

## Mount Diablo Fairy-Lantern (*Calochortus pulchellus*)

### Status

**Federal:** None  
**State:** None  
**CNPS:** List 1B

### Population Trend

**Global:** Unknown  
**State:** Unknown  
**Within Inventory Area:** Unknown



Robert Potts © California Academy of Sciences

### Data Characterization

The location database for Mount Diablo fairy-lantern (*Calochortus pulchellus*) includes 29 data records dated from 1940 to 2003 (California Natural Diversity Database 2005). Over half of the occurrences were documented in the previous 10 years, and all of the occurrences are believed to be extant. Most of the occurrences are of high precision and may be accurately located, including those within the inventory area.

Very little information is available on the ecology of Mount Diablo fairy-lantern. The literature on the species pertains primarily to its taxonomy. The main sources of general information on the species are the *Jepson Manual* (Hickman 1993) and the California Native Plant Society (2005). Specific observations on habitat and plant associates, threats, and other factors are summarized in the California Natural Diversity Database (2005).

### Range

Mount Diablo fairy-lantern is endemic to the Diablo Range in Contra Costa County, ranging in elevation between 650 and 2,600 feet (Hickman 1993). These occurrences are mostly located on lands managed by the California Department of Parks and Recreation, East Bay Recreation and Park District, and City of Walnut Creek, with several populations occurring on privately owned land or land of unknown ownership (California Natural Diversity Database 2005).

### Occurrences within the ECC HCP/NCCP Inventory Area

Twelve occurrences of Mount Diablo fairy-lantern are within the inventory area, 11 of which are on public lands. At least five of the occurrences are either in Mount Diablo State Park or East Bay Regional Park District lands.

## Biology

### Physical Description

Mount Diablo fairy-lantern, a member of the lily family (Liliaceae), is a bulbiferous perennial herb that grows 10 to 30 centimeters tall (Hickman 1993). It blooms from April through June, producing bright yellow, pendant flowers.

### Population Biology

Fiedler (1987) reported that the Mount Diablo fairy lantern has low seed survival and seedling establishment, low adult mortality and slow growth. Fiedler (1987) found two size-classes of reproductive individuals in this species.

### Habitat

Mount Diablo fairy-lantern grows on grassy slopes and in openings in chaparral and oak woodland communities (California Natural Diversity Database 2005).

---

#### Species Associated with Mount Diablo Fairy-Lantern

---

<i>Arctostaphylos species</i>	Manzanita
<i>Quercus species</i>	Oaks
<i>Pinus sabiniana</i>	foothill pine
<i>Aesculus californica</i>	California buckeye
<i>Toxicodendron diversiloba</i>	poison-oak
<i>Melica torreyana</i>	Torrey melic
<i>Festuca californica</i>	California fescue
<i>Dodecatheon species</i>	shooting-stars
<i>Phacelia species</i>	Phacelia

---

## Threats

Mount Diablo fairy-lantern is known from only a limited number of occurrences and is endangered in a portion of its range (California Native Plant Society 2005). Population trends are unknown (California Natural Diversity Database 2005), but are likely stable. Threats to Mount Diablo fairy-lantern include grazing, road and trail maintenance, excessive erosion, feral pigs, and collecting (California Native Plant Society 2005, California Natural Diversity Database 2005).

## Conservation and Management

There are no measures being taken in the inventory area to conserve or manage populations of Mount Diablo fairy-lantern.

## Species Distribution Model

### Model Description

#### Model Assumptions

Suitable Habitat: Annual grassland, chaparral/scrub, oak woodland, and oak savannah between 650 feet and 2,600 feet in elevation.

#### Rationale

Mount Diablo fairy-lantern is endemic to the Diablo Range in Contra Costa County, ranging in elevation between 650 and 2,600 feet (Hickman 1993). Mount Diablo fairy-lantern grows on grassy slopes and in openings in chaparral and oak woodland communities (California Natural Diversity Database 2005).

### Model Results

Figure 2 shows the modeled Mount Diablo fairy-lantern habitat within the ECCC HCP/NCCP inventory area. All modeled suitable occurs within the western third of the inventory area. All known occurrences with location data are within modeled suitable habitat.

## Literature Cited

- California Native Plant Society (CNPS). 2005. Inventory of Rare and Endangered Plants (online edition, v6-05d). California Native Plant Society. Sacramento, CA. Accessed on Mon, Dec. 26, 2005 from <http://www.cnps.org/inventory>
- California Natural Diversity Database. 2005. RareFind 3, Version 3.0.3 (September 30, 2005 update). California Department of Fish and Game, Sacramento, CA.
- Fielder, P.L. 1987. Life history and population dynamics of rare and common mariposa lilies (*Calochortus* Pursh: Liliaceae). *Journal of Ecology* 75(4): 977-996.
- Hickman, J. C. (ed.). 1993. *The Jepson Manual*. University of California Press, Berkeley, CA.