



Bay Area Beauties: A selection of *Calochortus* species found in the Greater Bay Area

by Mary E. Gerritsen, PhD and Ronald L. Parsons

Priced by wildflower connoisseurs in search of the rare and unusual, finding and photographing the species of the Western North and Central American genus *Calochortus* can offer endless challenges. California, perhaps due to its favorable climate, wide range of habitats, diverse and unusual soils types (for example, serpentine, clay, lava) and geographically isolated areas is the center of diversity of this genus of nearly seventy five species (as well as several recognized subspecies, varieties and natural hybrids) of Liliaceae, with more than forty species found within the borders of our Golden State. One can easily spend a lifetime chasing the infinitely variable flowers of this incredible genus.

In this article we introduce you to thirteen species that can readily be found in public areas within a hundred mile radius of San Francisco, and provide you with information on bloom times, habitat, distinguishing features, and some suggested areas where you should be able to see the flowers. Each species is illustrated with one or more photographs. Bloom times are approximate and can vary with the severity of the winter, rainfall, elevation, and exposure.



Fairy Lantern (*Calochortus albus*)



Calochortus albus

Common name: Fairy lantern, white globe lily

This widespread, and quite variable species is characterized by erect to arching, flowering stems with white to pinkish pendent ball-shaped flowers. One of the most obvious features of this species is the long, lax, shiny, basal leaf 30–70 cm long. These leaves are often observed hanging downward on exposed road banks and trail margins.

Look for this species on shady woodland slopes, partially shaded grasslands, chaparral, and exposed coastal bluffs, at elevations ranging from near sea level to almost 2000 m. Bloom times can range from late March to early July depending on the location.

In San Mateo County, *Calochortus albus* can be found growing along various hiking trails in the Edgewood Park and Reserve, Peninsula Open Space (Skyline Ridge Preserve, Long Ridge Preserve, Pulgas Ridge Open Space, and other trails along Skyline Blvd), and in the Golden Gate National Parks Conservatory (Sweeney Ridge). In Santa Cruz County, look for *C. albus* in Castle Rock State Park, Big Basin State Park, Butano State Park, and Wilder Ranch State Park. In Santa Clara County look in Upper Stevens Creek County Park, Henry W. Coe State Park, and Andrew Molera State Park, and in Monterey County, at Point Lobos Reserve. *Calochortus albus* is not known from counties north of San Francisco Bay.

MANZANITA

Volume 20, No. 2 • Spring 2016

Rosie Andrews, Managing Editor
Pattie Litton, Editor
Emerald Canary, Graphic Designer
Gert Allen
Arlyn Christopherson
Maggie Ingalls
Glenn Keator
Bart O'Brien
Alicia Springer

Members receive *Manzanita*, a quarterly newsletter of the *Friends*, as well as discounts on classes and field trips offered by the *Friends* and early admission to the garden's plant sales. The nurseries listed below sell native plants and offer discounts to *Friends* members.

Annie's Annuals and Perennials (510-215-3301),
740 Market Avenue, Richmond, www.anniesannuals.com

Bay Natives (415-287-6755), 10 Cargo Way, San Francisco,
www.baynatives.com

Berkeley Horticultural Nursery (510-526-4704),
1310 McGee Avenue, Berkeley, www.berkeleyhort.com

California Flora Nursery (707-528-8813), Somers & D Streets,
Fulton (north of Santa Rosa), www.calfloranursery.com

Central Coast Wilds (831-459-0655), 336 Golf Club Drive,
Santa Cruz, www.centralcoastwilds.com (please call before visiting)

East Bay Nursery (510-845-6490), 2332 San Pablo Avenue,
Berkeley, www.eastbaynursery.com

Larner Seeds (415-868-9407), 235 Grove Road, Bolinas,
www.larnerseeds.com

Mostly Natives Nursery (707-878-2009), 27235 Hwy. 1,
Tomaes, www.mostlynatives.com

Native Revival Nursery (831-684-1811), 2600 Mar Vista Drive, Aptos,
www.nativerevival.com

Friends members gain free admission to participating gardens through the American Horticultural Society's Reciprocal Admissions Program (<http://ahs.org/gardening-programs/rap/find>). Contact the individual garden to verify this benefit.

