pursuant to *Revision of Section 73.3573(a)(1) of the Commission's Rules Concerning the Lower Classification of an FM Allotment*, 4 FCC Rcd 2413 (1989), and the *Amendment of the Commission's Rules to Permit FM Channel and Class Modifications [Upgrades] by Application*, 8 FCC Rcd 4735 (1993).

FOR FURTHER INFORMATION CONTACT: Sharon P. McDonald, Mass Media Bureau, (202) 418–2180.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's *Report and Order*, adopted January 18, 1995, and released January 26, 1995. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Reference Center (Room 239), 1919 M Street, NW, Washington, D.C. The complete text of this decision may also be purchased from the Commission's copy contractors, International Transcription Service, Inc., (202) 857–3800, 2100 M Street, NW, Suite 140, Washington, D.C. 20037.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Part 73 of Title 47 of the Code of Federal Regulations is amended as follows:

PART 73—[AMENDED]

1. The authority citation for Part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303.

§ 73.202 [Amended]

2. Section 73.202(b), the Table of FM Allotments under Alabama, is amended by deleting Channel 232A and adding Channel 232C3 at Abbeville; and deleting Channel 293C3 and adding Channel 293C2 at Bay Minette.

3. Section 73.202(b), the Table of FM Allotments under Alaska, is amended by deleting Channel 280C3 and adding Channel 280A at College.

4. Section 73.202(b), the Table of FM Allotments under Arizona, is amended by deleting Channel 223C and adding Channel 223C1 at Eagar.

5. Section 73.202(b), the Table of FM Allotments under California, is amended by deleting Channel 300C1 and adding Channel 300A at Mount Shasta.

6. Section 73.202(b), the Table of FM Allotments under Colorado, is amended by deleting Channel 292C2 and adding Channel 292C3 at Kremmling.

7. Section 73.202(b), the Table of FM Allotments under Florida, is amended by deleting Channel 268C1 and adding Channel 268C at Pensacola; and deleting Channel 276A and adding Channel 276C3 at Plantation Key.

8. Section 73.202(b), the Table of FM Allotments under Georgia, is amended by deleting Channel 258C and adding Channel 258C1 at Douglas.

9. Section 73.202(b), the Table of FM Allotments under Indiana, is amended by deleting Channel 224A and adding Channel 223A at Kokoma.

10. Section 73.202(b), the Table of FM Allotments under Kentucky, is amended by deleting Channel 250A and adding Channel 250C3 at Hyden; and deleting Channel 296A and adding Channel 299A at Owingsville.

11. Section 73.202(b), the Table of FM Allotments under Louisiana, is amended by deleting Channel 230C2 and adding Channel 230C3 at Bastrop.

12. Section 73.202(b), the Table of FM Allotments under Michigan, is amended by deleting Channel 258C1 and adding Channel 258C2 Sault Ste. Marie.

13. Section 73.202(b), the Table of FM Allotments under Mississippi, is amended by deleting Channel 243C3 and adding Channel 243A Clarksdale.

14. Section 73.202(b), the Table of FM Allotments under New Mexico, is amended by deleting Channel 268C and adding Channel 268C1 at Clovis.

15. Section 73.202(b), the Table of FM Allotments under New York, is amended by deleting Channel 263A and adding Channel 262B1 at Warrensburg.

16. Section 73.202(b), the Table of FM Allotments under North Carolina, is amended by deleting Channel 260C and adding Channel 260C1 at Burgaw.

17. Section 73.202(b), the Table of FM Allotments under Oklahoma, is amended by deleting Channel 232A adding Channel 232C3 at Elk City.

18. Section 73.202(b), the Table of FM Allotments under Oregon, is amended by deleting Channel 258C and adding Channel 258C1 at Klamath Falls.

19. Section 73.202(b), the Table of FM Allotments under South Dakota, is amended by deleting Channel 264C and adding Channel 264C1 at Lowry.

20. Section 73.202(b), the Table of FM Allotments under Texas, is amended by deleting Channel 234A and adding Channel 234C3 at Corpus Christi; deleting Channel 234C1 and adding Channel 234C at El Paso; and deleting Channel 231C2 and adding Channel 231C3 at Point Comfort.

21. Section 73.202(b), the Table of FM Allotments under Utah, is amended by deleting Channel 238C and adding Channel 238C1 at Ogden.

22. Section 73.202(b), the Table of FM Allotments under Wisconsin, is amended by deleting Channel 297C2 and adding Channel 297C3 at Iron River; and deleting Channel 249C2 and adding Channel 249C3 at Rice Lake.

23. Section 73.202(b), the Table of FM Allotments under Wyoming, is amended by deleting Channel 250C and adding Channel 250C1 at Cheyenne.

Federal Communications Commission.

John A. Karousos,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 95–2682 Filed 2–2–95; 8:45 am]

BILLING CODE 6712–01–F

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN: 1018–AB88

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Ten Plants and Threatened Status for Two Plants From Serpentine Habitats in the San Francisco Bay Region of California

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) determines endangered status pursuant to the Endangered Species Act of 1973, as amended (Act) for 10 plants: *Castilleja affinis* ssp. *neglecta* (Tiburon paintbrush), *Ceanothus ferrisae* (coyote ceanothus), *Cirsium fontinale* var. *fontinale* (fountain thistle), *Clarkia franciscana* (Presidio clarkia), *Cordylanthus tenuis* ssp. *capillaris* (Pennell's bird's-beak), *Dudleya setchellii* (Santa Clara Valley dudleya), *Eriophyllum latilobum* (San Mateo woolly sunflower), *Pentachaeta bellidiflora* (white-rayed pentachaeta), *Streptanthus albidus* ssp. *albidus* (Metcalf Canyon jewelflower), and *Streptanthus niger* (Tiburon jewelflower). The Service also determines threatened status for two plants, *Calochortus tiburonensis* (Tiburon mariposa lily) and *Hesperolinon congestum* (Marin dwarf-flax). These species are restricted to serpentine soil outcrops in the area near San Francisco Bay, California. The 12 plants have been variously affected and are threatened by one or more of the following: urbanization, pedestrian, and off-road vehicular traffic, the invasion of alien plants, road maintenance, soil erosion and slipping, unauthorized dumping, livestock grazing, seed predation by beetles, and stochastic extinction by virtue of the small,

isolated nature of the remaining populations. This rule implements the Federal protection and recovery provisions afforded by the Act for these plants.

