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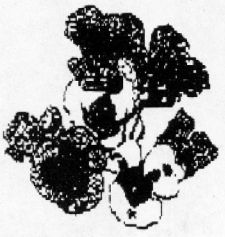
MARIPOSA



THE *CALOCHORTUS* SOCIETY
NEWSLETTER

JULY, 1997

ADVISORS: C. BACCUS
AND B. NESS

I. Announcements

1. The rains in California, and indeed in many parts of the country, were strange this year. The early rains were so abundant that there was massive flooding in parts of California, the Pacific Northwest and elsewhere (El Nino?). After January, however, the rains virtually ceased and the spring was one of the driest on record. Calochorti were affected by this pattern but in a strange way. The early blooming species which were able to take advantage of the abundant early rains did fine e.g. *Calochortus catalinae*. The montane species, e.g. *C. leichtlinii* also did fairly well, as the abundant precipitation in the early part of the year was held over as snow till the spring. When it melted, the montane species received a good amount of moisture. In between these two groups were the later blooming species of low-to-middle altitudes. These generally did poorly as they did not receive the usual spring rains. In a few cases, some of these species did bloom, or some stands of them did; *Calochortus* are rarely predictable. Probably they had stored enough energy from previous years to bloom this year despite the erratic rains. Also, some species of *Calochortus* may bloom in dry years deliberately, as it were, i.e. as a strategy. In dry years there is less competition for pollinators and the like.

Southern California had the most meager rains, for only about a month, in January. Despite this, several species did fairly well, especially those nearest the Coast or high in the mountains. The Pacific Northwest did well, while the Rocky Mountain states like Arizona did fairly well. Northern California had mixed results with some species doing well and others poorly.

II. Trips

We took Highway 15 for most of that day, except between the towns of Guamuchil and Cualiacan. That's because, on our AAA map, this section of the highway was reported to be dangerous, due to bandits. So, instead, we took Sinaloa 1 through that area.

While the desert had been hot, it had been dry as well. That was no longer true, as we had hit the tropics. It was humid all day long. The vegetation was much more lush, and every so often, we were delighted by the strange sight of seeing tropical vines growing up through a large cactus.

We were stopped many times along our way by the "federales" (federal police,) agricultural inspectors, and various other law enforcement folk. At one agricultural station, Hugh confessed to having apples ("manzanas," I translated to the inspector.) How many? he asked, concerned. Hugh held up three fingers and replied, "tres." We were rewarded with a quick smile and a shake of the head, as the inspector merrily allowed us to pass. A few meters down the road, Tom laughingly suggested that we had forgotten to declare our jar of peanut butter, and that we ought to return to do so. We kept joking about those three apples for the rest of the day.

But we also kept getting checked--again and again. Always, we were asked where we were coming from, and where we were going. That got to be a bit sticky, since the verbs to go and to come are usually switched in Spanish, but various dialects along the way decided to switch them back without any warning. Confusing! In one case, we had to get off the highway, so our car could be inspected for "contraband."

Still, we saw lovely mountains and rich valleys, as we rode south. Occasionally, we'd catch a glimpse of the Gulf of California (which is often called the Sea of Cortes in Mexico.) The villages we drove through now had a different look and feel to them. Dark pastels were used to decorate homes. There were more and more open-air cantinas, and fewer and fewer men wore the white cowboy hats we had

gotten used to in Sonora. In one cute town, with chickens feeding outside one of the restaurants, we stopped to ask the name of the place. "Escuinada," we were told, before continuing on Highway 15 into Nayarit state. A few kilometers to the south, we dined at one of those open-air cantinas, where the quesadillas were referred to as "tacos con queso." (Tacos with cheese.) We each ate three, and had a side order of beans and a "fresco" (soda.) The total cost that meal for the three of us was a whopping 45 pesos--$6.00!

The cheese used in the tacos seemed like some kind of goat cheese, and was quite delicious. We asked the name of it, but were disappointed to discover we'd probably never be able to get it at a supermarket. It was simply a local cheese made at a nearby ranch.

