

Status of pallid manzanita (*Arctostaphylos pallida*) in the Sausal Creek Watershed

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Pallid manzanita (*Arctostaphylos pallida*) has a very limited distribution in chaparral habitat in the hills just east of San Francisco Bay; it occurs nowhere else. Pallid manzanita is a fire-adapted shrub that requires the maritime climatic influence found in the East Bay hills. Summer fog supplies moisture, lowers evapotranspiration rates, and reduces solar energy, thereby reducing the stress on plants during otherwise dry summer months.

Pallid manzanita grow on rocky ridges and outcrops where there is no little or no topsoil and the nutrient supply is low. The largest, most dense stands occur in shales and cherts, with smaller populations in sandstones. Fire is the only reliable method of reproduction; the species needs fire sterilized soil and scarification of seeds to germinate. *Arctostaphylos pallida* was listed as endangered under the California Endangered Species Act in November 1979 and threatened under the Federal Endangered Species Act on April 22, 1998. The California Natural Diversity Database (CNDDDB) lists a total of 11 occurrences of pallid manzanita, seven of which are located within or adjacent to the Sausal Creek watershed.

CNDDDB Population Estimates

Just north of the Sausal Creek watershed three plants were reported at Sibley Volcanic Regional Preserve in 1992.

Huckleberry Botanic Regional Preserve, directly adjacent to the northern end of the Sausal Creek watershed, contains the largest known population of pallid manzanita. In the mid-1980's the population at Huckleberry was estimated at 2400-2700 plants. At the time over half of the plants surveyed showed branch and stem dieback. While most of the Huckleberry population occurs just outside the watershed on generally northeast facing slopes, the population extends southwest over the top of the ridge down to Skyline Boulevard. Between Huckleberry and Skyline, development in the Manzanita Drive area that began in the early 1970's is estimated to have impacted half of the historic pallid manzanita habitat. Plants west of the ridge are in the Sausal Creek watershed.

Just to the southeast of Huckleberry Preserve are two other occurrences, a single plant reported in 1985 along the East Ridge Trail in Redwood Regional Park, and a nearby population above Pinehurst Road on East Bay Municipal Utility District (EBMUD) land; the CNDDDB has no population estimate, but a U.S. Fish and Wildlife Service document estimates 25 plants.

A rock outcrop with pallid manzanita, its common associate brittle-leaf manzanita (*Arctostaphylos tomentosa* ssp. *crustacea*), and other chaparral species, located at the

intersection of Exeter and Chelton Drives was mapped in 1985 as the Exeter Chaparral. The CNDDDB documents several plants in poor condition at this site in 2001.

A single plant on Ascot Drive was documented in 1986.

Four areas with pallid manzanita are located in Joaquin Miller Park (JMP):

- Manzanita Flat, the northernmost colonies supported 19 plants in 1989.
- A 1994 survey of the central colonies, located between the Chabot Space and Science Center (Chabot) and Skyline Boulevard, found 21 plants.
- The southern colonies along Skyline near Roberts Recreation Area reportedly contained 65 plants in 1989.
- An additional occurrence (a single plant in poor condition), not documented in the CNDDDB, occurs near the Sequoia-Bayview Trail in Joaquin Miller Park.

Outside the Sausal Creek watershed the CNDDDB documents an occurrence at Sobrante Ridge Regional Preserve, the second largest naturally occurring population of pallid manzanita. A 1985 survey at the Preserve estimated between 1700 and 2000 plants on the site; a 1991 survey found 66 plants. The CNDDDB documents a second occurrence on Sobrante Ridge from 1986, but does not list the number of plants surveyed. This occurrence might be a duplicate report from the Sobrante Ridge Regional Preserve.

The other two populations located outside the watershed are near the Tilden Park Botanical Garden and were reportedly planted by James Roof. A 1981 survey of the population at the corner of Shasta and Park Hill roads reports fewer than 50 plants. A 1986 survey reported pallid manzanita from along Wildcat Canyon Road near the Botanical Garden, but did not specify the number of plants surveyed.

