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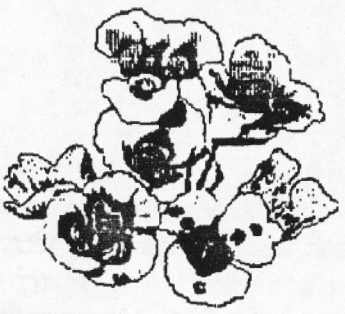


THE *CALOCHORTUS* SOCIETY NEWSLETTER

APRIL, 1992

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

* * * DUES NOTICE! * * *

Once again, it is time to renew subscriptions for the July 1992-April 1992 newsletters. For USA addresses, the cost is $3.00/year. Overseas addresses require US$5.00 **(International Money order recommended).**

NEW SPECIES!

Two new species of *Calochortus* have been discovered recently, both from Mexico. The first is a large, graceful, yellow nodder from the tropics. This is *C. balsensis* **García Mendoza,** and it is described in the second edition of **SIDA** 1991, with an additional article in the February 1992 edition of the same journal. We first became acquainted with the author when he wrote us to join the **American *Calochortus* Society.** M. en C. García Mendoza, head of the Botanic Garden at **UNAM** in Mexico City, not only studies *Calochortus* in herbaria and in the field, but he grows them as well.

The second species is *C. ownbeyi* **(ined.).** Your editor and Mr. Bryan Ness hope to have a description readied soon. This species is not unlike *C. venustulus*, but differs in a few key ways. It was originally brought to our attention by Sally Walker of **Southwest Native Seed** in Tucson, Arizona.

For our members in Southern California:

Rancho Santa Ana Botanic Garden is sponsoring a symposium, "Out of the Wild and Into the Garden," April 30-May 2. **Stan Farwig** and **Vic Girard** will be discussing "The Genus *Calochortus*" with a slide show on Thursday, April 30. For more information, you may contact **Lorrae Fuentes,** Symposium Coordinator at **(714) 625-8767** or **(714)626-1917.**

WELL WORTH SEEING !!

II. Trips

We had recently left our beloved California, sneaking into Nevada to stalk the elusive *C. nuttallii* in the Clark Mountains. Here it was, in late May, yet we found plenty of snow in those Alpine mountains. Unfortunately, the lovely sego lily was not yet in bloom.

We crossed Nevada on the way to Utah, on Interstate 15. This route travels through Las Vegas, a place we were not anxious to see, having seen Reno. Someone must have taken pity(?) on us, because we found ourselves in a dust storm just outside the city limits. For those of you who have never been in one, imagine driving through a dry, brownish fog. If you look closely at the hood of your vehicle, you'll see sandy dirt blowing over it. In fact, you'll see little else.

Just over the border, a sudden rain settled the dust, and we could see the gorgeous scenery of the Virgin River Valley in NW Arizona, with its unusual rock formations. We then passed into Utah, a state known for its breathtaking canyonlands. We saw wonderful red rock formations throughout this area. One can't help getting a feeling of just how ancient the earth is, while looking at these stark and strangely haunting rocks, as they rise up out of the ground, towering majestically.

We stopped in a place called "Utah's Dixie," by the locals, because it rarely freezes, and the clay is a bright red, reminiscent of Georgia. We changed the air filter in our car and tried to find out if the locals had seen *C. nuttallii* anywhere thereabouts. Not only did they not know where we could find our sego, but they didn't seem to know their own state flower! Even the grizzled forest ranger, guarding the huge sandstone sculptures topped with either boulders of basalt or juniper fields, did not know where to find it. This surprised us, since she seemed to have spent her life outdoors, with her leathery skin and trim build.

Exploring on our own, we found *C. flexuosus* and *C. nuttallii*, both growing in clay soil, with sagebrush, in

meadows near junipers. In fact, *C. flavus* was almost a weed in the southwestern part of Utah! The *C. nuttallii* was quite striking. The outside had thin red striations on the petals, with a darker color on the sepals. The blooms were very large and upright. The petals seemed a bit longer than those in the *Venusti* subsection. Inside, they had the characteristic dark "mustache" of *C. nuttallii*. In one place, we found not only these two, but the golden *C. aureus* as well. What a sight that was! Sagebrush, desert globe mallows, native bunch grasses, and three kinds of *Calochortus*, all growing *ensemble*, in a brick-red clay meadow, bordered by the deep blue of distant mountains.