Seems I missed one of the great adventures on the trip, by going to wash my hands before dinner. Apparently, a tarantula came to visit, and the owner of the cantina tried to chase it away with a broom. Tom managed to dig out his camera, and get a few shots of it, before it was too late.

III. Horticulture:

Germination Tests, 22nd Installment: Shade and Sun Growers, Part II

Report on the outcome of trial growing tests conducted on *Calochortus*

As was discussed last issue, this test was to determine if species which grow normally with one type of exposure, e.g. sun, would do well in opposite conditions, i.e. in shade and vice versa. Both species, *viz. Calochortus amabilis* and *C. luteus*, were grown in a mix consisting in about two-thirds organic matter of mixed types, e.g. bark, peat and redwood compost; and about one-third sand. As it turned out, separate trials on this mix demonstrated that it was not very good for growing most species; this probably effected the outcome. Still another factor which might have effected the outcome is that the species were not grown in the ground and fertilizer was not used. Therefore, the unusual growing conditions may have doomed the test to failure on other grounds than exposure alone. However, both species used for the test are widespread and adaptable ones, which grow in a variety of soils and habitats.

The result of the test was that neither species survived after the first year in the opposite exposure to that in which they normally grow. Both species germinated and persisted through their first year, but failed to emerge in their second year. However, both species have been observed in the wild by myself and others in unusual exposure situations, *C. amabilis* in nearly full sun and *C. luteus* in shade. Further, the cycles which habitats go through may occasionally expose a species to such abnormal conditions. For example, the woodlands or chapparal habitat of *C. amabilis* may occasionally burn, and the plants would then be exposed to full sun until the canopy grows back. Thus the test should be taken with great caution as an indication of suitable growing conditions for these species. Also, on the coast, shade may not be needed for species which grow in it inland. *Calochortus tolmiei* grows in shade in the hot interior of California but is in full sun on coastal bluffs, where the fog is a constant factor and the plants may need all the sun they can get.

IV. The Horticultural History of Calochorti

(Final Installment of Alan Chickering's "Monograph" from 1938)

"Third--*Fertilizer.* To people accustomed to using manure in gardens it will seem strange, but the fact is that Calochorti don't want manure [I agree-ed.]. The Globe Tulips will respond to some leaf mold and possibly the *C. weedii* group will stand some, but the others don't want it. Nearly all Calochorti, however, like wood ashes. I discovered this years ago when I found a wonderful growth of *C. amabilis* following a fire, and also in the instance described under *C. catalinae.* On account of these and other examples, I have been in the habit of sprinkling some wood ashes over the soil in which several types of Calochorti are planted, and I believe that it has been beneficial. I consider, however, that this can be overdone and I would not spread a heavy layer of ashes over the soil. I have heard that peat is good for some kinds of Mariposas but I have never considered it necessary to try it.

"Fourth--*Soil.* I think that soil is the one most important thing in growing Calochorti. We may be able

at times to grow them in spite of improper soil, but in the long run we cannot give too much attention to this item. Speaking generally, there are very few Mariposas which naturally grow in clay or in wet places. *C. vesta*[*e*] and *C. venustus* var. *purpurascens* [*C. argillosus*-ed.], as noted, grow in a kind of clay which cracks when it dries and likes dampness. The type of *C. luteus* which is sometimes blue [*C. superbus*-ed.] grows in wet places, while *C. uniflorus* and some others which I have not described, such as *C. nitidus* [*C. eurycarpus*-ed.], grow in wet meadows. *C. macrocarpus* is found on level spots in Lassen and Modoc counties, which I should imagine might be wet until quite late. Practically all other species of Mariposa, however, grow in dry hilly and rocky soil. It is so characteristic of Mariposas to be in rocky soil that one might almost say that they never grow away from it.

