

SCROPHULARIACEAE: THE FIGWORT OR SNAPDRAGON FAMILY

A FAMILY TORN ASUNDER BY RECENT
DNA STUDIES AND SOMETIMES
CONFUSED WITH OTHER FAMILIES

The snapdragon family is important horticulturally, especially for dry gardens

- The family as it was once defined, was widespread in California and the West, the Mediterranean Basin, and in South Africa
- The family has flowers resembling such relatives as the Acanthaceae (acanth family), Bignoniaceae (trumpet vine family), Myoporaceae, and several others
- Currently the family itself has been drastically realigned

Before getting into the realignment of the family, here is a brief synopsis of related, similar-looking families

- The Acanthaceae is a mostly tropical family of herbs, vines, and shrubs with a flower design similar to scrophs.
- The main difference is in the pairs of bracts enclosing the flowers, and the few seeds per ovary that are forcibly ejected when ripe
- The following are a few examples

Acanthus or bear's breeches is a typical Mediterranean perennial from tough rhizomes with sculpted leaves and spikes of flowers w spiny bracts



Dicliptera is a woody perennial or small shrub from tropical America with red, hummingbird-pollinated flowers



Chuparosa (*justicia californica*) is a broad desert shrub that blooms in winter and spring with a plethora of red flowers attractive to hummingbirds. Other justicias are also sometimes available.



Thunbergia alata and others are subtropical vines with colorful flowers, somewhat frost tender



The Bignoniaceae or trumpetvine family is another look alike that is mostly tropical

- The family consists mostly of woody vines, shrubs, and trees, often with compound leaves
- Although the flower design is similar to scrophiads, the seed pods differ by being long, two-chambered capsules with winged seeds for wind dispersal

Chilopsis linearis, the so called desert-willow, is a large deciduous shrub from desert washes with gorgeous, orchidlike flowers in summer



Closely related is a cold-weather tree from eastern North America, *Catalpa bignonioides*, which has been hybridized with desert-willow to form a shrub known as *xChitalpa*



A fast-growing, subtropical vine with red flowers is
Eccremocarpus



Here are the colorful flowers of *Eccremocarpus*



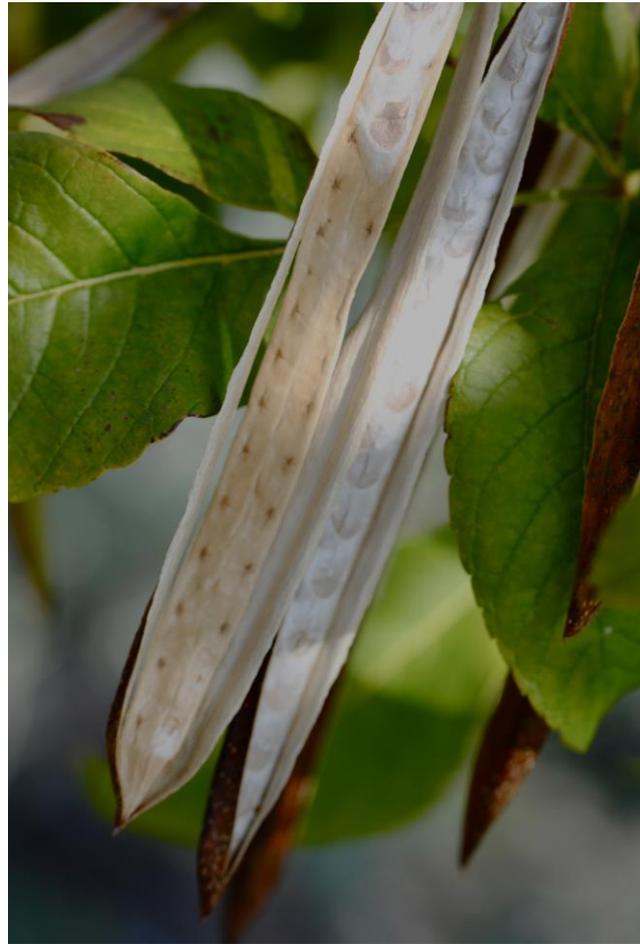
Jacaranda mimosifolia is a beautiful small street tree for subtropical climates from South America



Yellow bells (*Tecoma stans*) is a fast-growing, frost-tender small tree with trumpet-shaped yellow flowers from Baja California



The long, bean-shaped seed pods of yellow bells show the winged seeds typical of the family