EFFECTIVE DATE: March 6, 1995.

ADDRESSES: The complete file for this rule is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, 2800 Cottage Way, Room E–1803, Sacramento, California 95825–1846.

FOR FURTHER INFORMATION CONTACT: Elizabeth Warne at 916/978–4866 at the above address.

SUPPLEMENTARY INFORMATION:

Background

Cordylanthus tenuis ssp. *capillaris, Calochortus tiburonensis, Castilleja affinis* ssp. *neglecta, Streptanthus niger, Clarkia franciscana, Cirsium fontinale* var. *fontinale, Eriophyllum latilobum, Hesperolinon congestum, Pentachaeta bellidiflora, Ceanothus ferrisae, Dudleya setchellii,* and *Streptanthus albidus* ssp. *albidus* are endemic to serpentine soils in the region of the San Francisco Bay in California. Serpentine soils are derived from ultramafic rocks such as serpentinite, dunite, and peridotite, which are found in discontinuous outcrops in the Sierra Nevada and in the Coast Ranges from Santa Barbara County, California to British Columbia. The chief constituent of the parent rock is some variant of iron-magnesium silicate. Most serpentine soils are formed in place over the parent rock, and are, therefore, shallow, rocky, and highly erodible. Serpentine soils, because of the parent material, tend to have high concentrations of magnesium, chromium, and nickel and low concentrations of calcium, nitrogen, potassium, and phosphorus (Kruckeberg 1984). These characteristics make serpentine soil inhospitable for the growth of most plants. Nevertheless, some plants have adapted to the rigors of life on serpentine soils. In fact, serpentine soils often support a high diversity of plants including many rare species (McCarten 1988). Over 200 taxa in California are endemic (restricted) to serpentine soils (Kruckeberg 1984).

Serpentine soils in the San Francisco Bay region are derived from intrusive igneous rocks associated with fault zones in the sedimentary Franciscan formation. Outcrops occur south of the Bay in the Coyote Valley of Santa Clara County; west of the Bay at Edgewood County Park, near Crystal Springs Reservoir, at Stanford University's Jasper Ridge Preserve in San Mateo County, and at the Presidio in San Francisco County; east of the Bay in the Oakland Hills of Alameda County and at Mt. Diablo in Contra Costa County; and north of the Bay on the Tiburon Peninsula in eastern Marin County and at Mt. Tamalpais, Carson Ridge, and near Nicasio Reservoir in western Marin County, as well as in Sonoma and Napa Counties. Serpentine soils are variable in soil chemistry, texture, and water availability, both within and between sites (McCarten 1987b). This variability and the variety of micro-climates in the San Francisco Bay region have a profound effect upon the local flora. Several serpentine plant communities are found in the San Francisco Bay region (McCarten 1987b). Grassland and annual forb communities (serpentine bunchgrass grasslands and serpentine wildflower fields) tend to occur on level ground or on gentle slopes with soils to 1 meter (m) (3 feet (ft)) or more in depth. Shrub communities (Franciscan serpentine coastal scrub, mixed serpentine chaparral, and Sargent cypress woodlands) tend to occur on steep rocky slopes with shallow soils. In some areas, soil development is minimal and parent rock is extensively exposed. These serpentine barrens support a distinctive community composed of only a few species, usually growing at low densities. Another unique habitat on serpentine soils occurs near seasonal springs and seeps, which support species requiring moist soil.

Most of the 12 species in this rule occur in the serpentine bunchgrass grassland and serpentine wildflower field communities. *Cirsium fontinale* var. *fontinale* occurs in serpentine seep areas. *Cordylanthus tenuis* ssp. *capillaris* and *Ceanothus ferrisae* occur in chaparral, as do a few populations of *Hesperolinon congestum*. *Dudleya setchellii* and *Streptanthus albidus* ssp. *albidus* are found on serpentine barrens. *Eriophyllum latilobum* grows on serpentine-influenced soil in the coast live oak woodland community.

Serpentine endemics may have limited or widespread distributions. Some species are restricted to a single outcrop; others occur on serpentine soils within a particular region; a few species occur throughout almost the entire range of serpentine soils in California (Kruckeberg 1984). Of the taxa considered in this rule, (*Calochortus tiburonensis*) is thought to always have been restricted to the single outcrop on which it occurs. Others, including *Cordylanthus tenuis* ssp. *capillaris, Streptanthus niger, Eriophyllum latilobum, Dudleya setchellii,* and *Streptanthus albidus* ssp. *albidus,* have a known historical range of only a few miles or less. The widest ranging species in historic times was *Pentachaeta bellidiflora,* which occurred from Marin County to Santa Cruz County. It is now restricted to a single population as a result of habitat destruction.

The human population of the San Francisco Bay region has grown rapidly over the last several decades. Urban development (including highway construction) has reduced the amount of serpentine habitat by nearly 20 percent in the past 20 years (McCarten 1987b). The construction of roads, houses, recreational facilities, and waste disposal sites continues. The increasing numbers of people also place an ever greater strain on undeveloped wildlands, through activities such as pedestrian and off-road vehicle traffic, unauthorized garbage dumping, and changes in the pattern of wildland fires. Serpentine habitats, because of their often limited vegetative cover, may appear to the uninitiated as unoccupied space, and so they are especially likely to be subject to disturbances. Recreational activities may directly impact plants; or may result in increased erosion and facilitate the invasion of alien species including many introduced annual grasses common in California. Competition with introduced species is a serious threat to serpentine natives (McCarten 1987b). The destruction of serpentine habitats due to urban development also has increased the fragmentation of rare plant populations, thus, increasing the risks of extinction due to chance events such as fire, pest or disease outbreaks, reproductive failure, or other natural or human-caused disaster.

The land that supports these 12 taxa is owned by local, State, and Federal agencies, parks, and private parties.