"I consider lava soil perhaps the best all around soil for most Mariposas. Some require it and most like it. We are all familiar with the reddish colored rocky soil found in the Sierra Nevada Mountains at from 1000 to 3000 feet elevation. This is a fine Mariposa soil, especially with plenty of rocks in it, and particularly good for *C. venustus* El Dorado strain [Sierra form-ed.]. Decomposed granite is also good for many species, such as *C. kennedyi, C. weedii, C. dunnii, C. concolor* and some of the strains of *C. venustus*. These soils are not available to all of us, however...If one can't get these soils, I strongly recommend mixing the average garden soil with a heavy proportion of sand and gravel. If this can be coupled with a considerable slope, most Calochorti can be successfully grown.

"Fifth--*Mildew*: Mildew or Botrytis is a stumbling block to anyone trying to grow plants from a dry climate in a foggy or damp region. It has proven so difficult to overcome that I have practically ceased trying to grow desert species of Calochorti such as *C. kennedyi* and *C. macrocarpus*. Fortunately, there are many species which are not affected...

"I have been asked at all times whether Calochorti will persist in gardens...What I have said heretofore indicates that many species will not only survive but increase. Others may be kept going by growing seed in boxes and setting out the bulbs when they reach a proper size, while some will not do well in Piedmont at least."

V. Conservation:

Letter from G. Burleigh

[Mr. Burleigh, a member from So. California, is a celebrated hunter and noted photographer of *Calochortus* stands, who often gives slide shows of his work. The letter concerns threats to the largest known population of *C. striatus*, the rare Alkali Mariposa -ed.]

"...The *Calochortus striatus* were scattered over a wide area--at least a square mile--with many plants on both sides of the Avenue. This habitat will soon be destroyed by development unless immediate steps are taken to protect it. Lancaster is growing very fast. Development has already extended to within one-half mile of this area..."

VI. Species this Issue: *Calochortus howellii* Watson

(For the key to the Nitidi, see *Mariposa*, Vol. V, #3, 1/94)

Calochortus howellii, Howell's *Calochortus*, was named for its discoverer, the well-known botanist Thomas Howell. The flowers bloom July to August, depending upon altitude. It was named as a species by Watson in 1888, and has never been challenged, although there is some dispute over its relation to the similar species or variety from Douglas Co. The latter plant, which has been named *C. umpquaensis* by Fredericks, was considered the same species as *C. howellii* by earlier botanists.

Range and habitat: This species is confined to the Illinois Valley drainage, unless the Douglas Co. variety is included. This area is entirely within Josephine Co. Oregon, although one population comes extremely close to the California line. *Calochortus howellii* grows both at lower altitudes in the valley and at higher altitudes, over 1000 m (about 3000 ft.) on the mountains surrounding the valley. This valley is on the leeward side of the Oregon Coast Ranges, but is still wet, with over ten decimeters (about 40 inches) of rain in most years. Howell's *Calochortus* is usually found associated

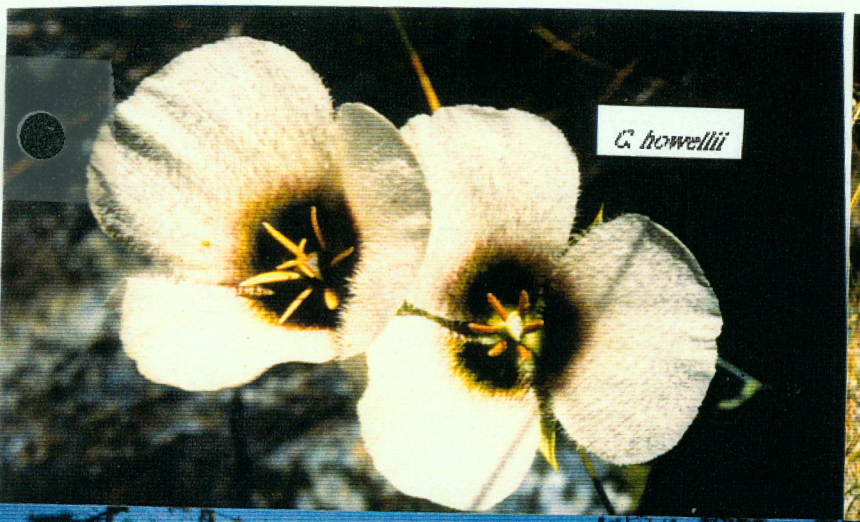
with bunch grasses and scattered conifers in open areas with little competing vegetation, often on slopes. The plant prefers soils derived from serpentine, but may not be confined to them. These are soils which support few plants because they are poor in plant nutrients. The late Ray Godfrey thought that the species grew in these areas because it could scarcely compete with plants growing in lusher, richer soils. The minerals in serpentine derived soils may also provide heavy metals which the plant can absorb and use as an insecticide.