MEMBERSHIP

Your membership in the *Friends* of the Regional Parks Botanic Garden supports the important work of the garden in educational programs, conservation, and horticultural experimentation. Funds raised by the *Friends* help provide long-term financial security for the garden as well as new facilities and programs.

MEMBERSHIP CATEGORIES

General

- \$50 Individual
- \$30 Limited Income/Student
- \$75 Family/Dual
- \$25 Optional subscription to *The Four Seasons*, the garden's annual journal, with any general membership

Special Garden Friend

(includes a subscription to *The Four Seasons*, the garden's annual journal)

- \$125 California Poppy
- \$250 Buckwheat
- \$500 Ceanothus
- \$1000 Manzanita

Friends of the Regional Parks Botanic Garden

Advisory Council

Glenn Keator, Chairman	Katherine Greenberg
Ruth Bancroft	Neil Havlik
Russ Beatty	Ted Kipping
Rolf Benseler	Roger Raiche
Janet Cobb	Mary and Lew Reid
Susan D'Alcamo	Warren Roberts
Stephen W. Edwards	Jake Sigg
Barbara Ertter	Nevin Smith
Mike Evans	Lew Truesdell
Phyllis Faber	Richard Turner
Wilma Follette	Stewart Winchester
Roman Gankin	

Board Members

Rosie Andrews, President	Luke Hass
Gert Allen	Laura Miller
Linda Blide	Jim Nybakken
Bob Case	Anne Olsen
Ron Clendenen	

Garden Staff

Director: Bart O'Brien
Supervisor: Joe Dahl
Gardeners: Liz Bittner, Don Fuller, Michael Uhler
Senior Office Assistant: Teresa LeYung Ryan
Interpretive Student Aide: Kate Ferroggiaro

GIFTS: Donations to the *Friends* are welcome and may be designated for special projects or given in honor of or in memory of someone.

ENDOWMENT: Contributions to the Regional Parks Botanic Garden Endowment Fund assist in providing financial security for the garden.

Please make all checks payable to the Regional Parks Foundation; note whether for *Friends* membership, gift, or Endowment Fund; and send to:

Friends of the Regional Parks Botanic Garden
c/o Tilden Regional Park, Berkeley, CA 94708-2396.

The Board of the *Friends* generally meets at the Visitor Center in the Regional Parks Botanic Garden the second Wednesday of the month at 10:00 AM. All members are welcome. Call ahead to verify meeting date and time.

FOR INFORMATION:

About the *Friends* and membership: 510-544-3169,
info@nativeplants.org

About becoming a garden volunteer or docent: 510-544-3169



www.nativeplants.org

Growing *Calochortus* by Bart O'Brien


Writing about the Regional Parks Botanic Garden's collection of *Calochortus* species is a much more complicated task than one might expect. It is difficult to know just how many of our collections are thriving and how many have disappeared over the years. The maximum possible number for our collection is 119 accessions representing over 40 different taxa, but the real number is almost certainly much less.

Why can't we be more certain? In a word: Biology. Many species of *Calochortus*, especially those mariposa types from the drier parts of our state, have the ability to remain dormant for years—even decades—without putting up a single resting leaf or flowering stem to indicate that they are indeed present, alive, and healthy. These plants are quite remarkable, and this trait is rarely exhibited by cat's ear and globe- or lantern-flowered *Calochortus* types. Though certain triggers for growth are known, the specific mechanisms and timing that result in flowering and/or vegetative growth is not well understood. Fire, heavy rains, removal of woody plant cover (most often in scrublands and chaparral habitats), all may result in the reactivation of long dormant bulbs. Interestingly, even immature plants can enter this period of extended full dormancy.

