



C. luteus

MARIPOSA

the newsletter of the *CALOCHORTUS SOCIETY*

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Seed Available

Several members have contributed seed – Nancy and Ames Gilbert of Grass Valley (and the Far West Bulb Farm), Diana Chapman of Eureka (and Telos Rare Bulbs), Bob Werra from Ukiah, and Lottie Jenvey of Mountain View. I was able to collect some seed in southern California. Lottie has provided a “very special treat” – stem bulbils of two Mexican species, *C. balensis* and *C. spatulatus*. These two are “tropicals,” and Lottie has enjoyed success by putting their pots out only after all danger of frost is past, watering them vigorously through bloomtime (mid to late summer), then drying them back and storing them. Garden grown seed is usually “tamer” and more likely to respond well to pot culture; whereas habitat-collected seed often offers more genetic diversity. The origin of each lot is noted below. Please send your “wish list” of the items you want, using the lot numbers shown. The last column gives the approximate number of bulbils or seeds available in each lot. In a few cases, the numbers are very limited, and you are encouraged to ask yourself whether you will be able to give those species the kinds of conditions they will want. I will divide what’s available among those requesting them, and will send you at least 5 bulbils or 8 seeds (and usually more of the latter) of each lot you request – as long as supplies last! Domestic members, please send a total of \$1 to cover mailing and packaging costs; Canadian and overseas members, a total of US\$2.

Lot #	Species	Source	Approximate # Available
1	<i>C. balensis</i>	Stem bulbils grown by Lottie Jenvey in Santa Clara county, CA	60 bulbils
2	<i>C. spatulatus</i>	Stem bulbils grown by Lottie Jenvey in Santa Clara county, CA	160 bulbils
3	<i>C. albus</i> form “rubellus”	Collected 7/6/01 in San Luis Obispo county, CA, 1500 feet	400 seeds
4	<i>C. amabilis</i>	Collected in Mendocino county, CA, by Bob Werra, 880 feet	400 seeds
5	<i>C. amoenus</i>	A little garden-grown seed from Bob Werra, Mendocino county	120 seeds
6	<i>C. argillosus</i> central form	Garden grown seed from Lottie Jenvey	400 seeds
7	<i>C. catalinae</i>	Garden grown seed from Bob Werra	250 seeds
8	<i>C. clavatus</i>	Collected 7/6/01 in Los Angeles county, CA, 1200 feet	65 seeds
9	<i>C. concolor</i>	Collected 7/10/01 in central San Diego county, CA, 2300 feet	600 seeds
10	<i>C. davidsonianus</i>	The “southern” version of <i>C. splendens</i> , collected 7/10/01 in central San Diego county, CA, about 3000 feet	250 seeds
11	<i>C. dunnii</i>	A few seeds from the remarkably good blooming of this rare species; collected 7/6/01 in central San Diego county, CA, 4300 ft	100 seeds
12	<i>C. howellii</i>	Collected 7/28/01 in Josephine county, OR, 1500 feet	350 seeds

(More seeds listed on the next page)

Lot #	Species	Source	Approximate # Available
13	<i>C. luteus</i>	Garden grown seed from Bob Werra	250 seeds
14	<i>C. obispoensis</i>	A few garden grown seeds of this rare species from Bob Werra	120 seeds
15	<i>C. palmeri</i> var. <i>munzii</i>	Collected 7/10/01 in Riverside county, CA, 4300 feet	500 seeds
16	<i>C. plummerae</i>	Some garden grown seed from Bob Werra	180 seeds
17	<i>C. simulans</i>	Garden grown by Lottie Jenvey; just 2 packets of 9 seeds each	18 seeds
18	<i>C. superbus</i>	"Lavender" – garden grown seed from Bob Werra	120 seeds
19	<i>C. tolmiei</i>	From Diana Chapman – "wild collected, deep purple centers"	200 seeds
20	<i>C. umpquaensis</i>	Garden grown by Diana Chapman, from bulbs originally grown by Jim Robinett from seed collected in Douglas county, OR	200 seeds
21	<i>C. venustus</i>	"Reds" – garden grown by Lottie Jenvey	500 seeds
22	<i>C. venustus</i>	"Whites" – garden grown by Lottie Jenvey	400 seeds
23	<i>C. venustus</i>	South Coast "2-spot" form, collected 7/15/01 in San Benito county, CA, 1600 feet	300 seeds
24	<i>C. vestae</i>	"Pinks / lavenders" from Lottie Jenvey, collected in Trinity county, CA	500 seeds
25	<i>C. weedii</i> var. <i>weedii</i>	Collected 7/10/01 in central San Diego county, 3200 feet	500 seeds