Botany: The classification of *Calochortus howellii* is unsatisfactory in several respects. As the noted *Calochortus* botanist Prof. M. Ownbey noted over fifty years ago, this is because it "has no close allies," i.e. there are no species which it closely resembles. Unlike the other species included in this subsection, the petals of the flowers are entirely covered with hairlike trichomes, and, unlike many of them, the hairs are short. Its only real point of connection with the others is its large and upright seed capsules, and its relatively late bloom time. *Calochortus tolmiei*, which grows over virtually the entire range of Howell's Calochortus, blooms up to two months earlier. Yet the species resembles nothing so much as a large, tall cat's ear, down to even the coloration on the petals. There is the further difficulty that it is very closely related to *C. umpquaensis*, so much so that the two are difficult to tell apart in photos. Indeed, I am of the opinion that *C. umpquaensis* is only a strong variety of *C. howellii*, a judgment supported by earlier botanists. The main points of difference of *C. umpquaensis* are a larger, nodding capsule and slightly smaller seed, which are well within the parameters of species variation, especially as the Douglas County habitat of the variety are at some distance from the more southern and western locale of *C. howellii*. The differences in color are so minor that, compared with the vast panoply of color variation exhibited by species like *C. venustus* or *C. superbus*, they are scarcely worth mention.

Calochortus howellii differs in range from all the other species in the Nitidi group: it is north of *C. persistens* (which Dr. Ness thinks may belong in with subsection *Nudi*) and *C. greenei*, west of *C. longebarbatus*, and southwest of the Rocky Mountain species, *C. eurycarpus*, *C. nitidus* and another species sometimes classed with the nitidus group, *C. lyallii*, from the Washington Cascades. In form, *C. howellii* is more open than the others, except *C. lyallii*, opening almost flat. The hairlike trichomes covering the petals have been mentioned; all the others have either no hairs except in the nectary area, *C. eurycarpus* and *C. persistens*, or have very few hairs which are long and silky, i.e. the closely related species *C. longebarbatus*, *C. nitidus* and *C. greenei*. *C. lyallii* has a fringe of hairs on the edges of the petals, but few over the surface. In color, *C. howellii* also differs from the others. Most are lavender to pink, while *C. eurycarpus* and *C. lyallii* are white, like *C. howellii*, but have bluish or magenta markings, while Howell's Calochortus has a dark base. Finally, as Ownbey noted, the seeds of *C. howellii* are, under the lens, "merely roughened," while all the others in this group have hexagonally reticulate seed coats.

Horticulture: Howell's *Calochortus* germinates in Berkeley, but not in quantity. This is probably due to temperature more than soils as it rarely gets as cold even at night in our coastal enclave as during the heat of the winter day in Josephine Co. The plants which do germinate do fine with both our standard UC Davis mix of half spagnum peat moss and half sand and with bulb fertilizer, but they want a great deal of water and need it later in the season than most California species. The seeds also germinate late, like most section Calochortus seeds but even later, so that some of the Mariposas are going dormant by the time *C. howellii* germinates. However, it still needs a dormant period in summer. In its native area, summers are quite hot but heat does not seem to be a horticultural requirement, judging by its performance in foggy Berkeley. Thus it is a showy plant suitable for both mild and temperate climates; it will favor wet areas but can be grown in dry locales if given supplementary watering.

(All photos on page 5 by H.P. McDonald)


C. howellii


C. howellii--plant


C. howellii--habitat/type locality


C. longebarbatus


C. eurycarpus