So, what's a dedicated native plant gardener to do? Recommendations for growing some of the most showy *Calochortus* species (*C. superbis*, *C. vestae*, *C. venustus*, *C. luteus*) are fairly simple, but in general, *Calochortus* are exacting plants in cultivation. They are readily grown in larger containers (5-gallon pots are a good size) filled with a well-drained soil mix. These plants perform best when they receive adequate moisture during their growing season, from late fall through spring, but less moisture as the plants come into bud and bloom. It is best to withhold water completely after plants flower, as late season water may rot the bulb. Additionally, *Calochortus* bulbs have a way of dropping to the base of a pot fairly quickly (often after one to two years), and bulbs are much more susceptible to rotting from excess water when they are sitting directly on the bottom of a plastic container.

Keep these plants and their containers free of garden pests at all times of the year. Snails, and especially slugs, can rapidly eat their way through a collection, devouring leaves and stems all the way down to the heart of each bulb. Aphids can disfigure tender foliage and flower buds, but they are even more problematic when they spread lethal or debilitating viruses that can ruin a collection in a single growing season. If the gardener exercises steady vigilance, insects are not that difficult to control. However, plants that become infested with a virus should be destroyed as soon as possible—before the virus spreads through your entire collection.

Propagation from seed is the best method for obtaining plants, but it can take two to three years (or more) before the plants reach maturity and flower. Some species do produce one or two bulbils (mini-bulbs) at the lowest nodes (where the leaves join the stem). This is the best and most reliable way for most of us to produce clones of favored plants (most of us cannot afford to have our favorite plants' tissues cultured). Bulbils can be harvested in early summer after the plants have bloomed and are best stored in a cool dry place until they are planted during the fall months. Young plants and older "resting" plants typically produce just a single leaf for many years, until they have amassed enough reserves to produce a flowering stem.

Propagating these lovely lily-family members takes some patience and determination, and simply getting to know so diverse a genus can be a challenge. Find inspiration by seeking out *Calochortus* in our Regional Parks Botanic Garden and in the wild around the Bay Area and the state, as described in this issue of *Manzanita*. 



Calochortus amabilis

Common names: Diogenes' lantern, golden globe tulip, golden fairy lantern, Chinese lantern

This northern California species has 10–50 cm stems, usually branched, that bear one to many 2.5–4 cm wide, pendent, bright to greenish-yellow flowers. The petals partially overlap, are closed at the tip, and have a characteristic fringed edge. Inside, the petals are often hairless or with only a few hairs near the gland, and often have a red crescent above the gland that can be seen from the outside. From the outside the gland appears as a knoblike structure on each petal.

This California endemic is a common roadside flower in several counties in the Bay Area including Napa, Solano, Sonoma, and Marin, and may be found along shady banks and slopes of montane woodlands (usually oak) and in chaparral, often in full sun, at elevations ranging from 500–1500 m. Bloom times can range from April to mid-May, depending on elevation and location.

Calochortus argillosus

Common name: Clay mariposa lily

Calochortus argillosus has erect, 20–60 cm, generally unbranched stems that bear 1–4 (occasionally more) 2.5–4 cm upright, bell-shaped flowers. There are three distinct, recognizable forms of the species: northern, central inland, and southern coastal. The first two forms are found within a 100 mile radius of San Francisco. The northern form is highly variable, with white, pink, purplish, or bicolor flowers. The characteristic central petal spot can be red to dark brown, and may have feather-like bands above of orange and or yellow. The gland may be transverse, squarish, rectangular, somewhat lunate, or even chevron in shape, is covered with short, dense, orange, reddish or brownish hairs, and is directly below the petal spot. Often the entire base of the flower is penciled with red, and in line with the central spot, a chevron or crescent of pink-purple to purple with the appearance of either a triangle or circle. This form can be found in Mount Diablo State Park (Contra Costa County), and in Edgewood County Park (San Mateo County) from late May to mid-June.

The central inland form is much less variable, but may resemble the northern form. Flowers are usually white, pale purplish-pink, or a rich rose with a central spot that is most often reddish and surrounded by white or sometimes yellow. The base below the spot has a red or purple outline. This form can be found growing in Henry W. Coe State Park in Santa Clara County and along various roadsides in San Benito County. Bloom season is usually late May to mid-June.