There are a variety of ways one can travel while looking for *Calochortus*, and we had decided we would return on a later trip to explore the rest of Utah more extensively. Meanwhile, we headed south into Arizona....

III. Germination Tests--7th Installment: UK Conditions, wet temperate climates--by Steve Keeble

[One of the many joys of putting out this newsletter is the volume of correspondence we receive from every corner of the globe. It is heartening to know there are adventuresome gardeners, willing to try their hands at *Calochortus*, even in climates little resembling native habitats. Steve Keeble not only observed the germination of a variety of species in his native England (U.K.), but he was willing to share that information with the rest of the ACS members. His article will be presented in two installments.--Ed.]

The method I use is to sow into 2.5" square plastic pots, 15 of which fit nicely into a standard seed tray. Compost is loam based (JI No 2), mixed with an equal quantity of 1/8" lime free grit. The pot has about 1/4" of grit at the bottom. Seed is sown onto the surface of the compost and covered with 1/4" of the grit. The pots are placed outside, without shelter. Normal rainfall provides initial watering and is usually sufficient up to mid-March, when twice-weekly watering will become necessary in the absence of rain. When germination occurs the pot is taken into an unheated greehouse. All vents remain open unless severe frost is forcast, *i.e.* less than -5°C. (I sow seeds of all hardy plants excluding Ericaceae this way with good results. Only the depth of the grit top dressing varies).

The bulbs are repotted when dormant during their first summer. The top layer of soil from the old pot is placed on top of the new, to catch any delayed germinations. This provides the opportunity to count and record the number of bulbs.

LOW ALTITUDE CALIFORNIANS do not require any chilling. If sown during fall they may survive through the winter, but since particularly good results have been obtained from spring sowing there seems little point in taking the risk. *C. clavatus* and *C. simulans* have produced particularly large bulbs in their first year.

MEDIUM ALTITUDE PLANTS *(e.g., C. vestae, C. venustus, C. superbus, C. albus)* have germinated well from sowings from November through to March. They do not seem to germinate prematurely. The best results have been from the earlier sowings, but this may be due to fresher seed. *C. superbus* and *C. splendens* surprised by germinating prolifically under melting snow at the end of a week which commenced with -10°C without snow cover!

HIGH ALTITUDE PLANTS certainly require considerable freezing. *C. tolmiei* in particular remained dormant through winters with -5°C frosts but was triggered by -10°C. *C. lyallii* and *C. eurycarpus* have failed to germinate from a March sowing, which suggests similar requirements. The problem is obtaining fresh seed early enough for early sowing. Jim Robinett is the only supplier I know who dispatches seed before winter, consequently superb results were obtained from all his monocotyledonous seed this year. From other suppliers, spring sown seed might benefit from deep-freezing, but I have not tried this.

DESERT *CALOCHORTUS* have germinated well from a spring sowing. *C. kennedyi* from Sally Walker gave very good results. I suspect fall-sown seed would germinate early and be troublesome to obtain.

MEXICANS are unpredictable. *C. barbatus* has been observed to germinate in June and October from a March sowing. On both occasions this followed a spell of dampl, cool (15°C) weather. Another unidentified

species germinated quickly from a March sowing.

IV. The Horticultural History of *Calochortus*-10th Installment

Roundtree, Lester; **Hardy Californians**; New York: Macmillan; 1936. **[As we mentioned last issue, there was great interest in *Calochortus* during the 'thirties. Ms. Roundtree's article is therefore quite extensive, making it necessary for us to bring it to you in several installments. Because she, too, wrote before the completion of Ownbey's Monograph, we have edited out botanical inaccuracies.--Ed.]**

"...The genus *Calochortus* has in it some of California's most aristocratic flowering bulbs, although it pains me to hasitly add that some of the best of them are not hardy and must therefore go without any detailed encomiums at present. (I find that the rather questionable epithet "Swell" appears oftener in my notes on Calochorti than in those on any other genus.)

The narrow linear leaves of the Calochorti add little or nothing to the general effect. Their only use is as a means of getting the virtues of the light and air to the seedling bulbs and of furthering the interests of the blooming bulbs during the early part of their growing season...

In writing about these tulip-like Mariposas no one description is going to fit even all the flowers of the same species. They run a delightful gamut of color arrangement, some taking to blotches while others favor streaks and flushings and even achieve entirely different colors...

The *Mariposa*-form Calochorti have numerous varieties and unfixed natural hybrids. Many of these and the best ones, grow in southern California and although they are mountain varieties they may not be hardy in colder regions...

