

**MARIPOSA**

VOL. IV, #4

EDITORS: H.P. MCDONALD  
AND K. STOKKINK  
PUBL. QUARTERLY

EDITORIAL ADDRESS:

P. O BOX 1128

BERKELEY, CA 94701-1128

**MARIPOSA**THE *CALOCHORTUS*  
SOCIETY NEWSLETTER

APRIL, 1993

ADVISORS: C. BACCUS,  
S. FARWIG, V. GIRARD,  
AND B. NESS

## DUES NOTICE

☆ It's renewal time! Yes, another year has already rolled around, and its time to get up the money for Vol V, July 1993-April 1994. This year the price will be \$4.00 domestic, and \$6.00 outside the U.S.A. Please do not send cash; one member already lost money through the mail

☆ Please note the new address for the Newsletter: American *Calochortus* Society, P.O. Box 1128 Berkeley, Ca. 94701-1128.

Don't ask what moving all those plants was like.

### II. Trips

We had finished taking our photographs of *C. striatus* and headed north once again. First, however, we decided to see one more stand of one of our favorites: *C. venustus*. This stand was in northern Los Angeles county. Now, I'm going to bore our members in southern California by disputing some of the more hideous stereotypes about their territory. Yes, Los Angeles and many of its sprawling suburbs are terribly overbuilt, and threaten the natural environment in a plethora of ways. Still, there is northern Los Angeles County, beckoning in its beauty, a reminder of an earlier, less crowded time. There are lovely, large lakes in the Mountains and acres of meadow grasslands and sagebrush. For the courageous, there is a huge faultline to visit. (Gamblers among us like to do that, just to see if we're there at the very moment a "big one" starts.) Here, too, in an almost rural setting, are several stands of *C. venustus*. We found them in habitats not unlike *C. luteus* and *C. superbus* to the north: gently sloping meadows, filled with a variety of grasses, and here and there a sagebrush, to testify to the dryness of the region. Unlike the habitats of *C. venustus* in the Sierra or the Bay Area, we didn't notice any rocky outcrops in these meadows. Perhaps the more arid climate had something to do with it; they would, after all, need less drainage than they would in wetter areas. These *C. venustus* were the pink-outer-and-white-inner petalled kind.

Hugh and I then drove over to the interminable Interstate 5. This is a road that takes a traveler many a place, but it is a terribly boring route much of the time. We decided to take an alternate route, traveling west across the Central Valley and the slopes of the Coast Ranges to another route north. As we drove up and over grassy hillsides, we found a lone stand of *C. splendens*. They grew on sagebrush slopes, and these were under sprawling oak trees. The tall beauties looked like single pink rosebuds from the distance. As we slowed to a stop to inspect them, we caught the sight of a golden eagle in flight. It flew with a small rodent dangling from its mouth, and appeared to meet its mate on a nearby fencepost. Before we had a chance to catch them on film, they flew away. Again, we were struck by the awesome beauty of "natural" California, that inspires and delights with its splendor.

This had been a rather long trip, but we had enjoyed ourselves thoroughly. Even before we hit the Bay Area, we were already discussing our plans for the next trip!

### III. Germination Tests--11th Installment: Jon Splane's mix

[Member Jon Splane lives in Oregon. In his area, winters are relatively wet and moderately cold,

while summers are generally dry. His experiences in growing *Calochortus* spp. may prove useful for those in similar areas of the Northwest, where the abundance of seasonal rainfall may make it difficult to grow certain spp., esp. those of section *Mariposa* --Ed.]

"I have been using a mix the past two years of three parts coarse sawdust, one and one-quarter to one and one-half parts crushed basalt, and one part loam [soil]. This works fairly well but as it ages it loses some drainage ability and holds a little too much water. I'm planning to start adding some crushed pumice to the mix this fall. The 'star tulips' do best for me. *C. tolmiei* grows in the open ground with no problem and, contrary to theory, they even offset. *C. uniflorus* grows very well in pots and I'm sure it would do well in the ground. The mariposas from California do O.K. but get nipped back as they show above ground before the really cold weather. The Great Basin, Rocky Mountain and Mexican species do not live long. The 'Fairy Lanterns' have been killed or severely damaged by the freezes in pots. In the ground, I believe they would do well."

#### IV. The Horticultural History of *Calochortus*-14th Installment

Wilder, Louise B., *Adventures with Hardy Bulbs*, N.Y.: Macmillan, 1936. [The second of two installments--Ed.]

