



C. splendens

MARIPOSA

the newsletter of the *CALOCHORTUS SOCIETY*

Vol. XIV, No. 1 (July 2002)

c/o Robinett, P. O. Box 1993, Brookings, OR 97415-0052 USA

Greetings ... SEND YOUR SEEDS FOR THE EXCHANGE !!

The potential for seed collection was not very promising in the south this year. So my time – which was limited by a cruise to Alaska and a trip to show friends some of our native West Coast *Lilium* – went to seed collection in the north. I have collected seeds of *C. nudus*, *C. syntrophus*, and *C. umpquaensis* (both the latter had outstanding seedsets this year); and I'm hoping to add a few more later-blooming species before the season is over. If you have other seeds to add to the list, **please send them by September 15th** for the October issue listing. I encourage the use of a padded or “bubbled” envelope or a small box, to protect the seed from damage in the mail.

Species of the Issue – *Calochortus obispoensis*

Background – *Calochortus obispoensis* was first published in 1886 by the pioneer California botanist John Gill Lemmon, in the *Botanical Gazette*, Vol. 11, p. 180. But Bailey reduced its status to *C. weedii* var. *obispoensis* in 1900 (*Cyclop. Hort.*, Vol. 30, p. 633 – including an excellent drawing of the flower, reproduced on the next page). Purdy concurred, in his “Revision of the Genus *Calochortus*” (*Proceedings of the California Academy of Sciences*, 3rd Series. Botany, Vol. II, No. 4, p. 133). However, Jepson re-elevated it as a species in its own right in his original *Manual of the Flowering Plants of California* (University of California Press, 1921, p. 236). Abrams supported it as a separate species in his *Illustrated Flora of the Pacific States* (Stanford University Press, 1923, p. 446, with another nice drawing, also reproduced on the next page). And all authors since (Ownbey/1940, Munz/1959, etc.) have concluded that *C. obispoensis* deserves recognition as a separate species.

Description – Surely one reason for giving it full status as a species arises from its unusual appearance. Bailey described it as “Odd and bizarre.” While reducing it to a var., Purdy offered more detail –

...the flowers assume a most fantastic form, the brownish petals being so much truncated that the sepals far exceed them, and the hairs which are scattered in typical specimens here seem to be condensed upon the small remaining surface of the petals.

Jepson wrote –

...sepals 1/3 to 1/4 longer than the petals; petals ovate, acuminate [gradually narrowing to a point-*Ed.*], the tips generally black and fringed with long black hairs; gland circular to oblong, enclosed by a dense ring of very long orange hairs, the surface naked or bearing a very few scattered hairs...

Ownbey added one masterfully understated note –

From Bailey, *Cyclop. Hort...*

Its greatly reduced, profusely bearded petals give *Calochortus obispoensis* a curious appearance quite unlike that of any other species of the genus. It is closely allied to *C. weedii*, but this affinity is evident only after close examination (*A Monograph on the Genus Calochortus*, 1940, p. 520).

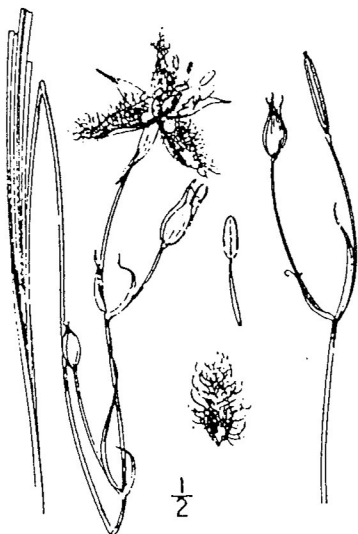


Years ago, Stan Farwig told us of a description Jim and I always considered wonderfully apt – “three glands in search of a flower.” The petals are often virtually invisible behind the relatively large brick-red glands, the golden-orange hairs surrounding the glands, and the petal tips fringed with long dark-brown-to-black hairs.