Discussion of the Twelve Species

North Bay Species

Cordylanthus tenuis ssp. *capillaris* (Pennell's bird's-beak) was collected by Herbert Mason about 3.2 kilometers (km) (2 miles (mi)) north of Occidental in Sonoma County, California, in 1946. Francis Whittier Pennell described the plant as *Cordylanthus capillaris* in 1950, using Mason's specimen as the type (Pennell 1950). Pennell was misled by an erroneous label to think that the plants had been collected in Merced County (Bacigalupi 1966), which may have affected his treatment of the taxon (Chuang and Heckard 1986). Artificial hybridization studies of *C. brunneus* and *C. capillaris* (Chuang and Heckard 1975) showed a close relationship between the two plants. The name *C. brunneus* ssp. *capillaris* was proposed

for *C. capillaris* by Chuang and Heckard (Heckard 1977), but was never formally published. In 1986, Chuang and Heckard published a revision of the genus, in which both *C. brunneus* and *C. capillaris* were treated as subspecies of *C. tenuis* (Chuang and Heckard 1986).

Cordylanthus tenuis ssp. *capillaris* is a branching herbaceous annual of the snapdragon family (Scrophulariaceae). The plant grows 30 to 40 centimeters (cm) (12 to 16 inches (in)) tall, with yellow-green hairless herbage that becomes purplish with age. The leaves are entire, or those of the primary stem three-parted, and threadlike. The floral bracts are three-parted up to two-thirds of their length, with fine marginal hairs on bracts and calyx. The tubular corolla is 1.5 cm (0.6 in) long and garnet-brown laterally, paler dorsally. Each capsule contains 10 to 16 seeds. The three-lobed outer bracts of *Cordylanthus tenuis* ssp. *capillaris distinguish it from its nearest relative (C. tenuis* ssp. *brunneus*) and from *C. pilosus,* another *Cordylanthus* found in the area. A further distinguishing character is that *C.* pilosus is densely hairy throughout.

Cordylanthus tenuis ssp. *capillaris* is known only from two locations: the type locality in western Sonoma County and a second occurrence a few miles to the west. A third population may occur on property adjacent to the second location, but permission for botanical surveys on that property has been consistently refused (Betty Guggolz, Milo Baker Chapter, California Native Plant Society, pers. comm., 1992). The total number of plants fluctuates from year to year, as is typical of annual plants. *C. tenuis* ssp. *capillaris* is threatened with potential residential development, garbage dumping, and roadside maintenance.

Calochortus tiburonensis (Tiburon mariposa lily) was discovered in 1971 by Robert West on Ring Mountain on the Tiburon Peninsula in Marin County, California. Albert Hill collected the type specimen on Ring Mountain the following year and published the description in 1973 (Hill 1973).

Calochortus tiburonensis is a bulbous perennial of the lily family (Liliaceae) with a single persistent, basal, linear-oblong leaf 30 to 60 cm (1 to 2 ft) long. The flowering stem, about 50 cm (20 in) tall, is usually branched and bears erect flowers in twos or threes at the ends of the branches. The three petals and three sepals are light yellow-green with reddish or purplish-brown markings. The capsule is triangular in cross-section and about 4 cm (2 in) long. The long slender hairs on the upper surface and margins of the petals and the lack of wings on the capsule distinguish *C. tiburonensis* from the other two *Calochortus* species found on the Tiburon Peninsula, *C. umbellatus* and *C. luteus.*

Calochortus tiburonensis is known only from its type locality, where it grows on rocky serpentine slopes among annual and perennial herbs and grasses. The population, estimated at 40,000 individuals in 1991 (Larry Serpa, The Nature Conservancy, pers. comm., 1992), occurs on land that has been owned and managed by The Nature Conservancy since 1982. The occurrence of this plant in a single population, its proximity to human population centers, and intensive development activities renders it vulnerable to catastrophic events such as fire, disease or pest outbreak, severe drought, or other natural or human-caused disasters.

The type specimen of *Castilleja affinis* ssp. *neglecta* (Tiburon paintbrush) was collected by Katherine Brandegee in the early 1900s. The plant was described by Zeile in 1925 in Willis Jepson's *Manual of the Flowering Plants of California.*

Castilleja affinis ssp. *neglecta* is a semi-woody perennial of the snapdragon family (Scrophulariaceae), with erect, branched stems 30 to 60 cm (1 to 2 ft) tall and a sparse covering of soft, spreading hairs. The lance-shaped leaves have one or two pairs of narrow lobes. The conspicuous floral bracts are yellowish and sometimes red-tipped; the flowers are yellow to red and 18 to 20 millimeters (mm) (0.7 to 0.8 in) long. The simple (unbranched) hairs and the lack of glands below the inflorescence distinguish *C. affinis* spp. *neglecta* from other species of *Castilleja* on the Tiburon Peninsula (*C. latifolia* var. *rubra* and *C. foliosa*) (Howell 1970).

Castilleja affinis ssp. *neglecta* occurs in serpentine bunchgrass communities on north to west facing slopes. It is known from four populations in Marin County, three of which occur on the Tiburon Peninsula, one population in Napa County, and one population in Santa Clara County. The range of this plant is approximately 50 km (30 miles) from east to west and 112 km (70 miles) from north to south. Population sizes are small, ranging from 13 plants at a location in Santa Clara County (Roxanne Bittmann, California Natural Diversity Data Base, pers. comm., 1993) to 600 plants at Ring Mountain Preserve on the Tiburon Peninsula (Hunter 1989a). A total of approximately 1,500 plants exist. The Marin County populations are threatened by residential development, foot traffic, grazing, and soil slumping; the Napa County population is threatened by gravel mining and grazing.

Streptanthus niger (Tiburon jewelflower) was described by Edward L. Greene, from a type specimen he had collected at St. Hilary's Church in the town of Tiburon in Marin County (Greene 1886a). Greene later redefined the limits of *Euclisia,* formerly a subgenus of Streptanthus, treating it as a genus in its own right (Greene 1904). *S. niger,* as a member of the Euclisia group, was thus referred to as *E. niger.* Jepson (1925) returned *Euclisia* to subsection status and later authors followed his treatment. Munz treated *S. niger* as a subspecies of *S. glandulosus* in *A California Flora* (1959), and then returned it to *S. niger* in his supplement (1968), following Kruckeberg (1958).

