

Mariposa

The Calochortus Newsletter

Produced by Telos Rare Bulbs
P.O. Box 4147, Arcata, Ca 95518

SEED EXCHANGE

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First of all, my apologies to all the subscribers to *Mariposa* for the lateness of this issue. Personal difficulties have thrown my schedule very much off balance, and when there is only one of you, it is difficult to stay on track. Following shortly will be a double issue for July and October on rock gardening with *Calochortus*, and I hope I will be able to keep to the quarterly schedule in the future.

Due to the changeover of the editorship of *Mariposa*, no solicitation for seeds for the seed exchange was made. I am, however, able to offer the following species from my own seed collections. Please send your requests using the lot numbers below. You will receive at least 15 seeds per species, sometimes more. I am asking for \$1 per species requested, plus \$2 postage for US members. Overseas members must send \$1 per species plus \$5 to cover airmail shipping.

Featured species:
Calochortus westonii



Lot #	Species	Source
#1	<i>C. albus</i> v. <i>albus</i>	Butte Co., 1200'
#2	<i>C. amabilis</i>	Humboldt Co., 500'
#3	<i>C. argillosus</i> Northern Form	From cultivated stock
#4	<i>C. argillosus</i> Central Form	From cultivated stock
#5	<i>C. clavatus</i> v. <i>clavatus</i>	San Luis Obispo Co., 1200'
#6	<i>C. invenustus</i>	Ventura Co., 8000'
#7	<i>C. luteus</i>	Butte Co., 900'
#8	<i>C. splendens</i>	From cultivated stock

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Seed offer is open until October 1, 2005.

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Calochortus westonii

Calochortus westonii, also known as the Shirley Meadows Star Tulip, is a rare endemic of the Greenhorn Mountains of the southern Sierra Nevada in California. The best-known populations are at the popular ski resort of Shirley Meadows in Kern County. While development of most kind is usually detrimental to native species, *Calochortus westonii* is not adversely affected by the ski resort, since, during ski season, it lies dormant under a thick blanket of snow oblivious to the skiers above. It needs open meadows or open woodland to prosper, and the ski runs themselves provide a suitable habitat.



Shirley Meadows, Kern County

Description

From Eastwood's description in the *Proceedings of the California Academy of Sciences* IV 10:136, 1931:

Calochortus westoni Eastwood

Bulb ovoid; leaf single, 1.5 to 2 dm. long, about 1 cm. wide, glaucous, acuminate; umbel sessile, with several flowers; bracts generally 2, papery, lanceolate-acuminate, the longest about 5 cm., sometimes surpassing the pedicels; flowers with buds ovate-acuminate, veined; sepals ovate, 1.5 cm. long, 7 mm wide, mucronate; nectary at base purple; petals ovate-lanceolate, with a distinct broad claw, hairy over the inner surface and along the margin, surpassing the sepals, white with a narrow, purple, curved line above the gland and purple dots below on the claw; gland curved, covered with short crisped hairs; stamens with filaments broadening to the base, about as long as the acuminate, pink anthers; pistils with recurving stigmas; pods elliptical, 2 cm. long, 1 cm. wide, drooping.

In other words, this small plant more closely resembles a Cat's Ear *Calochortus*, with hairy petals (in this instance, the hairs not extending to the tips of the petals), a lavender center, a short branched scape with multiple flowers nestling close to the ground, and a much longer single leaf held above it.

Background

The type specimen was collected by E. Roy Weston in 1927 from the saddle directly above Shirley Meadows. In 1931 Eastwood described this species in the *Proceedings of the California Academy of Sciences* IV 20:136, naming it *C. westoni* (the later spelling, *C. westonii* is correct). When Ownbey published his monograph on *Calochortus* in 1940, he incorrectly reduced this species to a variety of *C. coeruleus*, which stood until 1993 when Fiedler and Ness put it back where it belonged. While Ownbey thought it was most closely related to *C. coeruleus*, Eastwood felt it was allied to *C. elegans*.