Both forms are found in grassy meadows at elevations generally less than 100 m.



Good places to find this species in Sonoma County include Annadel State Park, Sugarloaf Ridge State Park, roadsides in the hills to the east of highway 101 (for example, Cavedale Road), Armstrong Redwoods State Reserve, Austin Creek State Recreation Area, Bouverie Wildflower Preserve, Audubon Canyon Ranch, Jack London State Historic Park, and Shiloh Ranch Regional Park. In Napa County, look for *C. amabilis* in Quail Ridge Reserve, Manzanita Trail, Skyline Wilderness Park, Stebbins Cold Canyon Preserve, Napa State Park, Missimer Wildflower Preserve, and Snell Valley. *Calochortus amabilis* can also be seen in Mix Canyon, near Vacaville in Solano County.

***Calochortus davidsonianus* and *Calochortus splendens***

Common names: Lilac mariposa, splendid mariposa

Often classified as a form of *Calochortus splendens*, we feel that differences in habitat, range, hairs, and anthers are sufficient to justify segregation of these taxa. Both *Calochortus splendens* and *C. davidsonianus* have erect (occasionally lax) 20–60 cm, often branching, stems with 1–4 open, upright, bell-shaped (*C. davidsonianus*) to narrow vase shaped (*C. splendens*) flowers. The petals are pink to lilac with entire to minutely toothed edges, with or without a purple spot, and are hairy at the base. The branching hairs of *C. splendens* tend to be long and wiry, and so dense on the bottom half of the petal they can obscure the entire base



including the gland and anthers; the hairs of *C. davidsonianus* tend to be shorter and thicker. The elevation range for both forms is sea level to 2800 m. In the Bay Area, both *C. davidsonianus* and *C. splendens* bloom between mid-May to mid-July, with lower elevation populations blooming earlier than those at higher elevations.

We have only seen *C. davidsonianus* in the Bay Area, although there are records of *C. splendens*. We have not personally observed the plants in these locations to make the determination as to which species they actually are. There are numerous records in CalFlora of *C. splendens* in Mt. Diablo State Park (Contra Costa County) and based on the photographs all appear to be *C. splendens*. However, a photograph on a poster of wildflowers seen at Mt. Diablo State Park clearly showed *C. davidsonianus*, so it is possible that both

taxa occur in this park. We hope to make this determination this summer since the abundant rainfall should result in excellent wildflowers this year! We have seen *C. davidsonianus* growing on Walker Ridge (Colusa County), which is a little beyond the 100 mile radius. One of us (RP) saw a flower of *C. davidsonianus* on display at a local native wildflower show in Morgan Hill, with an attribution to Santa Clara County. There are records (CalFlora) for *Calochortus splendens* (but are they *Calochortus davidsonianus*?) in Monterey County (Fremont Peak, Chews Ridge, Fort Hunter-Liggett, Hastings National History Reservation, Carmel Valley Road, Indian Camp, Fremont Peak State Park, Junipero Serra Peak Trail, Santa Lucia Memorial Park) and Napa County (McLaughlin Reserve, Stebbins Cold Canyon Reserve).

Calochortus luteus

Common names: Yellow mariposa lily, yellow mariposa tulip, gold nuggets, gold cups

Widespread and locally common to abundant, *Calochortus luteus* is characterized by erect stems that carry 1–7 upright, open to deep bowled 2.5–6 cm usually brilliant yellow flowers. The petals are faintly to heavily marked with reddish-brown stippling on the lower half to two-thirds. The patterns appear to be infinite in their variety, with some populations quite uniform and others incredibly varied. This species is typically found in full sun in open grassy flats, slopes, and banks, usually while the grasses are still green but starting to dry. Elevation ranges from sea level to 960 m, with bloom times from late April to early July.