Streptanthus niger is an annual herb of the mustard family (Brassicaceae) that reaches 30 to 60 cm (1 to 2 ft) in height. The lower leaves are toothed, the upper leaves less toothed or not at all. The sepals are a very dark purple; the petals have a purple claw and a white blade with a purple midvein. The zig-zag inflorescence pattern and the lack of hairs distinguish *S. niger* from its near relative *S. glandulosus.*

Streptanthus niger is found on shallow rocky serpentine soils on southwest-facing slopes on the Tiburon Peninsula of Marin County. Two populations are known from the southern end of the peninsula where they occur within 3 km (2 miles) of one another. Populations number from 50 to 2,000 plants (Hunter 1989b, Andrew Allen, Belvedere-Tiburon Landmarks Society, *in litt.,* 1991). The plant is threatened by residential development, foot traffic, and road construction.

Central Bay Species

The type specimen of *Clarkia franciscana* (Presidio clarkia) was collected by Peter Raven in 1956. *C. franciscana* was described by Harlan Lewis and Peter Raven (1958).

Clarkia franciscana is a slender, erect, herbaceous annual of the evening-primrose family (Onagraceae), 40 cm (16 in) tall with few, very small, and narrow leaves. The lavender-pink petals have a lighter basal portion and a reddish-purple basal spot. The slender capsule is 2 to 4 cm (1 to 2 in) long. *C. franciscana* can be distinguished from *C. rubicunda,* a related species that may occur in the same area, by its petals that have irregular teeth on the apical margin. *C. rubicunda* has petals that are rounded at the apex.

Clarkia franciscana is restricted to serpentine soils in grassland communities in San Francisco and Alameda Counties. Two populations are known from the Presidio in San Francisco. Three populations are known

from the Oakland Hills in Alameda County, 27 km (17 mi) east of San Francisco, all within 1.0 km (0.6 mi) of each other. A fourth population in the Oakland Hills was reported in 1988 (California Department of Fish and Game, Natural Diversity Data Base) but could not be relocated during a search conducted in 1991 (David Bigham, East Bay Chapter, California Native Plant Society, *in litt.*, 1991). Population sizes fluctuate greatly; the upper limit to the total numbers of plants reported in recent years is approximately 8,000 plants. The first of the Alameda County populations was discovered in 1980 at the Redwood Regional Park. Because this discovery occurred so long after the original discovery of the plant and because this population was relatively far from the previously known population at the Presidio, it was suggested that this population might not be a natural occurrence. This suggestion gained credence because seed collected from the type location in 1964 had been sown in the East Bay Regional Parks Tilden Botanic Garden and plants had grown there for several years (Roof 1971). Seed collected from plants at the botanic garden had been sown in several sites at the Presidio in 1972 (Roof 1972). It was thought that seed might also have been sown at Redwood Regional Park in Alameda County. However, an electrophoretic comparison of the San Francisco and Alameda populations ''strongly suggests that the Oakland Hills population did not originate by seed transfer from San Francisco and it must be regarded as indigenous to its present locality'' (Gottlieb and Edwards 1992). *C. franciscana* is threatened by potential development, roadside maintenance, foot traffic, mowing, competition from alien plants, and shade from native and introduced shrubs and trees.

Cirsium fontinale var. *fontinale* (fountain thistle) was first described as *Cnicus fontinalis* (Greene 1886b). In 1892, Greene reassigned the plant to the genus *Carduus* (Greene 1892). Willis Jepson, in his *Flora of Western Middle California* (1901), put the taxon in the genus *Cirsium*. In 1938, John Thomas Howell described a close relative of the fountain thistle, *Cirsium fontinale* var. *obispoense* (Chorro Creek bog thistle) (Howell 1938). According to the rules for botanical nomenclature, when a new variety is described in a species not previously divided into infraspecific taxa, a ''type'' variety is automatically created. In this case, the type variety is *C. fontinale* var. *fontinale*.

Cirsium fontinale var. *fontinale* is an herbaceous perennial of the aster family (Asteraceae) with several stout, erect reddish stems 30 to 60 cm (1 to 2 ft) high. The basal leaves are 10 to 20 cm (4 to 8 in) long with spine-tipped lobes; the leaves on the stems are smaller. The flowers are dull white to pinkish, becoming brown with age. The egg-shaped, recurved bracts beneath the flower head distinguish *C. fontinale* var. *fontinale* from the most similar thistle in the area, brownie thistle (*C. quercetorum*). The nearest relative of *C. fontinale* var. *fontinale* is *C. fontinale* var. *obispoense*, found further south in San Luis Obispo County.

Cirsium fontinale var. *fontinale* is restricted to perpetually moist clay openings in riparian or serpentine chaparral. Historically, this plant occurred in both San Mateo and Santa Clara Counties, but it is now found in only three locations in San Mateo County. One population of 1,000 to 2,800 plants occurs east of Crystal Springs Reservoir, on both sides of Interstate 280. A second population of 100 to 200 plants occurs 10 km (6 miles) to the south in the ''Triangle area,'' a triangular piece of land west of Edgewood County Park that is bounded by Interstate 280 to the east, Edgewood Road on the north, and Canada Road on the west. A single plant was found in Edgewood County Park in 1987. In 1992, only one plant remained in this location (Susan Sommers, Santa Clara Valley Chapter, California Native Plant Society, pers. comm., 1992). The taxon is threatened by proposed recreational development, competition with alien plant species, garbage dumping, and roadside maintenance.

Eriophyllum latilobum (San Mateo woolly sunflower) was first collected by Elmer in 1903. The type specimen was collected by A.A. Heller in 1907. The plant was described by Per Axel Rydberg (1915). *E. latilobum* is believed to have originated as a hybrid between *E. confertiflorum* and *E. lanatum* var. *arachnoideum* (Munz 1959, John Mooring, Santa Clara University, pers. comm., 1992).

Eriophyllum latilobum is a bushy perennial of the aster family (Asteraceae) with leafy stems 30 to 40 cm (12 to 16 in) high. The upper surfaces of the deeply three-cleft leaves are a smooth dark green and the lower surfaces are covered with densely interwoven white hairs. The golden flower heads are borne in loose clusters. *E. latilobum* differs from *E. confertiflorum* in having eight ray flowers rather than five, larger flower heads, and a more open inflorescence. *E. lanatum* var. *arachnoideum* differs from the other two species in having 13 ray flowers and shallowly cleft leaves.