Plants were reported near Lake Temescal in 1983, but they are not included in the CNDDDB.

Observed Plant Populations, 2004

The three pallids at Sibley all appear to be about the same age, in good condition, of small to medium size, and are shaded by Monterey pines. It is possible seeds germinated here as a result of disturbance during trail construction.

The CNDDDB describes the Huckleberry plants as in poor condition and decreasing in number, and recent observations confirm the assessment. Shading, caused by trees growing in and around the pallid manzanita is the primary cause of the continuing decline.

The number of plants in the development along Manzanita Drive and extending down to Skyline Boulevard has declined since the 1985 survey. Many of the mapped individuals are gone, probably the victims of vegetation management activities for fire suppression. Under the PG&E power lines between Manzanita Drive and Skyline Boulevard the 1985 map shows two individual plants and a stand next to Manzanita

Drive. Our recent survey under the power lines found evidence of herbicide use, the individual plants that were mapped in 1985 are gone, and in the stand next to Manzanita Drive, half of the existing plants are dead. Since the mapping did not quantify the number of plants in this stand, some could have been removed since the mapping. Several individuals mapped in 1985 along Skyline are gone. We have documented the removal of three plants during vegetation management activities over the last three years. Two were growing on the road cut across from 7825 Skyline, and one on a City of Oakland owned lot next to 7716 Skyline. The *Alameda Manzanita Management Plan* (Amme, D and N. Havlik, 1987) reported the death of two large pallid manzanita in this area of Skyline caused by “clandestine eucalyptus cutting.” (The common name for pallid manzanita was formerly Alameda manzanita.)

The plant along the East Ridge Trail in Redwood Regional Park is a medium sized pallid manzanita in good to very good condition, but is shaded by large Monterey pines. Our April 7, 2004 survey of the EBMUD/Pinehurst Road plants found 7 live plants in generally poor condition, and all apparently of equal age except for one plant. Several dead plants were noted, including one brittle-leaf manzanita. The manzanitas have been shaded by madrones, oaks and pines, and in the last year there has been some clearing of the trees from around the plants.

Brittle-leaf manzanita dominates the Exeter Chaparral manzanita populations. Our surveys at the site found seven pallid manzanita. One plant has not been documented by previous surveys. This medium sized plant is located at the top of the road cut opposite 6701 Skyline. Previous surveys did not document plants above Skyline. Two small plants were located on a road cut on the uphill side of Exeter Drive at its intersection with Chelton Drive. The smallest is in very poor condition. Directly upslope from these two plants is a 1988 development of four homes that could have taken pallid manzanita. Some of the manzanitas on the site are in dense stands of French broom and could be pallids, but we could not access them through the heavy growth. . Many of the brittle-leaf manzanita on the site have been cut and resprouted. Pallid manzanita rarely resprout after cutting because they lack the basal burl possessed by brittle-leaf manzanita. Next to 6699 Exeter Drive at the top of the road cut on Chelton are two medium to large plants in fair to good condition. Two medium-sized pallid manzanita, in good condition, are just below Chelton in the backyard of 6210 Elderberry Drive.

Based on the location information in the CNDDDB, there should be a pallid manzanita in the 6300 block of Ascot Drive. We cannot find the plant due to recent development. Without a more accurate map to determine location of this plant we assume that it has been removed.

Joaquin Miller Park pallid manzanita show evidence of both decline and regeneration. JMP plants display a greater variation in size and apparent age than any other sight in the watershed. The northern Manzanita Flat population has been extirpated. These plants were eliminated through a combination of causes, including goat grazing, shading by planted redwood trees, and root fungus. The plants were established in the early 1970's when soils from Manzanita Drive road cuts were deposited on the site.

Seeds in the imported soil germinated and established a colony of 19 plants. Shading by the planted redwoods and fungus weakened some of the plants. Goats browsed and bark stripped the plants, which likely caused the death of the already weakened plants.