Populations of *C. luteus* can be found in Alameda County (Walpert Ridge, Skyline Serpentine Prairie, Redwood Regional Park, East Oakland Hills, Ohlone Regional Wilderness, Knowland Park, Joaquin Miller Park, Garin Regional Park, and Chabot Regional Park); in Contra Costa County (Las Trampas Regional Wilderness, Mt. Diablo State Park, Briones Regional Park, and Shell Ridge Open Space); Marin County (St. Hilary Open Space Preserve, Mt. Tamalpais State Park, Ring Mountain, Blithedale Summit Open Space, French Ranch Open Space, Olompali State Park, China Camp State Park, Angel Island State Park, and Tomales Bay State Park); Monterey County (Garland Ranch Regional Park, Toro County Park, Mitterdorf Preserve, Elkhorn Slough and adjacent uplands, and Andrew Molera State Park); Napa County (McLaughlin Reserve, Skyline Wilderness Park, Snell Valley-Missimer Wildflower Preserve, Stebbins Cold Canyon Reserve, and Quail Ridge Reserve); San Mateo County (Jasper Ridge Biological Preserve, Edgewood County Park, Sawyer Camp Trail and Long Ridge Open Space Preserve); Santa Clara County (Almaden Quicksilver Park, Henry W. Coe State Park, and Mt. Madonna County Park); Santa Cruz County (Castle Rock State Park, Star Creek Ranch); and Sonoma County (Annadel State Park, Pepperwood Ranch Natural Preserve, Fairfield Osborn Preserve, Hood Mountain Regional Park, Bouverie Wildflower Preserve, Sonoma County Airport, Jack London State Historic Park, Van Hoosear Wildflower Preserve, Sugarloaf Ridge State Park, and Shiloh Ranch Regional Park). Additionally, *Calochortus luteus* occurs in the Hunters Point area of San Francisco.



Calochortus pulchellus

Globe lily, Mount Diablo mariposa lily, Diablo globe tulip, Mount Diablo fairy lantern

Calochortus pulchellus species is largely invariable, 8–30 cm in height, with a branching, often curved stem that bears round, nodding, ball-like flowers, one to many per stem. The flowers are greenish to bright clear yellow, and range from 2.5–3.5 cm wide, closed at the tips. The petal margins are fringed, and the exterior of each petal has a large protruding knob from the deeply depressed gland.

Generally found on northern and eastern exposures in partial to deep shade on grassy slopes and hillsides of oak woodlands, this endemic Contra Costa County species is found only on Mt. Diablo and along the Morgan Territory Road at elevations ranging from 200–1100 m. Bloom time is between late April to mid-June, depending on the elevation and exposure.

Calochortus tiburonensis

Common name: Tiburon mariposa

Calochortus tiburonensis is characterized by an erect, 10–60 cm stem bearing 1–8, 3–4 cm upright, open, bowl-shaped flowers. The petals are pointed and rhomboidal in shape, with long hairs on the inner surface extending down to and along either side of the gland. Usually the petal tips are hairless but the margins are fringed. The pattern and coloration of the petals is highly variable with a greenish yellow to yellow background overlaid with brown. Most often there is a dark brown crescent or chevron in the middle.

An amazing and unique species, *Calochortus tiburonensis* is an incredibly localized species that occurs only near the summit of Ring Mountain Open Space Preserve (Tiburon Peninsula, Marin County). Its cryptic coloration makes it difficult to distinguish from the surrounding dried grasses. Look for it growing around rocks along trails near the summit, elevation 120–165 m. The optimal time to view this species is mid-late May to early June.





Calochortus tolmiei

Common names: Tolmie star tulip, Tolmie's mariposa tulip, Tolmie's pussy ears

A highly variable species, *C. tolmiei* has erect to lax stems that range from 8–50 cm, with as many as ten 1.5–3.5 cm wide flowers. The flowers may be white, lavender, or even purple, and are typically covered with dense hairs from the round to pointed apex down to the gland. Often the hairs become darker in color as they approach the gland. Populations to the south of San Francisco are quite distinct and have white petals that are much more scantily haired, often not hairy to the apex. The authors feel this southern form of *C. tolmiei* deserves a taxonomic designation of its own due to the distinct appearance of both flower and plant, as well as geographic isolation.