Eriophyllum latilobum is found in shaded moist sites on steep grassy or sparsely wooded slopes of serpentine-influenced soil. The single remaining occurrence of *E. latilobum* consists of a few hundred plants scattered along 4 km (2.5 miles) of Crystal Springs Road in San Mateo County. These subpopulations are probably the fragments of a once-continuous population. E. *latilobum* has also been reported from southern San Mateo County, on Pescadero Road southwest of La Honda, but this report is most likely erroneous. At least one of the specimens collected at this site (in 1929) is actually *E. confertiflorum* (Barry Prigge, University of California, Los Angeles herbarium, pers. comm., 1992), and searches in recent years have found only *E. confertiflorum* (Toni Corelli, Santa Clara Valley Chapter, California Native Plant Society, pers. comm., 1992). The plant is threatened by erosion and soil slippage, road maintenance, garbage dumping, and recreational development.

Henry Nicholas Bolander collected the type specimen of *Hesperolinon congestum* (Marin dwarf-flax) in 1863 in Marin County, while working on the State Geological Survey. Asa Gray described the new species as *Linum congestum*, including it in the section *Hesperolinon* that he described in the same paper (Gray 1865). J.K. Small (1907) established *Hesperolinon* as a distinct genus in 1907. Jepson (1925) treated *Hesperolinon* as a section of the genus *Linum* and treated *H. congestum* as a subspecies of *L. californicum*. Helen K. Sharsmith (1961) conducted an extensive study of *Hesperolinon* and concluded that it definitely warrants distinction as a separate genus. She also returned *H. congestum* to the status of a species.

Hesperolinon congestum is an herbaceous annual of the flax family (Linaceae) with slender, threadlike stems, 10 to 40 cm (4 to 16 in) tall. The leaves are linear. The flowers are borne in congested clusters; the pedicels are 0.2 to 2 mm (.01 to .08 in) long. The sepals are hairy and the five petals are rose to whitish. The anthers are deep pink to purple; this character helps distinguish *H. congestum* from *H. californicum*, found in the same geographic area, which has white to rose anthers, as well as hairless sepals. Two other species that are found in the same region are *H. micranthum* and *H. spergulinum*. They differ from *H. congestum* in having hairless sepals and a long, open inflorescence, with pedicels 2 to 25 mm (.08 to 1 in) long.

Hesperolinon congestum is endemic to serpentine soils from Marin County

south to San Mateo County, a range of 80 km (50 miles). Two populations are found in serpentine chaparral; the others occur in serpentine bunchgrass habitat. Six populations are known from Marin County, one from San Francisco County, and seven from San Mateo County. Populations fluctuate in size from hundreds to thousands of plants (Robison and Morey 1992a). The species is threatened with residential and recreational development, foot traffic, and competition with alien species.

Pentachaeta bellidiflora (white-rayed pentachaeta) was first collected in 1853–54 near Corte Madera by John Milton Bigelow, surgeon and botanist for a railway route exploration (Van Horn 1973). The plant was described as *P. bellidiflora* (Greene 1885). Keck (1958) transferred the entire genus to *Chaetopappa.* Van Horn (1973) studied *Chaetopappa* and *Pentachaeta* and concluded that the two genera are not closely related. Based on differences in floral and vegetative morphology and chromosome number, Van Horn reinstated the genus *Pentachaeta.*

Pentachaeta bellidiflora is a small annual plant of the aster family (Asteraceae) with one or a few branches that bear narrow, linear leaves. Each flower head has numerous yellow disk florets and 5 to 16 white to purplish ray florets. The fruits are tawny, coarse-haired achenes (dry one-seeded fruits). Related species in the San Francisco Bay area (*P. exilis* ssp. *exilis* and *P. alsinoides*) differ from *P. bellidiflora* in that they have no ray flowers.

Pentachaeta bellidiflora is known only from one location, in a serpentine bunchgrass community in San Mateo County. Historically, *P. bellidiflora* was known from at least nine sites in Marin, San Mateo, and Santa Cruz Counties. The other populations have been destroyed by urbanization, off-road vehicles, or highway construction over the past 50 years (Robison and Morey 1992b). As is common among annual plants, the size of this population fluctuates dramatically from year to year. Numbers have ranged from 10,000 to just under 100 million in the last 10 years, with about 1.5 million plants growing in each of the last 2 years (Zoe Chandik, Santa Clara Valley Chapter, California Native Plant Society, pers. comm., 1992). The species is threatened by recreational development.

South Bay Species

Ceanothus ferrisae (coyote ceanothus) was collected in 1917 by LeRoy Abrams, professor of botany at Stanford University, on Madrone Springs Road above Coyote Creek, in Santa Clara County. The species was described in 1933 by Howard E. McMinn (McMinn 1933), professor of botany at Mills College and author of An Illustrated Manual of California Shrubs.

Ceanothus ferrisae is an erect evergreen shrub of the buckthorn family (Rhamnaceae) that grows 1 to 2 m (3 to 6 ft) high, with long stiff divergent branches. Its round leaves are dark green and hairless on the upper surface and lighter green with minute hairs below. The leaf margins have short teeth or sometimes no teeth at all; the leaf base is abruptly tapering or rounded. The small white flowers are borne in clusters 1.3 to 2.5 cm (0.5 to 1 in) long. The seed capsules are 7 to 9 mm (.3 to .35 in) in width and have three conspicuous apical horns. The related *C. cuneatus* has entire leaves with wedge-shaped (not rounded) bases and seed capsules only 5 to 6 mm (0.2 in) wide.

Ceanothus ferrisae grows on dry slopes in serpentine chaparral. It is known from only three locations, all within 6 km (4 miles) of each other, in Santa Clara County. Fewer than 6,000 plants are known to exist. It was thought at one time to occur in both San Mateo and Santa Cruz Counties as well, but these reports have been found to be erroneous (Corelli 1991). The existing populations are threatened by residential and recreational development, unauthorized dumping, and lack of natural recruitment.