The central colony in JMP, located at Chabot, was identified in the Environmental Impact Report (EIR) prepared for the construction of the facility. During a 1994 survey 21 individual plants were identified and mapped. A survey on March 31, 2004 found 10 live pallid manzanita and 19 dead; one plant had just died since blooming. Some of the dead plants, including the largest pallid manzanita on the site, still had dried leaves attached, indicating relatively recent death. The plants on the Chabot site are in very poor condition due to shading by both native and non-native trees. City contractors clearing along Skyline cut and destroyed a live plant on September 23, 2003. In 2001 members of the Friends of Sausal Creek cleared brush and overhanging trees from around the largest, healthiest plant on the site.

Located on both sides of Skyline Boulevard in the area between the PAL camp and Roberts Recreation Area, the southern colony of the JMP population contains plants of various ages from young to very mature plants. We have identified about 40 pallid manzanita in this area, and they are in generally poor condition. The decline is due to shading by trees and grazing by goats. During 2003 goats grazed three plants near the PAL camp, removing most of the new growth. New growth has appeared on the grazed plants, but we will need to monitor their condition over time.

The single plant near the Sequoia Bayview trail is in poor condition due to shading by Monterey pines. One or two additional dead manzanita are located nearby.

Our recent observations at Sobrante Ridge Regional Preserve were not extensive enough to come to any conclusions about changes in status. Shading by native trees is gradually increasing and without intervention will impact the stand over time. Numerous plants along trail were recently pruned, apparently part of a trail maintenance program.

The CNDDDB report for the Shasta Road/ Park Hill Road intersection population documents less than 50 plants in 1983. On March 20, 2004 we found 12 to 14 large mature plants in very good to excellent condition and seven to eight dead plants. There were no signs of regeneration. Six plants were found on Wildcat Canyon Road. One is a large healthy plant in very good condition, three are in poor condition, and two are dead. The one large healthy plant is in grassland on a slope in full sun. Oak trees shade the other five plants.

To date we have not carried out surveys for the Lake Temescal plants.

Summary of Findings

Most currently published pallid manzanita population estimates are based on surveys conducted in 1985. The two largest natural stands at Huckleberry and Sobrante Ridge were not extensively surveyed for this report; however, based on our observations,

the population outside these two sites has declined between 30 and 50 percent since 1985. Forty percent of the pallid manzanita in the Sausal Creek watershed have been lost in less than 20 years. The only places we found any evidence of regeneration were the two small plants at Exeter Drive, one plant at EBMUD/Pinehurst Road, and in the southern colony at Joaquin Miller Park. CNDDDB population estimates are no longer accurate, and significantly overestimate current pallid manzanita populations. Surveys of pallid manzanita populations must be performed on a regular and consistent basis.

***Arctostaphylos pallida* populations outside the Sausal Creek Watershed**

Location	Year	Plant Count	2004 Plant Count
Sobrante Ridge Regional Preserve	1985	1700-2000 estimated plants	Unknown
Park Hill/Shasta Roads	1981	Less than 50 plants	12-14 plants
Huckleberry Preserve	1985	2400-2700 estimated plants	Declining
EBMUD Pinehurst Road	1985	25 plants	7 plants
Redwood Regional Park-East Ridge Trail	1985	1 plant	1 plant
Wildcat Canyon Road	1986	Unreported	4 plants
Sibley Volcanic Preserve	1992	3 plants	3 plants
Lake Temescal		Unknown	Unknown

***Arctostaphylos pallida* populations in the Sausal Creek Watershed**

Location	Year	Plant Count	2004 Plant Count
Manzanita Drive Area	1985	Fewer than 100 plants	Fewer than 50 plants
Joaquin Miller Park, Manzanita Flat	1989	19 plants	0 plants
Joaquin Miller Park, Chabot	1994	21 plants	10 plants
Joaquin Miller Park, near Roberts	1989	65 plants	58 plants
Joaquin Miller Park, Sequoia-Bayview Trail	1999	1 plant	1 plant
Exeter Chaparral	2001	Several plants in poor condition	7 plants
Ascot Drive	1986	1 plant	Assumed extirpated

Approximate totals for Sausal Creek Watershed: 1985: 214 plants; 2004: 126 plants.

