



I. Announcements

1. RENEWAL NOTICE

Another year has come and gone and with it the newsletter subscription is up for renewal again. The newsletter will still be \$8. domestic and \$10. for overseas. Please remit by July so you won't miss any issues.

Again, we will take currency from overseas, but the bank hits us with a "conversion fee" so please add 15% and be sure to send REGISTERED MAIL to insure delivery to us. Overseas members will have to determine for themselves whether this is a saving over converting at home.

2. CALL FOR PHOTOS: Members have written inquiries regarding whether we would publish photos of species which they have taken in the wild. While we cannot guarantee that every photo will be published, such photos would be welcome. If you have a photo you would like to share with the members, please submit it. As the species are covered in a cycle, in botanical order, it may be several years before we get around to your particular species. If you don't wish to give up your photo for a lengthy period, write us concerning whether or when your species will be covered, so we can arrange to have it at the appropriate time.

3. Although *Calochortus panamintensis* has been raised to species status in some recent treatments, I have come to the conclusion that it is not a species at all, but an outlying stand of *C. invenustus*. Although it is separated by the Owen's Valley from other stands of *C. invenustus*, it is not all that geographically remote from them and is virtually indistinguishable on morphological grounds from the more common species. This topic will be discussed more fully in an upcoming issue on *C. invenustus*.

4. For those of you who would like more information on growing a wide variety of California natives, we heartily recommend Louise Lacey's publication *Growing Native*. This publication covers a separate genus each issue and is written by persons knowledgeable in their field. Interested members can write Louise Lacey at P.O. Box 489, Berkeley, Ca. 94701

II. Trips: Pictures by Sunset, Camping by Moonlight, or 24 Calochorti in 9 days

(We hope the members have not wearied of Dr. Werra's account of "star tulip trek.")

Day 7: Then on to three days in Southern California. Surprisingly (?), Hugh's teenage daughter declined the trip and made other arrangements. And after the first day we knew why. It was a marathon starting in Northern California in mid-morning wending over hill and dale, ending near San Diego at midnight. Our first flower stop was on the dry chaparral hills above San Luis Obispo. These hills subsequently burned in a huge brush fire. Here we saw our first *Cyclobothra*, *Calochortus obispoensis*. It has a small, hairy, brown and yellow blossom that at first glance could be confused with a star thistle. However, it is quite unique close up. Growing up through the same chaparral was *C. clavatus*, the San Luis Obispo variety, an attractive, large, golden bowl with delicate brown markings.

For a while we couldn't find Marlene [Werra] and started shouting for her. Then she popped up out of the brush. She was shooting upward and backlit shots with her camera, closeup with the blue sky as the background. The slides came out beautifully, but she paid a price. Several ticks looking for a meal were plucked off that night before they could settle in.

Next to the mountains of Kern Co. and a special site of fantastic color forms of *Calochortus venustus* the numbers were scant this year, but quality made up for quantity. The colors ranged from brilliant red to maroon to port wine. Hugh and Karin scouted around for others while we photographed. Then a foray into Ventura Co. before the sun set to see the vermilion *C. kennedyi* in a sage meadow with the lavender *C. splendens*. We also searched nearby *ciénegas* marshy areas; the favored site for *C. palmeri*. We found one bedraggled specimen at sunset. Then the after dark hours are used to eat and position ourselves for the next day. In addition to ferreting out special *Calochortus* sites all over the West, his trip plan includes special relatively healthy fast food sites, campgrounds and Motel 6's. This night he introduced us to a delicious orange fizzy shake [at the Del Taco chain] which capped off a day of six *Calochorti* before a midnight lie down at Escondido.

III. Horticulture

"*Calochortus* Easier to Grow Than You Think!" [Third Installment by Member Norman Young, continued from last issue.]

"Like most bulbs, the seedlings are not potted on individually until the second year. If still very small, I take off the top layer of compost with the bulbs and replant them in a larger pot with a richer compost. Normally once you have got the seedlings past the first year, growing becomes easier. It is generally said that *Calochortus* should flower in four to five years from germination, but of the six bulbs of *C. barbatus* grown from seed, two have flowered after two years and I shall be surprised if the other four do not bloom after three. All the species I grow set seed in this country, some in quite large quantities and all seeds and seedlings are grown in cold frame with no other protection. Some species produce small bulbils where the leaf meets the stem; these can be grown like seed and probably cuts the time to flowering by a year. I read recently that all *Calochortus* multiply by bulb division and I think that everybody who grows them wishes they did, but with me only four do: *C. simulans*, *C. albus* var. *rubellus*, *C. venustus* and *C. uniflorus*, all easy ones with which to start. Hopefully because of this, I will be able to try some in the garden next year--as long as not too many have been given away!