The Subject Is Catsears – Part I – *Calochortus coeruleus*

Background – I tackle this subject with apprehension. Any number of very knowledgeable people have said, "The formal treatment of the catsears is a *mess* !" After years of looking at many stands of catsears, in many different places, Jim and I could only agree. Yet it is hard to resist the urge to share what we were able to conclude about them. Ownbey's efforts in 1940 to bring some order to the subject were admirable, but left many questions. He classified the catsears as subsection ELEGANTI in section EUCALOCHORTUS (since renamed section CALOCHORTUS), and grouped them by morphological relationships as follows –

Subsection 2. ELEGANTI ...> {

- *C. monophyllus*
- {
 - *C. Tolmiei*
 - *C. coeruleus*
 - *C. coeruleus* var. *nanus*
 -> *C. coeruleus* var. *Westonii* [now called *C. westonii*]
 - *C. elegans* var. *oreophilus*
 - *C. elegans*
 -> *C. elegans* var. *selwayensis*
- *C. Lobbii* [now renamed *C. subalpinus*]
-> *C. apiculatus*

This list of course omits *C. coxii*, which was not discovered until 1988. In his introductory discussion of subsection ELEGANTI, Ownbey stated –

The six species and four varieties included under this subsection are morphologically quite uniform and probably closely related. Three of the species are very distinct. *C. monophyllus* differs from all other members of the subsection in its yellow flowers. ... *C. apiculatus* and *C. Lobbii* [*C. subalpinus*] also stand alone, the former by reason of its dark, nearly circular gland, and the latter on the dark, glandular spot near the base of each sepal. The remaining three species and four varieties form a complex, and

Calochortus coeruleus –



while it is believed that the units here recognized represent natural entities, the morphological evidence is not so convincing as that derived from geographical distribution. [The map published in Ownbey's monograph is reproduced below, without corrections now needed from subsequent work.—Ed.]

I'll start with another area that Jim and I came to agree was relatively clear – *C. coeruleus*. Yet even this species presents some problems. Quoting Vic Girard's unpublished manuscript – "While *Cyclobothra coerulea* was "officially" published in 1863, specimens of the plant were presented before the Academy of Natural Sciences as early as December 4, 1854, and again on July 26, 1858, with full description, the official publication of the minutes of the latter meeting being a mere five years late. Watson in 1879 transferred the plant to genus *Calochortus*." So there is a (relatively minor) "date of announcement" problem, as well as an issue of assigning the correct genus. These issues are important to academic botanists and taxonomists.