Causes of the Decline

Development, vegetation management activities, shading by native and non-native trees, and fire suppression are the causes of the decline of pallid manzanita in the Sausal Creek watershed. Pallid manzanita will not survive in the watershed without addressing these impacts.

The California Endangered Species Act (CESA) requires mitigation measures for the take of threatened and endangered species. Development since the pallid manzanita was declared an endangered species in 1979 has not met the requirements of CESA. The California Environmental Quality Act (CEQA) requires the disclosure of the impact of development on the environment, including endangered species. The building of single-family homes is often exempted from CEQA review. Property owners are permitted to remove State endangered plants, but not without giving notice to the California Department of Fish and Game.

Development and vegetation management activities in the Manzanita Drive area continue to impact pallid manzanita. The subdivision at Exeter and Chelton resulted in the destruction of pallid manzanita. At the Chabot Space and Science Center the following condition of approval was part of the EIR:

Condition 25: The project sponsor shall prepare an "Alameda manzanita habitat conservation plan" to ensure the continued existence of this endangered species at the project site. This plan shall be submitted to the East Bay Regional Park District for review and the Director of City Planning for approval prior to the issuance of any grading permits.

Repeated requests to the City of Oakland for a copy of the Alameda manzanita habitat conservation plan and the surveyor's map showing the location of the 21 plants have gone unanswered. Based on the decline of Chabot's manzanita population, it would appear the plan was either never produced, or perhaps never implemented.

Increased vegetation management activities since the 1991 Oakland hills fire have resulted in damage to and death of pallid manzanita. Clearing and the use of herbicides along roads have killed manzanitas. Goats have browsed pallid manzanita, sometimes quite heavily, killing some plants and stressing others.

Trees, both native and non-native are shading out pallid manzanita throughout its range. In some cases (at Chabot, for instance) shading has killed pallid manzanita. Soil build up resulting from accumulated leaf litter from trees may also adversely impact the plants.

Pallid manzanita require soil disturbance to regenerate. Prior to the arrival of Europeans, fire was the most common cause of soil disturbance. Fire sterilizes soils, scarifies seeds and leads to the re-propagation of pallid manzanita populations. Without regular fire alternative means must be found for regenerating the species.

Pallid Manzanita Restoration and Management

A pallid manzanita restoration and management plan should be prepared for the Sausal Creek watershed. The plan should include a prioritized list of actions beginning with immediate steps to prevent further decline in the population. Both the *Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California* (U.S. Fish and Wildlife Service. 2002) and the *Alameda Manzanita Recovery Plan* (Amme, D and N. Havlik. 1987) identify steps to restore and manage the species. In addition to those outlined in the Plans, the following elements should be included in a restoration and management plan:

- Immediate action to stabilize the population and prevent further losses. Actions should include: clearing around existing plants, and the identification and mapping of all plants in the watershed for use by City of Oakland staff. Prevent further loss by educating City of Oakland staff about the impacts of development and vegetation management programs on pallid manzanita.
- Methods to ensure compliance with CESA and CEQA requirements for all development and vegetation management activities in pallid manzanita habitat.
- Identification of properties in the watershed for purchase where pallid manzanita populations can be restored or satellite populations established.

The City of Oakland should undertake the following actions to support restoration and management of pallid manzanita:

- Prepare a long-term vegetation management plan for fire safety that includes management goals and objectives for pallid manzanita and other sensitive species.
- Hire staff or a consultant with the knowledge and expertise (including CESA and CEQA compliance) to oversee all activities in habitat for pallid manzanita and other sensitive species.
- Analyze the City of Oakland Protected Trees Ordinance, and amend as needed, for consistency with preservation and restoration goals for pallid manzanita and other sensitive species.
- Amend City Ordinance or Regulation to allow the herbicide treatment of stumps to prevent re-sprouting of invasives like eucalyptus, elm, and acacia.

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