Another aspect of this relatively small species’ striking appearance is its capacity to produce a great many flowers when circumstances are favorable. *Calochortus obispoensis* occurs in a part of the world where rainfall is usually limited (an average of 10 inches or so annually), and like many *Calochortus* (and other geophytes) it displays an apparent “preference” for poor soils, because it has evolved to preserve nutrients in its bulbs and is therefore better adapted than many plants to survival in nutrient-poor circumstances. Most years its inflorescence is modest, as a result of low moisture and limited available nutrients. As a consequence, most authors have described its inflorescence with phrases like “flowers usually several” (Abrams), “inflorescences usually 2-flowered” (Ownbey), “flowers 2 to several” (Munz). But when unusual conditions occur...it is another story altogether.

During the winter of 1994-95 there was a very bad fire on Cuesta Ridge, north of San Luis Obispo, which burned much of its shrubby, scrubby chaparral and grasslands to the ground. The fire was followed by above average rainfall, soaking the soil and replenishing it with nutrients (mostly potassium) from the

ashes. As a result, when Jim and I visited the ridge in April 1995, we found not the hundreds of the *C. obispoensis* we were accustomed to seeing there, but thousands. And what plants they were! – taller than usual, many branched, with many flowers – 15, 20, or more. On one plant we counted 34 buds, flowers, and seed pods forming! Jim described them as looking like “little Christmas trees,” with their grey-blue-green foliage and flowers of yellow, brick-red, golden-orange, and brown-to-black parts. (The only thing we had ever seen to compare with this was during a visit in 1993 to the El Dorado National Forest, in El Dorado county, after the huge fire on Peavine Ridge. The following summer revealed that there were many thousands of *C. clavatus* var. *avius*, a subspecies previously believed to be all but extirpated. But in 1993 the Forest Botanist estimated more than 20,000 plants on one site alone. We found one bulb that seemed to be in the process of splitting, double-stemmed, with 47 buds, flowers, and green pods forming. See the *Readers’ Forum* letter from Geoff Burleigh, this issue, for a similar experience with *C. catalinae*.)



From Abrams, *Illustrated Flora...*

Calochortus obispoensis -



Habitat and Distribution – *Calochortus obispoensis* is, as its name implies, limited to San Luis Obispo county, ranging from near Arroyo Grande on the south, through See and Prefumo Canyons southwest of the town of San Luis Obispo, to Reservoir Canyon east of town, to Cuesta Ridge on the north. It is found in coastal scrub and chaparral and open grassy areas on hillsides and ridge tops, usually on serpentine-derived soils, and it generally blooms from late April into June (the later dates apply on Cuesta Ridge, which is directly exposed to the coastal fogs and winds, and where it occurs mostly at 2000 feet and above). Ownbey does record one July 4th bloom date for upper Reservoir Canyon. The 6th edition of the California Native Plant Society's *Inventory of Rare and Endangered Plants* (Sacramento, CA: CNPS, 2001) lists its altitude range as 75 to 730 meters (250 to 2400 feet). Given the oddity of its appearance, it may be a plant that only a *Calochortus* "freak" can love (or perhaps a *Fritillaria* "freak" also?). In any event, its peculiarity makes it worth seeing if you have not yet done so.

Risk – The 2001 California Native Plant Society *Inventory* lists *C. obispoensis* with an "R-E-D" code of "2-2-3" [**Rarity** = "distributed in a limited number of occurrences" – **Endangerment** = "endangered in a portion of its range" – **Distribution** = "endemic to California"]. It has not, however, been proposed for listing as a rare and endangered species under either state or Federal regulations, being considered "too widespread and/or not threatened" to justify listing. In spite of its "2-2-3" R-E-D code, it is probably relatively safe at this time in most locations. The Arroyo Grande, See Canyon, and Prefumo Canyon sites are threatened to at least a degree by new housing development; but Cuesta Ridge and upper Reservoir Canyon are largely undeveloped and likely to remain so for the foreseeable future.

