threatened by alien species *Cytisus monspessulanus* and *Cortaderia jubatum.* Low viability caused by harmful genetic changes may result from inbreeding in small populations (Barrett and Kohn 1991). The larger of the two populations occurs on a roadcut.

The Crystal Springs Reservoir population of *Cirsium fontinale* var. *fontinale* is threatened by several factors, including roadside maintenance. The California Department of Transportation is aware of the rare plants in this area, and the maintenance division submits spraying plans for internal environmental review before spraying in the area where plants are known to occur (Richard Vonarb, pers. comm., 1992). Alien plants such as Cortaderia selloana have established themselves near the *C. fontinale* var. fontinale, and threaten several subpopulations (Zoe Chandik, pers. comm., 1992). Dumping of garden debris from households on the ridge above the plants covers plants and renders the habitat unsuitable for plant establishment and growth. It has been suggested that C. fontinale var. fontinale may be threatened with hybridization with Cirsium quercetorum, but only one hybrid has been collected in recent years, so this is not thought to be a serious problem (Dean Kelch, pers. comm., 1992). In addition, seed predation of this species has been observed (Dean Kelch, pers. comm., 1992) and may add to the vulnerability of the species to elimination by chance events

Eriophyllum latilobum is threatened by many factors. Dumping of garden debris and downhill seepage of pesticides from homeowners living above the population may have negative impacts on E. latilobum habitat. The plant also is threatened by competition with alien plants; its habitat is more densely populated with Carduus sp. and Bromus sp. than it was 10 years ago (John Mooring, pers. comm., 1992). Road maintenance also threatens E. latilobum. San Mateo County road maintenance crews were alerted to the existence of E. latilobum in 1990, and instructed to avoid the plants by the San Mateo County Planning Department; however, road maintenance activities are not monitored to ensure protection (Roman Gankin, San Mateo County Planning Division, pers. comm. to Teri McGuire, Botanist, California Department of Fish and Game, cited in McGuire and Morey 1992). San Mateo County Department of Public Works has eliminated the use of weed sprays along the section of road where the species occurs (Robert Sans, Director of Public

Works, San Mateo Co., *in litt.*, 1993). *E. latilobum* is not a vigorous reproducer; low germination rates and low seedling survival have been observed under greenhouse conditions (John Mooring, *in litt.*, 1992; McGuire and Morey 1992). Because of the existence of only a single population exhibiting low viability and located in an unstable habitat, this species is extremely vulnerable to stochastic extinction (Menges).

Hesperolinon congestum is threatened by the encroachment of native shrubs in San Francisco County. In San Mateo County, all three populations are threatened by trash dumping as a consequence of recently completed development. In addition, a portion of the *H. congestum* population located in Edgewood Park is suffering from foot traffic and inadequate trail maintenance (S. Sommers, *in litt.*, 1993).

Pentachaeta bellidiflora potentially is threatened by competition from alien plant species; this competition becomes a problem when the soils are disturbed (Robison and Morey 1992b). If proposed trail construction occurs on the site, the soil disturbance could result in encroachment and competition from non-native species.

*Ceanothus ferrisae* is threatened by unauthorized dumping of litter and larger debris at the Anderson Dam site. Dumping can degrade or threaten a habitat by directly killing the plants, depriving them of light, or disturbing the soil, thus promoting erosion and the invasion of weedy, competitive species.

*Streptanthus albidus* ssp. *albidus* is threatened by dumping and off-road motorcycle use. Road maintenance or construction threaten populations that occur on roadcuts.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these species in determining to make this rule final. These 12 plants are endemic to a very specific habitat that occurs in scattered outcrops. The rapid urban development in the San Francisco Bay region offers the greatest threat to these plants. Development has eliminated nearly 20 percent of the serpentine habitat in the last 20 years (McCarten 1987b). The remaining habitat is fragmented from road and urban construction and increasingly will become impacted with predicted growth in population centers. The 12 species are threatened further by the invasion of alien species, roadside maintenance, soil erosion and slipping, garbage dumping, livestock grazing, seed predation, and small population sizes that increase their vulnerability to chance events such as fire, flood,

drought, pest and disease outbreaks, and other natural and human-caused disasters.

Cordylanthus tenuis ssp. capillaris occurs in only two sites. One is threatened by off road vehicle use; the second site, although proposed for protection as a county park, is threatened potentially by foot traffic. Five of the six populations of *Castilleja* affinis ssp. neglecta are threatened by development, foot traffic, and a nearby quarry. The two populations of Streptanthus niger are threatened by residential development and road construction. Clarkia franciscana is known from five populations that are imperiled by potential development, foot traffic and competition from alien plants. Proposed trail and road construction threaten the three remaining populations of *Cirsium* fontinale var. fontinale. The single remaining population of Eriophyllum *latilobum* occurs on steep slopes subject to erosion that could be accelerated by a proposed bike trail. It is extremely vulnerable to extinction from random events. The single remaining population of Pentachaeta bellidiflora, which has been bisected by Highway 280, is threatened by proposed trail construction. It is also extremely vulnerable to random events. Ceanothus ferrisae occurs in three populations threatened by proposed residential and recreational development; 95 percent of one population was recently destroyed by fire. Eleven of the 14 populations of Dudleya setchellii occur on private land and are threatened by a proposed golf course and by residential, school, church and road construction. Proposed residential and golf course construction, and grazing threaten the nine populations of *Streptanthus albidus* ssp. albidus.

These species are in danger of extinction throughout all or a part of their range, and the preferred action is, therefore, to list Castilleja affinis ssp. neglecta, Ceanothus ferrisae, Cirsium fontinale var. fontinale, Clarkia franciscana, Cordylanthus tenuis ssp. capillaris, Dudleya setchellii, Eriophyllum latilobum, Pentachaeta bellidiflora, Streptanthus albidus ssp. albidus, and Streptanthus niger as endangered. Two species are not now in immediate danger of extinction throughout all or a significant portion of their range. The single known population of Calochortus tiburonensis is protected by The Nature Conservancy, however, its proximity to human population centers and surrounding development make it vulnerable to catastrophic events. Proposed residential development and foot traffic