"...These most amazing flowers may be enjoyed in the neighborhood of New York from late April through June. And there are not many June flowering bulbous things...the Indians of the regions where they abound feasted upon them in a different sense. They were regarded, according to Mr. Saunders, as a gift of the gods to be eaten, and throughout the range of the plants the bulbs were the most desired of foods.

"...They [the fairy lanterns] grow here on a Western slope of the rock garden where they receive in the afternoon the shade of tall trees at a little distance. They have done exceptionally well, all the kinds blossoming freely in the third season after planting...[*C. albus*] is the plant that John Muir thought the most beautiful of all the Lily family, which so moved him that he wrote of it as 'a spotless soul, a plant saint, that everyone must love and so be made better. It puts the wildest mountaineer on his good behavior. With this plant the whole world would seem rich, though none other existed.'...

"The members of this group [cat's ears and star tulips] are more suitable than other *Calochortus* for use in the rock garden because of their dwarf stature...they are woodland plants, but like the Fairy Lanterns, while they do well enough on a half-shaded slope in the rock garden, they do not thrive in woods in eastern gardens. They must have the sharp drainage and the summer baking that is necessary to them all. They bloom in late April and early May.

"[The Mariposa Tulips] are the most brilliant of the race, the tallest and the latest to flower...In the rock garden or the raised bed, they must be staked with the slenderest of Carnation stakes, or planted among dwarf shrubs that will serve to clothe their naked stems and keep them upright; and they are more difficult than the others to keep in eastern gardens. But they are California's most sensational wild flowers, and no language is too extravagant to use in their praise. They like the sunniest situations in sharply drained soil, and a warm covering over the winter, and when they are uncovered in spring it is wise to keep a bit of the rubbish handy in case cold threatens the precarious growths. They bloom in May, June and early July. [The author notes that *C. gunnisoni* and *C. macrocarpus* are among the easiest, hardiest and most persistent of the Mariposas in eastern gardens.] While they grow well in the loose, gritty soil of the rock garden, [the California Mariposas] are too tall to look well there. The raised bed is the best place for them. They flower toward the end of June, and they certainly are happiest, at least in our eastern gardens, in full sun.

"Such of them [the nitidi] as I have grown here have proved very satisfactory and entirely hardy, and as they have shorter and stiffer stems than Mariposas generally they are satisfactory for use in the rock garden." [The author notes that *C. eurycarpus*, *C. greenii* and *C. nitidus* have proven hardy and persistent.]



## V. Conservation: Letter from R. McKenzie on Inbreeding

[Mr. McKenzie is a member from New Zealand--Ed.]

"I was interested to read the letter in the latest MARIPOSA, (IV,1 "Letter from L. Corbett-Grant") regarding inbreeding. I raised this same point in a letter to Mr. Charles Baccus several months ago. The reason I was concerned was because the paper by Dr. Ness et al. regarding subsection *Nixi* indicated that these species were outcrosses and that little inbreeding occurred, and hence inbreeding depression may well be a problem. Also, Mr. Baccus mentioned self-pollinating to produce nursery seed, and getting poor germination in some instances. Hence one might expect the plants resulting from habitat collected seed to have greater ingrowth than those resulting from nursery seed (particularly if self-pollination is used to produce it). I suggested to Mr. Baccus that it may be best to use different clones when producing nursery seed. It may also be a concern for species which, due to urban development, etc., are gradually being reduced to small isolated populations in the wild. **[The point is well taken, although recessive genes tend to be brought out more in isolated stands, which may include genes of interesting color forms. Isolated stands can also be quite vigorous, so may not pose a problem as much as habitat loss --Ed.]**

## VI. Letter to Mariposa

I find, with the exception of *C. plummerae* and *C. catalinae*, I have no difficulty germinating seed, but [I do have] difficulty getting them to grow long enough to produce bulbs. I have recently had *C. greenii* and *C. kennedyi* grow to about three inches (about 6.5 cm.) high only to collapse into pulp (damping off?) after one day of 20°C [about 68°F]. I am unsure as to why this should happen...