It is a matter for speculation how much the soil has to do with this **[the variations of colors seen in *C.* venustus--Ed.]**. A dry stony open foothill slope will have flowers in one color scheme, a light sandy soil another and an alkaline field still a third. Or on one hillside an entire colony will be light with large dark blotches, while on the same slope will be rifts and big patches of deep red flowers with their markings much less conspicuous. Is this the bulb's reaction to ingredients in the soil? It looks very much like it,--but the soil is desperately hard and the bulbs grow unbelievably deep and it takes more strength than I possess to dig up bulbs in each clump and examine the soil they grow in. From varying sources come the encouraging reports that one of the easiest Mariposas to grow is *C. venustus*. Its amenability to differing soils may have something to do with this...

There is a sylvan and unfettered grace about the Calochorti with nodding flowers which the more radiantly colored Mariposas do not have. A hillside of them gives the same inspiring lift which comes from the music of a choir of boys' voices. These flowers have an aesthetic beauty due partly to their delicacy of form, partly to their exquisiteness of texture. They are mainly plants of the central and northern Coast Ranges and Sierra foothills though each has its own geographical area...

The leaves of this group are very much in evidence and are a shining green, the basal ones lanceolate and long, the stem leaves shorter.

It will please you to know that all three will grow together in the garden. A slope in partial high shade containing humus or rich light earth with some shale or broken stone in it exactly suits their aesthetic as well as their physical qualities. The sight of them in bloom will be enough to lift you out of the deepest depression.

But they come under the tiresome heading of "Hardy With Care" so if you live where the winters are severe bear this in mind...

Calochorti are so little used anywhere, even in their native California, that the matter of their hardiness has not yet had a chance to be definitely verified and established, nor will it be until growers in cold countries make their reassuring or deterring reports known to the less venturesome gardeners. They are not very permanent bulbs in the garden, even when undisturbed and growing happily.

Bear in mind that all California Calochorti...should be kept from drying out during the growing period. After that they should be dry while the bulb is maturing. The leaves generally give the signal for rest

by beginning to wither.

Seeds of the Calochorti are sometimes slow to germinate and the seedlings do not bloom until the end of the third year. In growing any bulbs from seed it is best not to disturb them for the first two years at least,--do not be too fussy about taking out all the small weeds as well as the large ones and be careful not to disrupt the soil more than necessary...

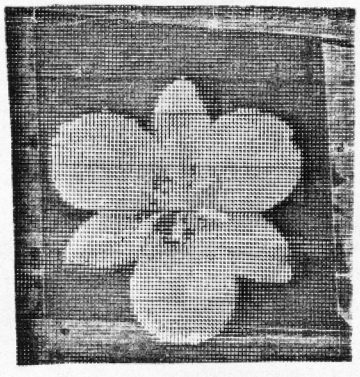
seed pans or in flats, using an open sandy soil with some leaf mould and peat. Put seed of only one species in a flat, remembering its habitat and regulating the proportions of sand to peat or sand to leaf mould accordingly.

Native California bulbs may seem pretty snug and secure in their earthy nests but they have more to contend with than you would suppose. When the commercial bulb digger overlooks them there is a gopher. He stores up some species by the hundred. Also it is a distinctly annoying experience to come across a California Thrasher howking **[sic]** out your best bulbs..."

V. Conservation--Update

We were delighted to receive a call not too long ago from the San Luis Obispo Fish and Game. They were considering several species of *Calochortus* for federal protection, in response to letters we had previously written to the **CNPS**. We would like to thank the **California Native Plant Society (and especially Mark Skinner)** for their assistance in requesting that the following species be included in the new edition of the Inventory, the first step toward federal listing as rare and endangered: *C. plummerae*; *C. vestus* (**aka** *C. weedii* var. *vestus*); *C. weedii* var. *intermedius*; *C. panamentensis* (updated from a variety to a species); *C. palmeri* var. *munzii*; *C. palmeri* var. *palmeri*; and *C. umbellatus* is updated to **1b**--candidate for rare and endangered.