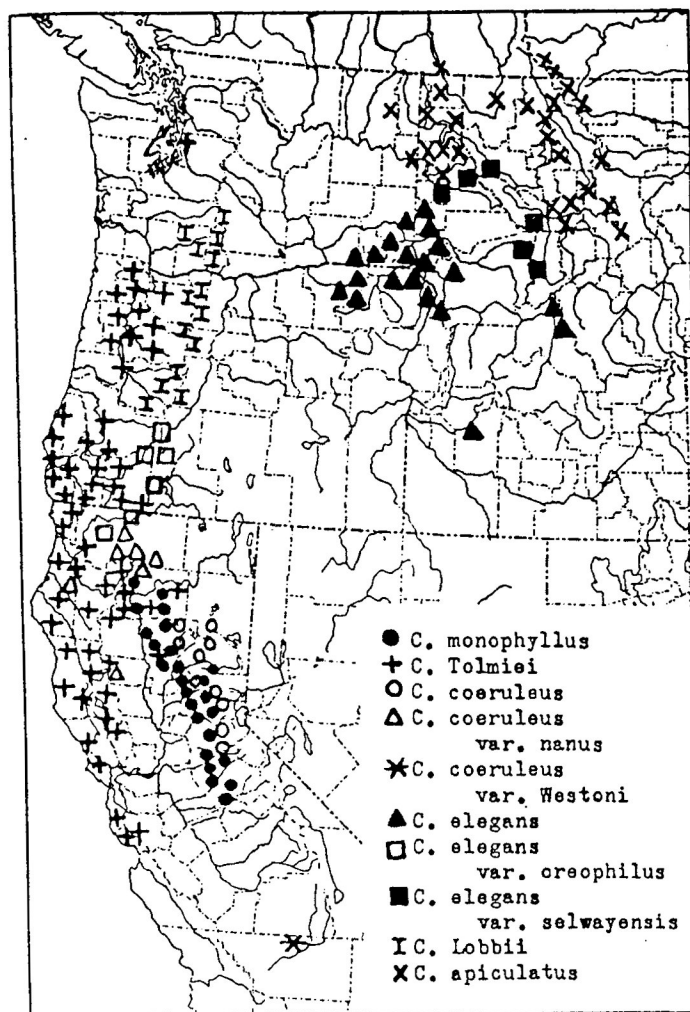
Then there was the question of how to spell the name of this plant. Some authors used what has since become the accepted spelling, using the "œ" diphthong. Others used the "æ" diphthong, as in "*Calochortus caeruleus*." My *Botanical Latin* reference (William T. Stearn, 3rd ed., rev.: Melksham, Wilts, GB, 1983) says – "**cœruleus**: see CÆRULEUS." The cross-reference is – "**cœruleus**: ...blue, esp. the deep blue of the Mediterranean sky at midday..." In short, whether you spell it with "æ" (as did Purdy, Jepson, and Abrams, among others) or with an "œ" (including Ownbey, Munz, and Fiedler & Ness in the new *Jepson Manual*), its name means "blue." More about that below.

There is another problem. In his 1940 "magnum opus," Ownbey fails to list any specific herbarium specimen as the "type." Instead, he gives only the source of the "type locality" (i.e., Kellogg) as "Forest City." There is no "Forest City," at least nowadays. There is a "Forest Hill" in Placer county, settled in the early 1850's, situated well below 4000 feet. There is also a community once known as "Forest City" in Sierra county that is now called "Forest." But Kellogg (when he presented a specimen and drawing to the California Academy of Natural Sciences on July 26, 1858) specifically stated – "This specimen was found above Forest City, not far from the region of perpetual snow." Present-day "Forest," which is north of Highway I-80, is at an altitude of about 4500 feet, and can claim proximity to nothing above 7000 feet, which is rather too much below any altitude that could boast of "perpetual snow." Vic's speculation that some "poetic license" may have been at work here seems very apt. These too are "minor" issues but important to the professionals.

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OWNBEY—MONOGRAPH OF CALOCHORTUS

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Map 2. Distribution of the species and varieties of the subsection ELEGANTIA.

Description, habitats, distribution – Though its background may be somewhat confusing, Jim and I decided that the identification of the species itself was easy enough. We concluded that once you have seen and confirmed a catsear as *C. coeruleus*, you will know it when you see it again. It is a relatively small catsear, smaller than many forms of *C. tolmiei*, exceptionally “hairy” in appearance – and it is always extremely white except for its gland. The anthers are sometimes blue, but the petals, never. This of course brings into question its name, which means “blue” – and “blue” or “blueish” is how it has been described time and time again (Kellogg/1858, Bailey/1900, Jepson/1921, Munz/1959, Ownbey/1940, even Fiedler & Ness/1993). In discussions with Vic and Stan Farwig, we all agreed that the name may have been chosen from the appearance of dried herbarium specimens rather than from living material; that *C. coeruleus* when dried and pressed must turn blue. We wondered if any of these authors had ever examined living materials.