The type specimen of *Dudleya setchellii* (Santa Clara Valley dudleya) was collected by Willis L. Jepson in 1896 on Tulare Hill in Santa Clara County. He described it as *Cotyledon laxa* var. *setchellii* (Jepson 1901). At the same time, he described *Cotyledon caespitosa* var. *paniculata,* which he had collected from Morrison Canyon near what is now Fremont. Britton and Rose (1903) elevated both taxa to full species and transferred them to the newly-created genus *Dudleya.* Subsequently, *Dudleya setchellii* was variously treated as *Cotyledon setchellii* (Fedde 1904), *Echeveria setchellii* (Nelson and Macbride 1913), and *E. laxa* var. *setchellii* (Jepson 1936). Reid Moran (1959) combined the material referred to as *D. setchellii* and *D. paniculata* in *D. cymosa* ssp. *setchellii.* Kei Nakai (1987) separated the two entities into *D. cymosa* ssp. *paniculata* and *D. cymosa* ssp. *setchellii* on the basis of leaf shape, inflorescence branching patterns, and pedicel length. According to Jim Bartel (U.S. Fish and Wildlife Service, pers. comm., 1992), *D. setchellii* should not be placed within *D. cymosa* and is, in fact, intermediate to *D. cymosa* and *D. abramsii.* His treatment of *Dudleya* retains Nakai's *D. cymosa* ssp. *paniculata* and resurrects Britton and Rose's *D. setchellii* for the Santa Clara Valley dudleya (Bartel 1993).

Dudleya setchellii is a low-growing perennial of the stonecrop family (Crassulaceae) with fleshy, glabrous leaves. The oblong to triangular, slightly glaucous leaves are 3 to 8 cm (1 to 3 in) long and 7 to 15 mm (0.3 to 0.6 in) wide. Two or three flowering stems ascend to heights of 5 to 20 cm (2 to 8 in) in mid to late spring. The pale yellow petals are 8 to 13 mm (0.3 to 0.5 in) long. There are two related species in the area. *D. cymosa* ssp. *cymosa* has bright yellow to red petals rather than pale yellow and is, therefore, easily distinguished from *D. setchellii* with its pale yellow flowers. *D. cymosa* ssp. *paniculata* can be distinguished from *D. setchellii* by its oblong to oblanceolate leaves (in contrast to the oblong-triangular leaves of *D. setchellii*), its greater degree of rebranching of the inflorescence branches, and its longer pedicels.

Dudleya setchellii is restricted to rocky outcrops within serpentine grasslands in Santa Clara County. It is found only in the Coyote Valley area, from San Jose south about 30 km (20 miles) to San Martin, at elevations of 100 to 300 m (300 to 900 ft). *D. cymosa* ssp. *paniculata* ranges from Contra Costa County to Fresno and Monterey Counties; the reports of Moran's combination *D. cymosa* ssp. *setchellii* from Alameda, Contra Costa, and San Benito Counties (Munz 1959, Olson and Lake 1991) reflect the distribution of *D. cymosa* ssp. *paniculata* and do not refer to *D. setchellii,* as now recognized. Fourteen sites and a total of approximately 33,000 plants are known to exist. The plant is threatened by development, unauthorized dumping, and off-road vehicles.

Streptanthus albidus ssp. *albidus* (Metcalf Canyon jewelflower) was first collected in 1887 by Volney Rattan, a botany teacher and author of an early California flora, from hillsides a few miles south of San Jose. Edward Greene described *S. albidus* ssp. *albidus* in 1887 (Greene 1887); later he redefined the limits of *Euclisia,* formerly a subgenus of *Streptanthus,* treating it as a genus in its own right (Greene 1904). *S. albidus* ssp. *albidus,* as a member of the *Euclisia* group, was included in this change. Jepson (1925) returned *Euclisia* to subsection status, and later authors followed his treatment. Jepson (1925) also treated *S. albidus* ssp. *albidus* as a subspecies of *S. glandulosus.* Kruckeberg published a revision of the *Streptanthus glandulosus* complex in which he recognized the close relationships among *S. glandulosus, S.*

albidus, and *S. niger* (Kruckeberg 1958). In this paper, he notes that the ''sharp genetic discontinuity between *S. albidus* and all other populations, coupled with the morphological distinctness and regional restriction of *S. albidus,* warrant the restoration of this Greeneian species.'' He recognized two subspecies: *S. albidus* ssp. *albidus* and *S. albidus* ssp. *peramoenus* (Kruckeberg 1958).

Streptanthus albidus ssp. *albidus* is an annual herb of the mustard family (Brassicaceae) that reaches up to 1 m (3 ft) in height. It has bristly hairs at the base and pale green, strongly glaucous stem and leaves. The flowers are borne in leafless terminal racemes. The upper three of the white to yellow to whitish-green sepals are fused with the lower (fourth) sepal free and spreading. The four petals, 8 to 11 mm (.3 to .4 in) long, are whitish with light purple veins. The erect flattened pods are 3 to 8 cm (1 to 3 in) long. The only *Streptanthus* species likely to co-occur with *S. albidus* ssp. *albidus* is its close relative *Streptanthus albidus* ssp. *peramoenus. S. albidus* ssp. *peramoenus* is distinguished by its dark purple sepals.

Streptanthus albidus ssp. *albidus* always has been rare. It is endemic to serpentine outcrops with little soil development. It can be locally abundant but its range is limited, extending less than 30 km (20 miles) from San Jose south to Anderson Lake, which lies northeast of Morgan Hill. Furthermore, the serpentine outcrops on which *S. albidus* ssp. *albidus* occurs are patchily distributed and comprise only a small percentage of the area within its range. Nine populations and a total of 20,000 to 25,000 plants have been recorded (McCarten 1992b). The plant is threatened by urbanization and off-road vehicles.