Cultivation – Given its CNPS classification, we had never collected seed of it. After seeing the enormous display of flowering plants at Cuesta Ridge in 1995, however, Jim contacted the Forest Botanist of the Los Padres National Forest, and requested permission to secure a small seed sample. Many weeks passed, with repeated phone calls to the Forest Service office. When we were finally told, "No," it was much too late to collect seed anyway. However, a few hobbyists and horticulturists have been growing it, from seed obtained many years ago. In the event seed from these sources comes your way, I would guess that cold stratification would not be necessary to produce germination. Most of the *C. obispoensis* sites have coastal exposure (i.e., to cool, relatively moist winds in summer); so while one should stop watering as soon as the leaves start to yellow, the young plants would probably tolerate some humidity in all but the hottest weather. Use of a gritty, well draining mix is always wise with *Calochortus*. And see the article by Diana Chapman in Volume XIII, No. 3 (January 2002) of this newsletter for good general horticultural advice.

Germination Data from Chuck Baccus

Chuck Baccus has provided us with some results from his experiments with germination of seeds. He has actually tested species from a number of genera, but here confines his data to *Calochortus* seeds; and specifically to seeds obtained from the annual seed offerings through *Mariposa*. (He hopes to make all his results from many years of testing, including seeds of other genera and from other sources, available soon on a web site.)

Readers should bear in mind that Chuck's experiments were conducted at low elevation in Santa Clara county, at the south end of San Francisco Bay, where rainfall averages less than 20 inches a year, and where winter temperatures are usually mild and summer temperatures often quite hot. Chuck's site is inland behind the outermost ridges of the Coast Ranges. Fog does provide some relief from summer heat, but occurs less frequently than it does along the coast.

Germination trial results – Each set of seeds was arbitrarily planted into 1 to 3 boxes. Seed was divided to compare mixes (see below for the different mixes used); as well as to contrast the results of treatment (cold stratification for one month prior to planting) -vs.- no treatment. “Some”, “many”, “unknown”, or a blank cell means no formal count was taken. Long-term results are not yet in.

Species	Date planted	Date emerged	Treatment	Mix used	No. of seeds planted	At 1 month	At 1 year	At 2 years
<i>C. ambiguus</i>	1/12/00	< 3/18/00	30 days' cold stratification	#3+V	24	12	0	0
				#3	24	16	0	0
<i>C. argillosus</i>	1/12/00	< 3/18/00	none	#3+O	24	9	20	15
				#2+V	24			10
<i>C. aureus</i>	1/12/00	< 3/18/00	none	#3+V	20	16	0	0
				#3	20	10	3	0
<i>C. aureus</i>	1/10/00		30 days' cold	#3+V	24	12	0	0
			none	#2+V	24	16	0	0
<i>C. catalinae</i>	< 2/7/00	3/18/00	none	#2+V	43	30	many	20
<i>C. davidsonianus</i>	1/12/00	< 3/18/00	none	#3+P	20	many	6	5
			30 days' cold	#3+P	20	many	6	6
<i>C. howellii</i> #10	1/12/00	3/18/00	none	#1+O	24	0	0	0
			30 days' cold	#1+P	24	some	many	17
<i>C. superbus</i> #20	3/1/00		none	#1	30	90%	4	30
<i>C. syntrophus</i>	?	< 3/18/00	none	#2+P	24	many	3	
<i>C. nudus</i>	1/3/00	< 3/1/00	none	#3	22	3	0	0
				#3	24	0	0	0
				#3	24	7	4	0
<i>C. kennedyi</i> #11	1/3/00	1/27/01	30 days' cold stratification	#1+O	30		90%	24
<i>C. kennedyi</i>	1/6/00	< 3/18/00	none	#3+P	20	4	0	0
<i>C. nudus</i> #16	1/6/01		none	#3	30	unkn.	unkn.	8
<i>C. superbus</i>	12/29/00		none	#3	35			25

Basic soil mixes used for the trials – The table below lists the proportions of the components Chuck used in his various soil mixes. The “key” to the additions (the +’s) to the mixes noted in the germination table is as follows: P = Perlite; V = Vermiculite; O = fine oyster shell (ground up).