Ownbey stated, “*Calochortus coeruleus* is distinguished from *C. elegans*, which it resembles in size and habit, by its large, oblong anthers and more conspicuously ciliate, more densely bearded petals, which are not papillose [“bumpy”–*Ed.*] on the inner face.” We followed Ownbey’s map of the distribution of subsection ELEGANTI and visited some of the sites he listed for *C. coeruleus*. We also located some sites he did not list. We found the flowers of *C. coeruleus* always to be very “hairy,” and very white (except, of course, for the narrow, crescent-shaped gland, which is usually purple) – and to appear in a wide variety of habitats. They sometimes grew in what looked to be otherwise “barren” ground (for example, at Hams Station on Highway 88 – though in fact they grow there together with *C. minimus*, which blooms about a month earlier); or up through a totally prostrate species of *Ceanothus* (as along Humboldt Road between Highway 32 and Butte Meadows); or in open gravelly places (also along Humboldt Road); or simply intermixed with grasses in a mountain meadow (Lumpkin Road east of Lake Oroville); or in small clearings under trees (on Wentworth Springs Road just south of the El Dorado-Placer county border, near a community called “Uncle Toms Cabin”; or at the Highway 44 Rest Stop east of Shingletown). All these locations are well above 3000 feet (as are all the other places we found it); Fiedler & Ness in the new *Jepson Manual* give the altitude range for *C. coeruleus* as 600 to 2500 meters (about 2000 to 8000 feet).

We also found it under scrub and small oak trees a little north of Mendocino Pass on the road toward Anthony Peak, as well as a bit further up the same road growing in an open gravelly area. In this latter spot, many of the flowers had glands that were more maroon than purple. This road runs along the border between Mendocino and Tehama counties in the North Coast Ranges. But look again at Ownbey’s map of the subsection ELEGANTI. All the indicated sites for *C. coeruleus* are in the central and northern Sierra Nevadas and very southernmost Cascade Ranges; he shows no sites for it in the North Coast Ranges. Yet we were convinced when we saw the blooming catsears on the road to Anthony Peak that they were *C. coeruleus*. And we later confirmed this to our satisfaction by checking out the seed – which was pale yellow, like the seed of all other *C. coeruleus* we had seen, and unlike the seeds of any other catsears which we had found in the area, which are all dark. We also saw what appeared to be the same catsear further south, in and around an area called “Hells Half Acre” (Mendocino county), at about 6000 feet; here again many of the flowers had glands that were more maroon than purple. But we were not able to get back to this location to check the seed color of these plants. We could only say that they appeared to us to be the same as those immediately north of Mendocino Pass.

Smith & Wheeler, in *A Flora of the Vascular Plants of Mendocino County, California* (reprinted from the *Wasmann Journal of Biology*, Vols. 48-49, Nos. 1 and 2, 1990-91), listed “*Calochortus coeruleus* (Kellogg) Watson var. *coeruleus*” in several Mendocino county locations – “Spruce Tree Camp...Etsel Ridge north of Grizzly Flat Ranger Station...open flats at end of road to Black Butte...on gravelly flats south of Wells Cabin Campground,” characterizing it as “infrequent but locally common when found.” This is a good description of our experience with *C. coeruleus* in all the locations we found it, including the Sierras and Cascades. The

“Wells Cabin Campground” site is what I described as “a bit further up the same road growing in an open gravelly area.” “Etsel Ridge north of Grizzly Flat Ranger Station” is not far from the Hells Half Acre area. This reassured us that our identification of *C. coeruleus* in the same area had been correct.