Previous Federal Action

Federal government actions on the 12 plants began as a result of section 12 of the Endangered Species Act of 1973, as amended (Act), which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct in the United States. This report, designated as House Document No. 94–51, was presented to Congress on January 9, 1975, and included *Cordylanthus tenuis* ssp. *capillaris* (listed as *Cordylanthus brunneus* ssp. *capillaris*), *Calochortus tiburonensis, Ceanothus ferrisae, Cirsium fontinale* var. *fontinale, Clarkia franciscana, Hesperolinon congestum, Streptanthus albidus* ssp. *albidus,* and *Streptanthus niger* as endangered species and *Castilleja neglecta* (now known as *Castilleja affinis* ssp. *neglecta*) and *Eriophyllum latilobum* as threatened taxa. The Service published a notice in the July 1, 1975, **Federal Register** (40 FR 27823) of its acceptance of the report of the Smithsonian Institution as a petition within the context of section 4(c)(2) (petition provisions are now found in section 4(b)(3) of the Act) and its intention thereby to review the status of the plant taxa named therein. The above 10 taxa were included in the July 1, 1975, notice. As a result of that review, on June 16, 1976, the Service published a proposal in the **Federal Register** (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to section 4 of the Act. The list of 1,700 plant taxa was assembled on the basis of comments and data received by the Smithsonian Institution and the Service in response to House Document No. 94–51 and the July 1, 1975, **Federal Register** publication. *Calochortus tiburonensis, Ceanothus ferrisae, Cirsium fontinale* var. *fontinale, Clarkia franciscana, Cordylanthus tenuis* ssp. *capillaris* (listed as *Cordylanthus brunneus* ssp. *capillaris*), *Hesperolinon congestum, Streptanthus albidus* ssp. *albidus,* and *Streptanthus niger* were included in the June 16, 1976, **Federal Register** document.

General comments received in response to the 1976 proposal were summarized in an April 26, 1978, **Federal Register** publication (43 FR 17909). The Endangered Species Act Amendments of 1978 required that all proposals over 2 years old be withdrawn. A 1-year grace period was given to those proposals already more than 2 years old. In the December 10, 1979, **Federal Register** (44 FR 70796), the Service published a notice of withdrawal of the June 16, 1976, proposal, along with four other proposals that had expired.

The Service published an updated notice of review for plants on December 15, 1980 (45 FR 82480). This notice included *Calochortus tiburonensis, Castilleja neglecta, Ceanothus ferrisae, Cirsium fontinale* var. *fontinale, Clarkia franciscana, Cordylanthus tenuis* ssp. *capillaris, Hesperolinon congestum, Pentachaeta bellidiflora, Streptanthus albidus* ssp. *albidus,* and *Streptanthus niger* as category-1 candidates for Federal listing and *Eriophyllum latilobum* as a category-2 candidate. Category-1 taxa are those for which the Service has on file substantial information on biological vulnerability and threats to support preparation of listing proposals. Category-2 taxa are those for which data in the Service's possession indicate listing is possibly appropriate, but for which substantial data on biological vulnerability and threats are not currently known or on file to support proposed rules. On November 28, 1983, the Service published in the **Federal Register** a supplement to the Notice of Review (48 FR 39526). This supplement changed *Ceanothus ferrisae, Cirsium fontinale* var. *fontinale, Pentachaeta bellidiflora,* and *Streptanthus albidus* ssp. *albidus* from category-1 to category-2 candidates.

The plant notice was again revised on September 27, 1985 (50 FR 39526). *Calochortus tiburonensis, Castilleja neglecta, Clarkia franciscana, Eriophyllum latilobum, Hesperolinon congestum,* and *Streptanthus niger* were included as category-1 candidates; *Ceanothus ferrisae, Cirsium fontinale* var. *fontinale, Cordylanthus tenuis* ssp. *capillaris, Pentachaeta bellidiflora,* and *Streptanthus albidus* ssp. *albidus* were included as category-2 candidates. Another revision of the plant notice was published on February 21, 1990 (55 FR 6184). In this revision, *Castilleja neglecta, Ceanothus ferrisae, Cirsium fontinale* var. *fontinale, Clarkia franciscana, Cordylanthus tenuis* ssp. *capillaris, Dudleya setchellii, Eriophyllum latilobum, Hesperolinon congestum, Streptanthus albidus* ssp. *albidus,* and *Streptanthus niger* were included as category-1 candidates; *Calochortus tiburonensis* and *Pentachaeta bellidiflora* were included as category-2 candidates. Since the publication of that notice, additional information was received on *Pentachaeta bellidiflora* that elevated it to category-1 status. The Service also re-evaluated the information available for *Calochortus tiburonensis* and elevated it to category 1-status. The Service, therefore, determines that sufficient information is now available to support the listing of these two species.

Section 4(b)(3)(B) of the Act requires the Secretary to make certain findings on pending petitions within 12 months of their receipt. Section 2(b)(1) further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. That was the case for *Calochortus tiburonensis, Ceanothus ferrisae, Cirsium fontinale* var. *fontinale, Clarkia franciscana, Cordylanthus tenuis* ssp. *capillaris, Hesperolinon congestum, Streptanthus albidus* ssp. *albidus, Streptanthus niger, Castilleja neglecta,* and *Eriophyllum latilobum,* because the 1975 Smithsonian report had been accepted as a petition. On October 13, 1982, the Service found that the petitioned listing of these species was warranted, but precluded by other

pending listing actions, in accordance with section 4(b)(3)(B)(iii) of the Act; notification of this finding was published on January 20, 1984 (49 FR 2485). Such a finding requires the petition to be recycled, pursuant to section 4(b)(3)(c)(i) of the Act. The finding was reviewed in October of 1984 through 1991. There are no pending petitions for *Pentachaeta bellidiflora* or *Dudleya setchellii.*

A proposed rule to list *Castilleja 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 and *Calochortus tiburonensis* and *Hesperolinon congestum* as threatened was published in the **Federal Register** on December 14, 1992 (57 FR 59053). This proposal was based primarily on information supplied by reports from the Natural Diversity Data Base and observations by botanists.

Summary of Comments and Recommendations

In the December 14, 1992, proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. The public comment period ended on February 12, 1993. Appropriate State agencies, county and city governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices were published in The Napa Register on January 5, 1993, The Oakland Tribune, January 2, 1993, San Jose Mercury News, January 3, 1993, San Francisco Chronicle, December 31, 1992, and Santa Rosa Press Democrat, no date recorded, which invited general public comment. No public hearing was requested or held.

Fifteen written comments were received from 14 individuals. Among the 11 commenters supporting the listing were The California Native Plant Society, Sierra Club, and Missouri Botanic Garden. Three comments were neutral. One commenter opposed the listing of one species. Several commenters provided detailed information on the location and size of newly recorded populations and the condition of previously recorded populations. This data has been incorporated into this rule. The opposing comment and other comments questioning the rule have been organized into specific issues. These issues and the Service's response to each are summarized as follows:

Issue 1. One commenter stated that the serpentine soils in the Santa Clara Valley between the City of San Jose and Anderson Lake have not been adequately surveyed for *Dudleya setchellii*; therefore, the current level of knowledge does not warrant listing of this species as endangered.