Other look-alike families include:

- The Gesneriaceae or African violet family, consisting mostly of tropical herbaceous plants, occasionally grown out of doors
- The Lentibulariaceae or bladderwort family, a family of curious, wet-growing insectivorous plants, and
- Martyniaceae, a small tropical family with horned seed pods

Let's return to the Scrophulariaceae. Previously this important family included many bilabiate or two-lipped flowers similar in design to the mints (Lamiaceae)

- Many scrophs have opposite leaves, sometimes on square stems but without the odor of mints
- The most important difference between the families is the 2-chambered capsules containing many seeds in the scrophs versus four, one-seeded nutlets in the mints

Currently, the scrophs have been subdivided into three other families, leaving only a few in the original family, especially in California

- Currently, the true scrophs include the genus *Scrophularia* (bee plant, figwort), the type genus
- The Mediterranean/European genus mullein (*Verbascum*) and...
- The members of the formerly separate family, Myoporaceae
- The genus *Buddleia* (butterfly bush) also now belongs to the true scrophs

Scrophularia californica is a well known habitat plant for native gardens but has tiny, unshowy flowers



The mulleins are a group of dramatic, mostly biennial plants with large rosettes of broad leaves and spikes of nearly symmetrical flowers. Here you see the weedy *V. thapsus*



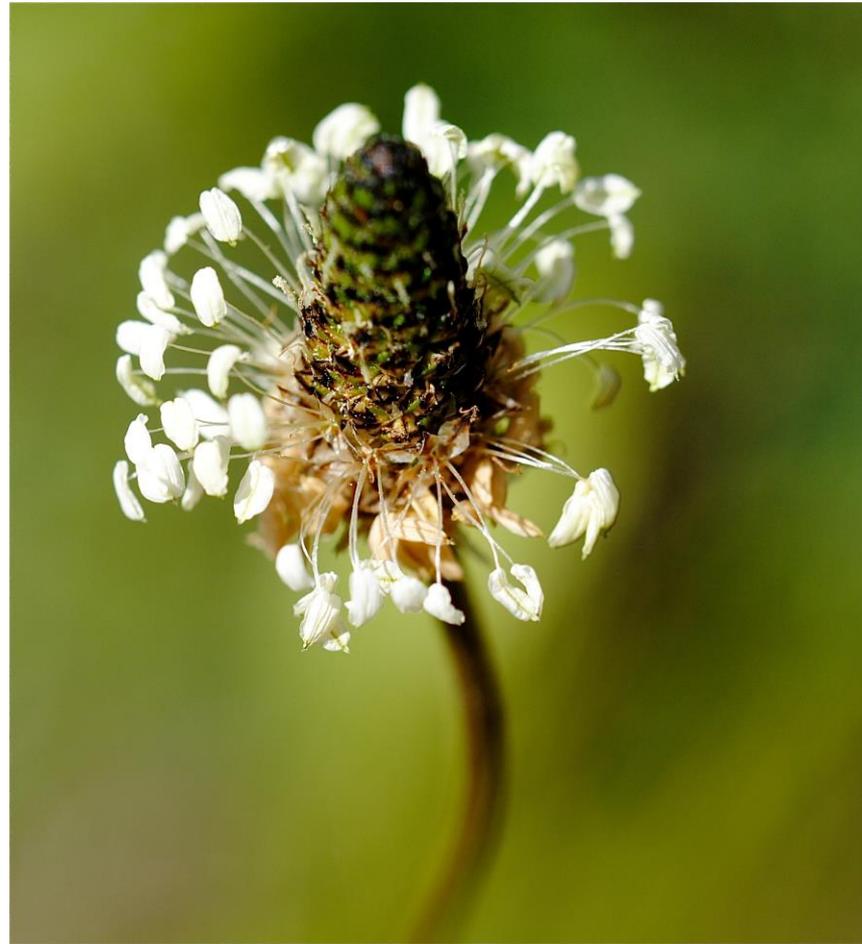
Another weedy mullein is *V. blattaria*, the moth mullein



Most of the scrophs, especially those from the New World, have been moved to the plantain family, Plantaginaceae, a move that seems totally counterintuitive

- Plantains (*Plantago* spp.) are noted for having narrow spikes of tiny, greenish, wind-pollinated flowers with parchment paperlike petals and long stamens
- Many plantains are noxious weeds with taproots, while some native species
- Provide food for various butterflies

Here you see a spike of a typical plantain, *Plantago lanceolata*. The flowers look nothing like scrophs.