"*Calochortus* can be grown with a reasonable amount of success if treated like other bulbs in pots, potted in the autumn, watered, etc. I use clay pots plunged in a greenhouse or frame. In the past an ericaceous mix with added grit was used but now the compost usually consists of J12, peat, grit and this year's bark; none of the variations seems to make the slightest difference, at least to the easier species. The bulbs are spaced about one inch (2.2 cm.) apart half way down the pot, although the Americans use much bigger pots with 4-5" (9-11 cm.) between the bulbs. I sometimes wonder whether our pot sizes, bulbs and plant spacings are influenced by shows as judges seem to like them clumped together. While we are on about shows, a note for some judges who should recognize that by the time some *Calochorti* flower, the foliage is always looking decidedly 'tatty'."

[Cont. next issue]

IV. The Horticultural History of *Calochorti*

[Seventh Installment of the Lengthy Article by Alan Chickering from 1938]

"*Calochortus venustus*, on account of its many strains and varieties, is perhaps the most baffling to describe of all Mariposas. As originally found by David Douglas and sent to England more than a century ago, it had the blotch, usually pink or red, at the tip of each petal. This strain is found through the inner Coast Ranges, according to my experience from the Mt. Diablo region to Los Angeles County. In the Mt. Diablo region it is occasionally yellow, but the terminal blotch persists. [In San Luis Obispo Co.] many specimens are a lovely pink and the same condition is said to exist...in Los Angeles Co. In between occur many variations. In the Tehachapi Mountains we find this species pure red at times...In Kern County, the plants are almost all colors including some pure red...I have had bulbs from [different]...places and all have done well. I have saved all my seeds as far as I could. In spite of hindrances, I have succeeded in growing a good many flowering bulbs with entire success. A few will

flower in three years and many in four years from the time of planting. I have grown them in a soil composed of adobe [clay] 2 parts, sand 1 part, and gravel 1 part. The red, purple and pink strains from the Tehachapi Range do not mildew. The strain of *C. venustus* from the Mt. Diablo region, on the other hand, does not last with me and does mildew...However, they grow quite readily from seed...Some of the red ones from the Tehachapi Mountains are silver colored on the outside and pure red within. They are very lovely.

Before we leave the Coast Range, I note the strain or variety known as *Calochortus venustus* var. *purpurascens* [*C. argillosus* ed. In addition to] the purplish-pink strain...The name is usually applied to a very lovely variety which is glossy purple, or brownish purple, on the outside of the petal and white within [Bay Area form-ed.]. It has no blotch at the tips of the petal but has a marked and well defined eye at the base, reminding one of a peacock's tail feathers. This variety is found in colonies in widely scattered regions...It may usually be found in a soil composed of a gray-colored clay, containing blue friable rocks, which cracks when it dries. It is usually accompanied by a grayish-green bunch grass. The site in which they grow is so characteristic that I have been able to expect them when seeing such a place from a distance and before any flowers were in sight. This variety is a late bloomer. It comes into bloom in late June and blooms into July. I have had them in bloom as late as August. It is one of the best of all Mariposas to grow in Piedmont. I never had but about two dozen bulbs to start with, and that at least fifteen years ago. I have never had to grow seeds in boxes. It has kept its own supply coming along and has increased. This variety will stand more dampness than most and it also propagates itself by little offset bulbs in addition to seeds. I am now satisfied that our Piedmont adobe soil is well suited to it. For this region it must be classed as one of the best." [Cont. next issue]

V. Conservation: Report on *Calochortus greenii*

I had spotted very few *C. greenii* during previous years on occasional trips to Northern California. In order to investigate the rarity of this species, I decided to hunt for it in a wet year, 1995. Previous visits to its range had been during dry years, and I was unsure whether this was the cause of the meager number of blooms I had spotted. Also, I had not set about looking for the species systematically. Accompanied by my wife, and Dr. Tom Patterson, a botanist from the University of Wisconsin, we drove up and looked in Siskiyou Co. and the next day Jackson Co., Oregon, the two known locales for the plant. Following the leads of others, we were able to cover all the known sightings.

I am happy to be able to report that the species is not in as bad shape as I had, in pessimistic moments, imagined. Although any species known from a limited portion of two counties must be considered intrinsically rare, it is not as rare as I thought. I had previously believed the plant might be down to as few as 500 plants, but found over 2000 in bloom, scattered across the two counties in multiple stands. Thus there are more than this number in the range, as the immature plants were not counted. The overwhelming majority were in California; only about 50 were in Oregon. It is appropriate, then, that the species be kept on the CNPS "watch list," as it is not as rare as, for example, its sister species *C. persistens*. Nor do most of its stands seem to lie in the path of development, and the grazing in the area has not, so far, wiped them out.

VI. Species This Issue: *Calochortus nigrescens* (Ownbey)

(For the key to the *Barbati*, see Mariposa, Vol. IV, #1, 7/92)

Calochortus nigrescens, the Black Mariposa, was named by the late Prof. Ownbey in his 1940 monograph. The name no doubt refers to the extremely dark color of the petals, which are almost black. In the one place in which we were able to locate the plant, the locals did not have a name for it, and, indeed, seemed unaware of its existence.