VI. Species This Issue-- *Calochortus venustulus*



***C. venustulus*: Habitat; Actual Size--Original Photographs by H.P. McD**

Genus *Calochortus* Key:

A. Section *Calochortus*
B. Section *Mariposa*
C. Section *Cyclobothra*
1. Subsection *Weediani*
2. Subsection *Ghieshreghtiani*: rarely bulbiliferous; cauline leaves narrow, linear; petals hairy only below the middle of the petal.
a. No leaf axil bulbils, oblong gland, parallel not transverse, yellow/white flowers with red spots at base of petal hairs, petal hairs cofined to near base of petals
..... *C. venustulus*

b. Rarely bulbiliferous, sagittate nectary,flowers dark red. ..... *C. fuscus*
c. Rarely bulbiliferous, nectary obscure or lacking flowers white/yellow-white with yellow hairs, sepals pink-red on exterior. ..... *C. exilis*
d. Rarely bulbiliferous, horseshoe-lunnate shaped nectary, flowers white, most with red hairs at base around nectary, petal hairs more conspicuous. ..... *C. ghiesbreghtii*
e. Cauline leaves small, short; very bulbiliferous in cauline leaf axils; flowers white with white hairs to middle of petal. ..... *C. ownbeyi* **(ined.)**

3. Subsection *Barbati*
4. Subsection *Purpurei*

Range: This species occurs on the eastern slopes of the Sierra Madre Occidental of Mexico. It grows from Chihuahua to Mexico (estado).

Botany: *Calochortus venustulus* is perhaps the most common sp. of subsection *Ghiesbreghtiani.* In the last edition of **MARIPOSA** it was mentioned that section *Cyclobothra* has four subsections, three of them entirely Mexican. The ghiesbreghtiani, in which *C. venustulus* has been placed, is the first of these which will be covered. This subsection has not, unfortunately, been tested genetically, so the chromosome count of *C. venustulus* is not presently known.

Subsection *Ghiesbreghtiani* is distinguished from the weediani by range, growing season, generally smaller flower size, and smaller, less depressed glands. It is distinguished from Subsection *Barbati* by its generally smaller flowers, which are invariably upright rather than nodding, and the greater rarity of leaf axil bulbils. The flowers of Subsection *Ghiesbreghtiani* are less ciliate than those of Subsection *Barbati* as well, and the ''hairs'' are confined to the lower half of the petal. The ghiesbreghtiani are distinguished from subsection *Purpurei* by their erect, not nodding flowers, generally smaller size, narrower leaves, rarity of leaf axil bulbils, and habitat.

C. venustulus is distinguished from the other species of the subsection by range, color, nectary shape, and still other features. From *C. exilis* it is distinguished by its yellow flowers (although white specimens have been reported), range, and in the presence of an ocular shaped nectary which is parallel to the petal, rather than transverse. *C. exilis* is white, and is entirely without any nectary formation. From *C. fuscus*, *C. venustulus* is distinguished by nectary shape, range, and color. From *C. ghiesbreghtii*, *C. venustulus* is distinguished by nectary shape, range, color, and in its less ciliate petals. From *C. ownbeyi*, it is distinguished by the lack of bulbils, larger cauline leaves, nectary shape, and less ciliate petals.

Calochortus venustulus, not to be confused with *C. venustus*, is a relatively small plant, which grows in the broken shade of upland conifer forests in gritty-organic soil pockets in otherwise scabby areas. Its associates include Pinus, *Quercus*, *Arctostaphylos*, *Tigridia* and bunchgrasses. The Tarahumara Indians of Mexico call it ''secate.''

History: This species was named by Greene in 1888. Ownbey subsumed a later taxon, *C. madrensis*, into *C. venustulus* in his monograph. A recent attempt to separate the species by size into different varieties was proposed by Reveal and Hess. It is inevitable, however, that a species with so great a range should exhibit variations in size. Other *Calochortus* sp. from montane areas, *e.g. C. leichtlinii*, exhibit even greater variations in size.

Horticulture: This is one of the few truly temperate sp. of *Calochortus* from Mexico. In its native range it is hardy to 0°F (-18°C), and grows where it snows in winter. The sp. receives from 18-30'' (about 40-60cm.) of rain per year. The rain pattern is the reverse of that of California: the winters are very dry, but the summers are wet.

The species responds well to our standard UC Davis mix (1/2 SP Moss, 1/2 sand) or UC Davis soiless mix, with a complete bulb fertilizer, and a once per week watering or rainfall of one inch (2.2cm.) from mid-June to mid October. Part shade is advised. Although *C. venustulus* does not receive much winter rain in its native habitat, it tolerates winter rain. This makes it a good species for temperate area rock gardens. Six bulbs to a one- gallon pot is sufficient. The seeds do not require cold to germinate, as the species is a summer grower, blooming in late summer to early autumn.