Here you see the native *Plantago insularis*



The following images are of scrophiads now in the Plantaginaceae.

- Two similar genera useful in dry gardens are the snapdragons (*Antirrhinum* spp.) and toad-flaxes (*Linaria*) spp.
- Both genera feature lips that are tightly pressed together.
- Antirrhinums lack nectar-containing spurs while linarias have clear-cut spurs

The common snapdragon, *A. majus*, is a garden annual bred from European stock, and not truly drought tolerant



California's native *A. multiflorum*, a shrubby perennial, makes a colorful garden display in summer



A. coulteri is another native snapdragon, a small annual from disturbed habitats



Resembling antirrhinums is California's *Galvezia*, woody perennials with red flowers. Here is island snapdragon, *G. speciosa*



The annual European linarias come in several colors and provide good color in a semidry bed



Occasionally naturalized in California is the butter-and-eggs, *Linaria vulgaris*, from Europe



Another appealing genus is *Collinsia*, annuals that grow well in dry shade. The most commonly encountered is *C. heterophylla* or Chinese houses



Another attractive species is *C. tinctoria* or tincture plant. For best effect, collinsias should be planted in masses



Noted as a source of medicines for the heart, fox-glove (*Digitalis purpurea*) is widely naturalized along the north coast



Some of the showiest scrophs belong to the large genus *Penstemon*, most diverse in the American west, including California. Scarlet bugler (*P. centranthifolius*) is a hummingbird flower



Another good hummingbird flower is Eaton's
firecracker, *P. eatonii*



The blue or purple *P. heterophyllus* is a long-blooming species common throughout the dry foothills



Palmer's penstemon (*P. palmeri*) offers spectacular spikes of fragrant flowers



Closely related to penstemons are the small woody shrubs known as *Keckiella*. Here you see the climbing *K. cordifolia*, another good hummingbird flower.



The sprawling *K. ternata* also offers up plenty of bright red flowers on stems to 4 feet high



The large genus *Mimulus* (monkeyflowers), abundant in California and found in many other places, has been separated into the little-known family, Phrymaceae

- Monkeyflowers differ by having pleated sepals and
- Two-lobed stigmas that are sensitive to touch, the two lobes closing on contact with a visiting pollinator
- The following are examples of native monkeyflowers

The bush monkeyflowers—small shrubs to 4 feet high—are widespread throughout California’s foothills in scrub and woodlands



This is the southern *M. longiflorus*, often with pale orange to yellow flowers



The rare *M. flemingii* from the Channel Islands is a small shrub with Christmas colors



M. bifidus, the azalea-flowered monkeyflower, provides large sized flowers and is often used in hybrids



Most herbaceous perennial monkeyflowers are not drought tolerant, rather preferring a moist corner year round. Here you see the spectacular scarlet monkeyflower, *M. cardinalis*



There are several other genera transferred to Plantaginaceae but the main remainder of the former scrophs have been transferred to the parasitic, leafless broomrape family, Orobanchaceae

- These scrophs have semiparasitic roots despite having green leaves, and
- They feature an upper lip (*galea*) that forms a hood over the stamens, style, and stigma

Here is what a fully parasitic broomrape or *Orobanche* looks like. Note the total lack of leaves.



The broomrape *O. cooperi* clearly displays the two-lipped design similar to the former scrophs.



Among the new additions to the Orobanchaceae is the genus *Castilleja*. The annual species such as this owl's clover (*C. exserta*) grow readily with grasses



By contrast, the perennial species, generally known as Indian paintbrushes have red, orange, or yellow flowers attractive to hummingbirds. Here you see a local species, *C. foliolosa* or woolly paintbrush.



The desert paintbrush, *C. chromosa*, shows just what vivid color these plants provide.



Another in our group of semiparasites is the genus *Pedicularis*, often known as lousewort. The beautiful Indian warrior (*P. densiflorus*) seems to need the company of madrone & manzanita



A close view of Indian warrior flowers, another hummingbird favorite.