Range and Habitat: This species is known from only three collections, and two of these are recent collections, made in the same area of Oaxaca. The original collection was from somewhere in Puebla state at a location I have been unable to find on any map. Fortunately, some Mexican botanists found the Oaxaca plants and we were able to see and photograph them. The plant is probably quite

rare, then, as it has been collected from only two locations in two states. The habitat at the one place we found the plant was a wetland surrounded by a fairly dry area. The drylands are in a leeward pocket formed by the meeting of the eastern and southern mountains. The mountain on which the *C. nigrescens* grew was, however, high enough to catch some of the rain which made it over the peaks to the east and south. The stand was on the north facing slopes of this mountain at about 7250-7450 (about 2350-2450 m). The plant was in two sub-habitats in this area, viz along water courses but not in them; and also in a meadow away from the water courses. The soil along the watercourses was wet at bloomtime, as was the meadow soil. The latter area was in sun but along the watercourses the plant was under at least the partial shade of oaks and shrubs. Along the watercourses, the soil was scabby and the plant grew in mulch pockets; in the meadow grazing took place and the plant seemed less common. The flowers were in bloom in the meadow, but in seed lower down along the watercourses (early October). The climate is cool at such an altitude in winter, although probably too far south to become cold. Summers are hot, but not severely so. Rain is scarce in the area, and the plant may have a restricted range because it grows in the competitive area near the watercourses, although we also found it in a nearby meadow in smaller quantities.

Botany: Ownbey separated this species based on a single, old herbarium sheet in which *Calochortus nigrescens* was placed with *C. pringlei*. This shows what a trained and careful investigator can do with just a herbarium. Ownbey not only picked out a distinct species which was inadvertently placed with another, he did this with a sample which had been collected over thirty years before, and with a "depauperate specimen." Ownbey noted in his comments that this species has "no close allies," although he placed it with the *Barbati* subsection of section *Cyclobothra*. As we noted in *Mariposa*, Vol. IV, #3, from 1/93, there are problems with such an assessment. *C. nigrescens* is one of the group of Mexican *Calochorti* which falls in between subsection *Barbati* proper and subsection *Purpurei*. It has the bearded petals of the former subsection, but the leafy stems and greenish sepals of the latter. Along with *C. balsensis* and *C. spatulatus*, it seems to belong in an intermediate group which combines certain characteristics of the two subsections. This includes the amplexicaul stem leaves, which are quite wide at the base where they meet the stem and also significant bulbil production where the leaf meets the stem. The latter characteristics are typical of subsection *Purpurei*. However, the group which includes *C. nigrescens* also has petals with hairs across most of the inner surface, a character they share with subsection *Barbati*. Thus they are best placed in a new and intermediate subsection which is between subsection *Barbati* and subsection *Purpurei*.

Calochortus nigrescens has the fibrous-reticulate bulb coat, the flattish leaves and the autumn blooming habit of the other Mexican bells. Its wide leaves and nodding habit separate it from subsection *Ghiesbreghtianii*, while the characters which separate it from the *Barbati* and *Purpurei* have been discussed above. It differs in range from all except *C. pringlei*, and in color from all other species in the family. It has been described as "almost black" by Ownbey, but is nearer to a very dark maroon or a very dark purple. (In the village below the mountain, I asked the locals what they thought the color was; they replied "violado" although I thought it rather a very dark maroon.) On some plants the sepals are the same dark color as the petals, but on others the sepals are green. The species differs from *C. balsensis* in habitat, range, color and in the shape of the nectary. *C. nigrescens* is a tiny plant, whereas *C. balsensis* may have the largest blooms in the family and is a large plant in general. From *C. spatulatus*, the Black Mariposa differs in range, habitat, color and in nectary shape. Again, *C. spatulatus* is larger and also produces many more bulbils than *C. nigrescens*. However, *C. nigrescens* does produce leaf axil bulbils in fair quantity, usually fifteen or more per plant per year, at least under cultivation.

Horticulture: This species has done fairly well under cultivation, both in Hayward and in Berkeley. The flowers of some plants bloom every year, while the offsets and the seed have shown a slow increase. I grow it in standard UC Davis mix with "Bulb and Bloom" fertilizer. In one pot I also mixed a small amount of lava rock in as substitution for a portion of the sand; the plants did well in this mix also, but no better than in the regular mix. As it grows in both full sun and part shade in the one locale where we encountered it, I have it in part shade for part of the day and sun for the rest, and it seems to thrive. A summer grower, it blooms in September, and sometimes earlier. It may be hardier

than most as it is from 7500', although this altitude is in southern Mexico, so it probably does not freeze. The species tolerates some winter water, probably because it grows near water courses, and must endure occasional out-of-season water. However, it also tolerates winter drought and is probably best kept dry from October to May. [All photos by H.P. McDonald, except *C. nigrescens*, inner which is by Bob Weller.]

*C. barbatus**C. nigrescens* --in seed, in habitat*C. nigrescens*