Status

Seven populations of *Calochortus westonii* are verified, most in Sequoia National Forest in Kern County, with one population on the border of Kern and Tulare County and one in Tulare County. It is currently listed as rare, threatened or endangered, but has no federal or state protection. In the remote areas where it grows, the main threat has been logging. Since *C. westonii* is endemic to Sequoia National Forest, the Forest Service has carried out selective thinning of dense coniferous forests when the plants are dormant in the fall, thus creating a more open park-like environment. With this sensitive management plan, *C. westonii* has increased markedly in the managed area. In the past frequent fires would have kept these forests more open by destroying underbrush and tree seedlings, but fire suppression in the last century has led to dense forests of white fir and incense cedar instead of a more open mixed conifer and oak forest more amenable to *C. westonii*. It is heartening to see that diminishing populations of rare plants can be brought back with thoughtful management like this, and the Forest Service is to be commended for its work in this area.



Calochortus westonii
(photograph by Bob Rutemoeller)

Horticulture

Seed of *C. westonii* is rarely available, although Ron Ratko of Northwest Native Seed and the Archibalds in the UK have listed it in the past. Anyone fortunate enough to obtain seed of this wonderful *Calochortus* should be aware that it needs special handling to germinate. Seed should be sown in the fall. Unless the seed is sown in a region that experiences at least two months of near freezing weather, it

should be stratified in the refrigerator by placing it in a Ziplock bag with barely damp vermiculite, then placing it in the food compartment of the refrigerator (not the freezer) for at least two months. After about a month, the bag should be checked frequently for germination, and as soon as any sign of germination occurs, the bag should be removed and the contents scattered over the surface of a sterile potting mix that has about 50% grit, pumice, perlite or other material added to increase drainage. It is beneficial to top the pot off with about 1/2" of grit or pumice.

Having said that, Mary Sue Ittner has successfully germinated this seed without stratification in the coastal climate of northern California with very mild winters. Rainfall in the region where she and her husband live can be 60" per year or more all falling in the winter months. She admits that over the years they are dwindling away, although one bloomed for her one year. Even so, this represents a success

**Growing from seed—see
Mariposa Vol. XIII No. 3, Jan.
2002 for more details.**

story for the unsuitable conditions that the northern California coast presents.

Some years ago I experimented with *C. leichtlinii* and *C. invenustus* to see if chilling the bulbs in the refrigerator each winter would make any difference to their growth. The seeds were germinated with stratification, and the seedlings grown outside exposed to normal winter temperatures, going dormant in about May or June. After dormancy I refrigerated the entire pot of seedlings in a spare refrigerator for about three months during the second winter, removing it if any sign of shoots was noted. This procedure was repeated each winter until the seedling bulbs were about two to three years old (large enough to handle comfortably). At that stage the bulbs were removed from their pot in the fall and refrigerated in damp peat.

When vigorous root growth was present they were removed from the refrigerator and potted up. I compared these bulbs to others that had been left outside with no winter chilling other than that of

**See Mariposa Vol. IX, No. 4 for
more horticultural advice**

normal winter temperatures. I live further north than Mary Sue, but still in a mild coastal climate with very little frost and often heavy winter rains, usually in the range of 40-50" per year all falling within a six month period. The bulbs that were refrigerated were much larger than the unrefrigerated bulbs and were much more vigorous in growth. They achieved maturity faster, and there was better survival. It seems, therefore, that the winter chilling is necessary for some species, especially for long-term survival.



Calochortus westonii

Horticultural Uses

In continental climates that provide sufficient winter chilling, *C. westonii* would be appropriate for the rock garden. Its tiny proportions would dictate planting where it can be closely observed. In addition, it needs dry growing conditions, but can tolerate some summer water if drainage is sharp. An alpine house would provide safer conditions for this little gem, growing it in a very gritty medium in a plunge bed.

Hickman, Ed. 1993. The Jepson Manual-Higher Plants of California. Univ. of Calif. Press

Ownbey, M. 1940. A Monograph of the Genus *Calochortus*, Ann. Mo. Bot. Garden

Powell, Bradley 2001. Rare Plant Management on the National Forests and Grasslands in California.

CNPS Inventory, 6th Ed. 2001.

Photographs: Unattributed photographs are courtesy of Georgie Robinett.

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