In this close-up of *P. densiflorus* you see the upper lip or galea typical of the plants transferred to Orobanchaceae



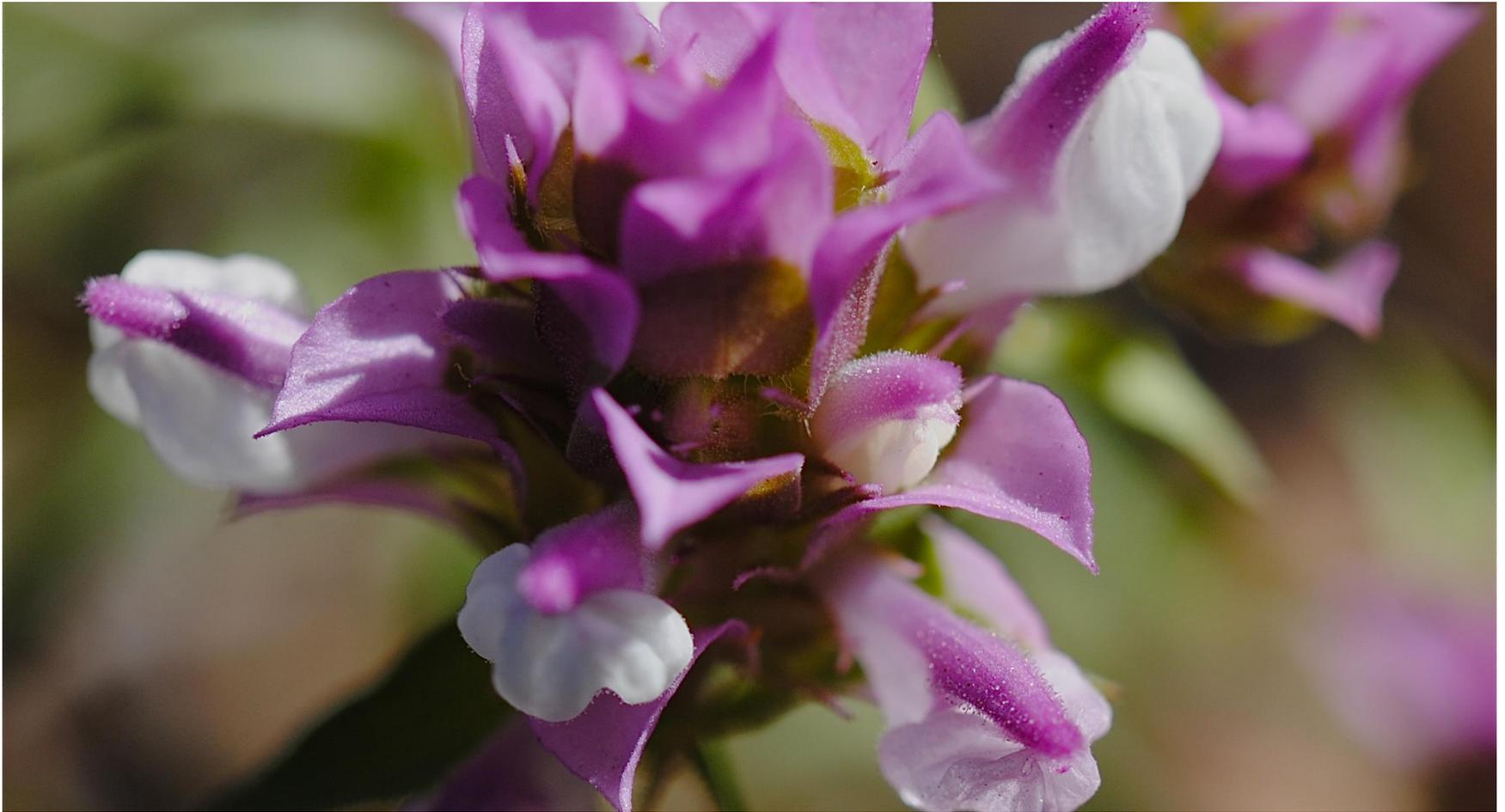
The so-called elephant snouts (*P. groenlandica*) has a fanciful galea resembling the common name



Other members of the semiparasitic “scrophs” include the annual wildflowers in the genus *Triphysaria*. Here is cream sacs or *T. eriantha*



Orthocarpus, once a larger genus of native annuals, still applies to *O. cuspidatus*, and clearly shows the upper lip modified into a galea



The common weed *Parentucellia viscosa* also belongs to the Orobanchaceae



The seldom-noticed, sometimes rare pelican beaks such as this *Cordylanthus hispidus* also now belong to the Orobanchaceae