Ownbey does show one site in the Mendocino Pass area for a plant he called *C. coeruleus* var. *nanus*. His full description of this plant is as follows: “Anthers smaller, lanceolate, short-apiculate [i.e., narrow and tapering at both ends, with a small broad point at the apex—*Ed.*]; otherwise as in the species. In the character of the anthers, this variety approaches *C. elegans*, but by all other criteria, including geographic distribution, it clearly belongs with *C. coeruleus*.” My botanical Latin reference defines “*nanus*” as “dwarf” – not “small,” which would be “*parvus*” or “*pusillus*,” but “dwarf.” There is not even anything particularly small about the catsear north of Mendocino Pass and at Hells Half Acre; it is same size as the *C. coeruleus* we saw in the Sierras and southern Cascades, although its anthers are slightly smaller, as Ownbey suggests. This seems a somewhat meager difference to justify the separation and elevation of a distinct variety.

In his 1940 monograph, Ownbey listed a number of sites for the plant he called *C. coeruleus* var. *nanus* – from locations near Yreka in Siskiyou county, south through the Scott Mountains in Trinity county and South Fork Mountain in Humboldt county, to Plaskett Meadows, which is 8 miles southeast of Mendocino Pass in Glenn county, and Hull Mountain, which is in northernmost Lake county at the border with Mendocino county. There was no reference to any form or variety of *C. coeruleus* immediately north of Mendocino Pass. This was very puzzling to Jim and me. We had seen very tiny catsears at Gunsight Ridge west of Yreka; in the Scott Mountains; at Black Butte (which lies about halfway between Mendocino Pass and Plaskett Meadows); and at Hull Mountain; as well as other places. But not one of these very tiny catsears in the least resembled the catsears we saw just north of Mendocino Pass and at Hells Half Acre, nor in fact did they all resemble each other! Frank Callahan believes he has clarified some of these issues, with scanning electron microscopy, and has promised us a future article, with photographs, on his results.

To summarize, *C. coeruleus* is a catsear we found relatively easy to identify in the field, both in flower and in seed, but there are still problems. It has a complicated past, a name that is of questionable accuracy, and a distribution that can only be characterized as baffling – if not *C. coeruleus*, then what are the catsears north of Mendocino Pass? It seems that Ownbey’s map of the ELEGANTI needs to be redrawn. To add to the confusion, in the new *Jepson Manual*, Fiedler & Ness stated, “Intermediates to *C. tolmiei* scattered but common in NW [a geographic designation which includes the North Coast Ranges—*Ed.*], CaR [i.e., the Cascade Ranges of California—*Ed.*].” We saw many catsears whose identification we considered challenging, so it is hard to take issue with this statement. But in the case of *C. coeruleus*, when we were able to check seed color, we felt no confusion. Seeds of *C. coeruleus* seem always to be very pale yellow. The seeds of *C. elegans* are characterized by Ownbey as light brown, and the seeds of all forms of *C. tolmiei* are quite dark, usually described as purple or brown. Again, Frank’s work may help us with these problems.

Risk of extirpation – *C. coeruleus* is not considered for listing by the California Native Plant Society. It enjoys a fairly wide geographic range – especially if we accept the plants north of Mendocino Pass and at Hells Half Acre as legitimate *C. coeruleus*. Most of the locations Jim and I found it were well “off the beaten track,” in areas showing little sign of disturbance beyond the construction of widely scattered Forest Service roads. Logging and/or development could become a threat, but do not appear to be so at this time.

Cultivation – Jim tried a number of times to grow *C. coeruleus* from seed, using various treatments and mixes, but with little luck. He concluded that he simply could not provide this catsear with the conditions it needed in Sonoma county. If any readers have succeeded with it, please send methods and ideas, and I’ll put them in a future *Reader’s Forum* (there’s no room for it in this issue, because of the lengthy seed list).