My local conditions are: (1) deep, rather infertile sand with little organic content unless amended. (2) Winter rainfall from May to September totals about 36" (about 78 cm.) per annum. (3) The minimum temperature is seldom less than 6°C (43°F) and maximum 20°C (68°F) in winter. Summer temperatures seldom exceed 41°C (105°F) for more than three weeks. Minimums during this time are seldom less than 20°C (68°F) --Ian Robertson, Greenwood, W. Australia

[Western Australia has a fine "Mediterranean" type climate, not unlike that of California, with wet, cool winters and hot, dry summers. As Martyn Rix has noted in his book *Growing Bulbs* the majority of the world's bulbs come from such areas. However, considerable difficulties attach to growing northern hemisphere spp. in the southern hemisphere: convincing seeds that have survived millenia by germinating in a certain season, and not being fooled by out of season rainfall, that it is the correct time to commence growth. *Calochortus* in particular do not like to germinate out of season, and the Australian winter is at precisely the opposite time of year as the Californian. Further, Mr. Robertson's area has the temperatures of S. California but the rainfall quantities of the north of the state. This enhances his difficulties, as it is warmer there than the northern species are used to, while it is wetter than the southern species prefer. I am surprised that he has had difficulty germinating *C. catalinae*, as this species germinates readily and opportunistically here, and tolerates our N. California rainfall far better than most: it should be an ideal species for his area. The difficulty with *C. plummerae* is more understandable, as it does not all germinate under cultivation, for reasons unknown.

In general, I would suggest treating the S. California spp., especially *C. kennedyi* or other desert spp., as spring growers. Withhold water until half way through the rainy season. This will give them about half the normal rainfall of the area. As these spp. don't germinate in their native range until mid to late winter anyway, (Jan.-Feb. in the Northern hemisphere), they won't miss the early winter rains. (In temperate areas they can even be treated as spring growers.) The desert spp. like a flush of late winter or spring runoff, to get them going, and then GRADUAL drying off until dormancy. **(Continued next issue.)--Ed.]**

VII. Species this Issue-- *Calochortus amabilis*, Diogenes LanternGenus *Calochortus* Key:A. Section *Calochortus*

1. Subsection *Pulchelli*—medium to tall, with narrow linear leaves; nodding, globose flowers, with strongly "arched" petals which may leave a narrow opening at the apex.

a. Sepals descending and not detached; gland arched, shallow; petals not fringed, hairy on surface

i. stems branched; petals overlap only slightly; gland membrane narrow; white to red

..... *C. albus*

ii. stems branched; petals overlap conspicuously; gland membrane wide; pink to lavender

..... *C. amoenus*

iii. stems unbranched; petals overlap only slightly; gland wide, capsule only slightly winged; pale yellow

..... *C. raichei*

b. Stems branched; sepals detached and moderately to conspicuously spreading; gland deeply depressed; petals fringed

iv. flowers form larger globes with slight petal overlap; moderately spreading sepals; petals hairy; gland a deeply depressed "knob;" lemon yellow

..... *C. pulchellus*

v. flowers form somewhat smaller globes with greater petal overlap at the apex; conspicuously spreading sepals; petals hairless; gland deeply depressed and "lunate;" deep yellow, some with reddish brown markings

..... *C. amabilis*

2. Subsection *Eleganti*

3. Subsection *Nixii*

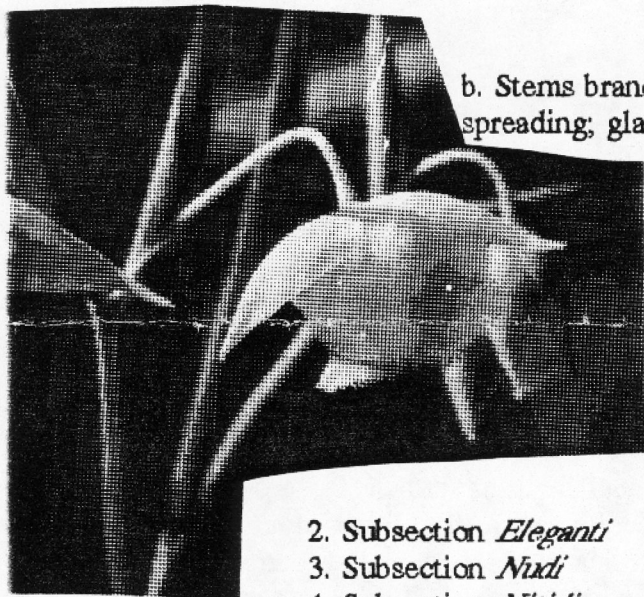
4. Subsection *Nitidi*

B. Section *Mariposa*C. Section *Cyclobothra*

"*Amabilis*" means 'lovable.' The species has also been called "Diogenes Lantern" and the "Golden Fairy Lantern."

