or made available in nurseries with some real challenges to grow the high-mountain species