A common species with a distribution primarily north of San Francisco up into southern Oregon, locally *Calochortus tolmiei* can be found in Marin County (Point Reyes National Seashore, Bishop Pine Reserve, Tomales Bay State Park, and Dillon Beach); Napa County (Los Posadas State Forest near Angwin); and Sonoma County (Annadel State Park, Chanslor Ranch, Sea Ranch, Audubon Mayacamas Sanctuary, Salt Point State Park, Preservation Ranch, Estero Americano Preserve, Fort Ross State Park, and Jack London State Historic Park).

The above-mentioned southern form of *Calochortus tolmiei* is occasionally seen in a few areas south of San Francisco, for example, San Mateo County (Portola State Park, and along road banks in the Santa Cruz mountains and Santa Cruz County (Big Basin Redwoods State Park). Bloom times in these areas range from mid-April to late May.

Calochortus umbellatus

Common Names: Oakland Star Tulip, Oakland Mariposa Lily

A small species, *Calochortus umbellatus* is 7–25 cm tall. The upright to lax stems are usually branched and carry 3–15 upright to leaning flowers that may be satiny pink, lilac, or whitish. Petals are wedge-shaped, often minutely toothed, with the inside often marked with dark purple near the base. Hairs are sparse (occasionally dense), stubby, white to yellowish, and are found above or around the naked, slightly depressed transverse gland.



A California endemic, *Calochortus umbellatus* is locally common in Alameda County (Lake Temescal Regional Park, Sunol Regional Wilderness, Strawberry Canyon, San Leandro Reservoir Area, Redwood Regional Park, Chabot Regional Park, Oakland Hills, Ohlone Regional Wilderness, Norris Canyon, Leona Heights Regional Park, Joaquin Miller Regional Park, Berkeley Hills, Claremont Canyon Regional Park, Knowland Park, and Sausal Creek); Contra Costa County (Mt. Diablo State Park, Redwood Regional Park, Wildcat Regional Park, San Pablo Creek, San Pablo Reservoir area, El Cerrito Hills, Tilden Regional Park, Huckleberry Regional Preserve, Las Trampas Regional Wilderness, Morgan Territory Regional Park, and Sibley Regional Park); and Marin County (Mt. Tamalpais State Park and Ring Mountain Open Space Preserve). Elevations range from 50–700 m and bloom time is mid-March to early May.

Calochortus uniflorus

Common name: Large-flowered star tulip

Calochortus uniflorus has semi-erect, 5–25 cm stems that bear pink, lilac, or whitish bowl-shaped flowers. There are frequently dark markings at the base of the petals, and scattered wiry white, cream, or yellowish hairs on the middle of the petal above the naked, shallow, oblong gland. The gland is surrounded by a translucent, ciliate membrane, and is bordered above by dense short hairs.



An uncommon species in the Bay Area, populations of *Calochortus uniflorus* have been found in Marin County (Tomaes Bay State Park, Potrero and Rifle Camp Meadows, and Mt. Tamalpais State Park); Monterey County (Point Lobos State Reserve, and Fort Ord BLM area); Napa Valley (Snell Valley-Missimer Wildflower Preserve); Santa Cruz (Aptos Creek Watershed area); Sonoma County (Annadel State Park, Salt Point State Park, Fort Ross State Historic Park, Jack London State Historic Park, and Van Hoosear Wildflower Preserve).



Calochortus venustus

Common names: Butterfly mariposa lily, square mariposa lily

The most elegant of the genus, *Calochortus venustus* is also probably the most variably colored and patterned. The stems are 10–60 cm in length, often branched, and carry 1–6 upright bowl shaped 3–7 cm flowers. An infinite diversity of colors is possible, with the constant feature being the square to rectangular, densely hairy, slightly depressed gland (see the accompanying article in this issue for further details about this variability).