**Range:** *Calochortus amabilis* grows at low to moderate elevations in the North Coast Ranges of California, from Humboldt and Trinity Counties in the north to Marin and Napa Counties in the south.

**Botany:** *C. amabilis* has been placed in the "pulchelli" subsection of section *Calochortus* by Prof. Ownbey in his Monograph. Its affinities with the other members of this section are readily apparent, with their relatively tall habit, and nodding globe shaped flowers, whose inwardly curved petals form a small opening at the apex. Due to the nodding habit, this apex appears to be at the 'bottom' of the flower, and pollinators can be seen entering the plant in the appropriate season by climbing up through the tiny opening. Perhaps the nodding habit protects the flowers from being washed out by late rains.





*Calochortus amabilis* is distinguished from other members of the section by range, color, gland shape and other characters. It is more northerly and west of the other fairy lanterns, although *C. raichei* is in part of its range. Unlike *C. albus* and *C. amoerens*, it is yellow. It is also distinct from these three by virtue of its deeper, more prominent gland, its fringed petals, and extended sepals. It is more difficult to separate it from *C. pulchellus*. Indeed, the great California botanist W.L. Jepson, following the earlier work of S. Watson, believed they were the same species. Purdy, Abrams, Ownbey, Munz, Farwig and Ness have upheld the distinction however. In general, *C. amabilis* is somewhat smaller than *C. pulchellus* with a more closed globe at the apex. Its sepals are more prominently extended, its gland wider and its color a deeper, more golden yellow. These characters may constitute only a difference of degree, with a range from the white *C. albus* with its descending sepals, to the deep yellow *C. amabilis* with its extended sepals and with *C. pulchellus* intermediate in these features. Indeed, as *C. pulchellus* occupies a narrow range exactly between those of *C. albus* and *C. amabilis*, it is at least imaginable that it is an ancient hybrid, or parent, of the two more common species to the north and south. *C. amabilis* is also generally shorter than the other species of the section, although there are many exceptions.

**History:** This species was separated by C. Purdy in 1901. Prior to his work, specimens of *C. amabilis* were treated as *C. pulchellus*. As noted above, not all botanists have accepted the separation, although it was viewed as a strong variety even by Jepson.

**Habitat:** *C. amabilis* occupies both the "digger pine" belt at the [western] edge of California's Sacramento Valley, and an even more western, coastal habitat whose most famous flora is *Sequoia sempervirens*, the giant Coast Redwood. It does not grow in the Redwood groves but in the same area. It generally prefers slopes, like its cousins to the south and east, and again like them, shade, although both Jim Robinett and I have seen exceptions. This area is wet, with thirty or more inches of rain per year, on average, followed by a dry, hot summer. Winters are cool but not frigid: USDA Zone 8-9. The plant endures temperatures as low as 10°F (about -12°C). The growing season is from mid-winter, when temperatures have risen enough from their December lows to be tolerable, to the April-May flowering and seed set, which roughly corresponds with the end of the rainy season. It is dormant from mid-June to November. Soils vary, but often contain gravel or rocks, which allow additional drainage. The slopes on which the plant is often found indicate that boggy conditions should be avoided.

**Horticulture:** Although this species will grow in UC Davis mix, it prefers an even more humusy, water retentive mix: up to two-thirds organic matter with one-third sand or gravel. Plenty of water during the growing season is recommended; the plant grows in areas with over one inch (2.2 cm.) per week. In a pot, one and one-half inches per week should be applied, as containers tend to dry out more quickly than the ground. The species adapts well to pot culture, but requires some depth: at least one gallon pots. In cold areas, they can be grown in an alpine house, an unheated greenhouse, although they are apparently fairly hardy, and will grow in frigid areas if planted late (Purdy/Bailey) or heavily mulched. Fertilizer works well, but manure not as well. The bulbs should be planted about three to four inches (6.5-9 cm.) deep, and kept dry during the summer. Shade is recommended, especially away from the coast. In the ground, a humusy soil works well with up to 50% organic matter amendment, whether of clay or of sandy soil. Growing the species from seed is somewhat easier than for species from drier areas; damping-off and mildew are rarely a problem.

In the landscape, small slopes or hillsides are an advantageous position for the species, especially under open conifers. The area must be dry in summer, or the bulbs should be dug, although they tolerate fog well. The species may prefer more sun in the East, where overcast is more common. Mulching during the dormant period may compensate for summer rains, as well as preventing premature autumn growth.