Component	Mix #1	Mix #2	Mix #3
Leaf mold humus	1/2	1/3	1/2
Sand		1/3	
Vermiculite			1/4
Topsoil / loam	1/2	1/3	1/4

Comments – Chuck notes that he derived his different mixes by “averaging” the mixes used by others; his resources included Hugh McDonald, Stan Farwig and Vic Girard, Alan Chickering, Lester Rowntree, Jim Robinett, and others. He adds that his mixes for seeds of other genera include components other than

those shown above (e.g., medium bark, peat, rock chips). Mixes for *Calochortus* were discussed in some detail in Vol. X, No. 4 (April 1999) of *Mariposa*; and Diana Chapman included information on the mix she uses in her article on growing *Calochortus* in Vol. XIII, No. 3 (January 2002) of this newsletter. Chuck's trials also included experimentation with various fertilizers, but these data are not included here, because the use (or not) of fertilizers is assumed not to affect germination.

The trials demonstrate quite clearly the phenomenon of seedling "die-off" that so often occurs even after very good initial germination results, with fewer seedlings appearing in succeeding years. But they also show that some seeds may not germinate until their second spring. In short, don't give up if few or no seedlings appear in the first spring; instead, save the pot or box, treating it exactly as you would have done if there had been seedlings, and see what happens in the second spring. In fact, Jim never threw out one of his plantings until a third spring had gone by with no germination.

Readers' Forum

✿ From Gordon Fowler, Whitefield, UK – We are visiting California again this year and hope we are lucky enough to find, and photograph, a good selection. We have had very good germination rates from virtually all the seed species you sent. All I have to do now is grow them all to flowering size! The information in the back numbers will be invaluable.

First, it's always good to hear from members that they are obtaining favorable germination from the seeds available through Mariposa. As long as readers continue to provide information on how they are doing with their growing efforts, I'll continue to include it in the newsletter – though more details on the specifics of local climate/greenhousing, stratification, mixes, watering, temperature, and fertilizer use are invaluable to many readers, above and beyond our "special articles" such as those by Chuck Baccus above, and the recent summary by Diana Chapman (Vol. XIII, No. 3). And news about "field trips" is also appreciated and will be printed, together with "super" photographs, when there is room for them.

✿ From Geoff Burleigh, San Fernando, CA – The photos of *C. catalinae* brought back memories of times past – a single lavender tipped beauty on a grassy slope; many thousands of them covering earth blackened by fire; shooting the "perfect" specimen while being watched by a rattlesnake coiled up in the grass just beyond striking distance. (It just stayed there shaking its tail and sticking out its tongue.) "Thanks for the memories" – you are doing a great job.

In our various travels, Jim and I encountered bears a few times, once a black panther who took off in the opposite direction when he saw us, and innumerable large birds, coyotes, deer, elk, wild pigs – but never a rattlesnake! Probably our "closest call" was being too close to lightning at about 6000 feet in El Dorado county – it struck the top of a huge Ponderosa pine about 40 feet away from us, and scared the daylights out of us. We set an all-time record dashing back to the safety of our vehicle!

✿ From Margaret Lundquist, Bothell, WA – I saw my first mariposa in eastern Washington and, not knowing what it was, I made a drawing of it. Never had I seen anything so beautiful! Anyway, I love them. Please sign me up, and it sounds like I may want to get some back issues also. I don't want to miss any cultural information.

New Calochortus enthusiasts are ALWAYS welcome! And all back issues are available in full volume sets. Write for details on what "Species of the Issue" are included in each volume, as well as costs. Cultural information is usually included in each "Species of the Issue" article – which means in virtually every issue. It all depends on which species you decide to try growing.