A widespread, and often locally common species, there are many populations of *Calochortus venustus* in the San Francisco Bay Area. Most of the flowers in the Bay Area are the more common “typical” form of the species, white with a reddish base and a small dark blotch at the apex of this coloration. A variously colored blotch (“upper petal blotch”) is usually observed on the upper part of the petal.



Calochortus vestae

Common name: Goddess mariposa

This lovely species has stout, erect, 30–60 cm stems that bear 1–6 upright, 3–6.5 cm wide, open, bell-shaped flowers. The petals are most often white, but may also be pink, lavender, purple, or magenta. Fine, dense, vertical red lines over a white to yellowish background cover the basal half of the petal. The gland is double lunate or a vague M-shape, covered with orange to rust-colored dense hairs and is located near the upper portion of the colored base, below a central blotch or triangle. The blotch may be elongate transverse, such that when viewed above appears as a ring.

When searching out these Beauties, remember how important it is to never pick the blossoms or dig up the bulbs; take joy in their splendor but leave them to share their delights with others.

Not all sites have not been verified by the authors. It is likely that some records of *C. venustus* may be confused with *C. vestae* or *C. argillosus*. 🌱



An uncommon species in the Bay Area, small populations of *Calochortus vestae* can be found in Napa County (McLaughlin Reserve); Sonoma County (Austin Creek State Recreational Area, Pepperwood Ranch Natural Preserve, Armstrong Redwoods State Reserve, Audubon Mayacamas Sanctuary, Hood Mountain Regional Park, and Preservation Ranch).

Mary E. Gerritsen, PhD, an accomplished cell biologist and pharmacologist, has worked in the biomedical, pharmaceutical, and biotech industries and is the author of many articles in medical journals and textbooks. She wrote, with Ron Parsons, *Masdevallias: Gems of the Orchid World and Calochortus: Mariposa Lilies & Their Relatives*.

Ron Parsons is well known for his photographs of orchids, California wildflowers, and especially bulbs. His favorite is the genus *Calochortus*, which he has traveled hundreds of thousands of miles to photograph in the western states. All photographs in this issue are Ron's astonishing work.

Calochortus: Bulbs Like No Other *by Glenn Keator*

The genus *Calochortus*—beautiful grass in Greek—combines great beauty, grace, and diversity as one of California's and the West's iconic genera. As a member of the lily family Liliaceae, *Calochortus* is related to other native liliaceous plants such as *Erythronium* (fawn- and glacier-lilies), *Fritillaria* (fritillaries), and *Lilium* (true lilies). Still, calochortuses stand apart in several manners, suggesting that they may comprise their own separate family. To the beginner, calochortuses differ from those other lilies by their slender grasslike basal leaves, as well as sepals that differ in shape and often color from the petals; the other showy genera have either broader leaves or leaves borne in clusters on the stems, and flowers whose petals and sepals, both colorful, are almost identical. *Calochortus* petals also bear distinctive nectar glands whose shape, margins, and other details are a major aid in identifying species.

My focus here is to look at a variety of distinctive species from areas far from the Bay Area, as calochortuses occur in deserts, seeps,

high mountain scree, and chaparral. Many of the species are rare and highly restricted to special habitats, and consequently poorly known.

Starting in the northeasternmost fringe of California, in high sagebrush and western juniper country in the Warner Mountains, we have the bigpod mariposa (*C. macrocarpus*), distinctive for its lovely lavender petals and long, protruding narrow sepals, traits that distinguish it from most others.

The north is also home to several other rare species. My favorite is *C. persistens*, found on loose serpentine scree in openings of chaparral on Gunsight Ridge west of the town of Yreka. It is characterized by one to few showy bowl-shaped pink-purple flowers with a large yellow patch around the nectar gland, the flowers borne close to the ground (and sometimes failing to appear in years of drought).

In the high mountains, especially the Sierra, *C. leichtlinii* lives on loose rock scree at the highest elevations, where its oversize white flowers appear to grow directly out of the ground. While many species are noted for the color variation of their flowers, *C. leichtlinii* has a nearly uniform floral pattern: white petals with a small yellow nectar gland, topped with a nearly black spot, the petals smoky gray on the outside.

The rose globe-tulip (*C. amoenus*), appears in the foothill country of the southern Sierra, growing in partial shade, sometimes in company with pretty face brodiaea (*Triteleia ixioides*). Like the other globe-tulips, its flowers are nodding, globe shaped, and nearly closed; in this species, the flowers are a rich rose purple. The white globe-tulip (*C. albus*) occupies the same niche in the central and northern Sierra foothills.

Heading eastwards and south into desert country, we find two remarkable species: the striped mariposa (*C. striatus*) from alkaline seeps and meadows on the northwestern fringe of the Mojave Desert, as in Red Rock Canyon; and the flame mariposa (*C. kennedyi*), lover of gritty soils in open desert scrub from the eastern Mojave to the region around Mt. Pinos just north of L.A. The striped mariposa has lilac colored petals with dark purple stripes, while the flame mariposa has poppy red-orange petals and a dark nectar gland at the base.

The eastern Mojave is also home to the unusual semi-twining *C. flexuosus*, the stems zigzagging close to the ground and bearing bowl-shaped white flowers speckled with purple and banded in yellow.

Heading west in Southern California, Weed's mariposa (*C. weedii*) and its varieties live in openings of the chaparral, blooming perhaps the latest of any of the species, often in August. The shallow flowers vary from yellow to tan-purple, and are heavily bearded with colorful hairs.

Going up the coast to the serpentine barrens and chaparral near the city of San Luis Obispo, *C. obispoensis* usually seeks openings in the chaparral or is scattered along road banks, except after fire, when the plants burgeon for a few years. The curious, small, saucer-shaped flowers are yellow with dense tufts of brown hairs at the petal tips.

In the same area, and with varieties scattered widely in the Sierra and Transverse Ranges, the rare golden bowl mariposa (*C. clavatus*) occurs. If you're familiar with the yellow flowers of the common *C. luteus*, this version has larger deep golden flowers of great beauty.

Finally, heading north into the Santa Lucia Mountains located to the south of the Monterey Peninsula, you'll meet *C. albus rubellus*, a near-red to deep pink version of the more widespread straight *C. albus*, sprinkled on steep banks at the edge of mixed-evergreen forest and dense chaparral.

This brief tour only hints at the many other species waiting to be explored within California's borders. Happy *Calochortus* hunting. ♀

Glenn Keator is the chairman of the Friends Advisory Council. He is a popular instructor of botany and field trip leader in the Bay Area, and he teaches the docent training course at the Regional Parks Botanic Garden. He is the author of a number of books on native plants.



Bigpod mariposa (*Calochortus macrocarpus*)



Weed's mariposa (*Calochortus weedii*)

Calochortus venustus, Nature's Bountiful Gift of Beauty

by Mary E. Gerritsen, PhD and Ronald L. Parsons

One cannot touch lightly on this most beautiful species of the genus *Calochortus*. Its infinite variety of colors and patterns is almost legendary. *C. venustus* has ensnared many a wildflower photographer in the seemingly endless pursuit of its inestimable diversity. A California endemic, the range of *C. venustus* extends from the coast ranges of the San Francisco Bay Area to Los Angeles, and from the central to southern Sierra Nevada. It is found in Alameda, Amador, Calaveras, Contra Costa, El Dorado, Fresno, Kern, Los Angeles, Madera, Mariposa, Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Clara, Santa Cruz, Stanislaus, Tulare, Tuolumne, and Ventura counties, where it can be found growing in chaparral, open grasslands, clearings in coniferous forests, mountain meadows, steep hillsides, road banks, slopes, and high desert in ultramafic and granitic soils, at elevations from 300–2700 m.

In this pictorial treatment of species, we present just a taste of the many different color forms and patterns that can be found. We hope you enjoy the views. 🌱



FRIENDS OF THE
REGIONAL PARKS



BOTANIC GARDEN
PO Box 21074
Oakland, CA 94620-1074



REGIONAL PARKS
Foundation
Supporting East Bay Regional Parks

East Bay 
Regional Park District

Plant sale April 16