Service Response: The Santa Clara Valley is the only known habitat for this edaphically restricted species, first collected on Tulare Hill in 1896. Many surveys have been done in this area, particularly in recent years (Entomological Consulting Services 1990; City of San Jose 1991; City of San Jose 1992; CH^{2}M Hill 1992; City of San Jose 1993). The Service uses the best information available at the time of listing to make the determination of endangered status. Current information indicates that the majority of known populations are located on private land and are threatened imminently with urbanization. Three proposed projects, which include residential development, a school, a church, roads, and a golf course, in the Santa Clara Valley are planned to be built on sites containing populations of *Dudleya setchellii.* Although more populations of this species may be discovered, the amount of remaining suitable habitat is limited and close to rapidly expanding urban areas. Santa Clara County, which contains the Santa Clara Valley from San Jose south to Anderson Lake, grew by 1.5 percent from 1991 to 1992 and is predicted to grow by 12.0 percent by year 2000 (Calif. Dept. of Finance 1992). Any newly found sites, therefore, likely will be subject to the same threats as known populations. In support of the contention that unrecorded populations of *D. setchellii* exist in the Valley, the commenter included a list of 11 new populations that he had submitted for addition to the CNPS rare plant inventory. Only two of these sites have been accepted by CNPS as new populations (R. Bittmann, pers. comm., 1993). In addition, the largest of the sites noted by the commenter is an extension of a previously known population and is threatened by the proposed Cerro Plata Residential and Golf Course Project (CNDDB 1993, City of San Jose 1993).

Issue 2. The Director of Public Works, County of San Mateo, voiced a concern that the responsibility of maintaining roads for the well being and safety of citizens may be in conflict with the Act when road crews remove soil and debris containing plants and seeds of *Eriophyllum latilobum*.

Service Response: Acts prohibited under section 9(a)(2)(B) of the Act are described in detail in Available Conservation Measures. The Service is concerned over the loss of this species during regular road maintenance and continuing soil slippage that results in plant loss; however, removal from roadways of debris containing *E. latilobum* plants or seeds that has fallen by natural causes into the roadway is not a violation of the Act.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Castilleja affinis* (Hook and Arn.) ssp. *neglecta* (Zeile) Chuang and Heck. (Tiburon paintbrush), *Ceanothus ferrisae* McMinn (coyote ceanothus), *Cirsium fontinale* Jeps. var. *fontinale (fountain thistle), Clarkia franciscana* Lewis and Raven (Presidio clarkia), *Cordylanthus tenuis* Gray ssp. *capillaris* (Penn.) Chuang and Heck. (Pennell's bird's-beak), *Dudleya setchellii* (Santa Clara Valley dudleya), *Eriophyllum latilobum* Rydb. (San Mateo woolly sunflower), *Pentachaeta bellidiflora* Greene (white-rayed pentachaeta), *Streptanthus albidus* Greene ssp. *albidus* (Metcalf Canyon jewelflower), and *Streptanthus niger* Greene (Tiburon jewelflower) should be classified as endangered species and that *Calochortus tiburonensis* Hill (Tiburon mariposa lily) and *Hesperolinon congestum* (A. Gray) Small (Marin dwarf-flax), should be classified as threatened species. Procedures found at section 4 of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Calochortus tiburonensis* Hill (Tiburon mariposa lily), *Castilleja affinis* (Hook and Arn.) ssp. *neglecta* (Zeile) Chuang and Heck. (Tiburon paintbrush), *Ceanothus ferrisae* McMinn (coyote ceanothus), *Cirsium fontinale* Jeps. var. *fontinale* (fountain thistle), *Clarkia franciscana* Lewis and Raven (Presidio clarkia), *Cordylanthus tenuis* Gray ssp. *capillaris* (Penn.) Chuang and Heck. (Pennell's bird's-beak), *Dudleya setchellii* (Santa Clara Valley dudleya), *Eriophyllum latilobum* Rydb. (San Mateo woolly sunflower), *Hesperolinon congestum* (A. Gray) Small (Marin dwarf-flax), *Pentachaeta bellidiflora* Greene (white-rayed pentachaeta), *Streptanthus albidus* Greene ssp.

albidus (Metcalf Canyon jewelflower), and *Streptanthus niger* Greene (Tiburon jewelflower) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The destruction of habitat through residential or recreational development is the greatest threat faced by these species. All 12 plants are limited to serpentine soils. Serpentine outcrops in the San Francisco Bay area are limited; 20 percent of those outcrops have already been eliminated as plant habitat due to development (McCarten 1987b). The pressure to build more houses, roads, and other facilities for humans is great in all the counties under consideration. In the 3 counties in which 10 of the species are found (Marin, San Mateo and Santa Clara), estimated percent population growth by year 2000 is 2.8, 6.4, and 12.0 percent, respectively (Calif. Dept. of Finance 1992). Sonoma County, which contains one of the species, is expected to grow by 21.4 percent by year 2000 (Calif. Dept. of Finance 1992). Serpentine habitats also have been fragmented by the construction of roads such as Interstate 280. Habitat fragmentation increases the risks of extinction due to chance events such as fire, flood, landslide, pest or disease outbreaks, severe drought, or other natural or human-caused disaster.

Cordylanthus tenuis ssp. *capillaris* has never been known from more than the two populations that occur today. Ownership of the type locality is mixed; part of the population occurs on the Harrison Grade Preserve, which is owned and managed by the California Department of Fish and Game. Habitat on the preserve is threatened by unauthorized activities such as off-road vehicle use. Plants on private parcels are threatened with potential development. The second population of *Cordylanthus tenuis* ssp. *capillaris* occurs on private property a few miles to the west of the type locality. Plans for residential development of this site have been reviewed by the Sonoma County Planning Department (Sigrid Swedenborg, Sonoma County Planning Office, pers. comm., 1993). The owner of this property has been working with the California Department of Fish and Game to minimize impacts to C. *tenuis* ssp. *capillaris* (Ann Howald, California Department of Fish and Game, pers. comm., 1992). Plans include the donation of 87 hectares (ha) (212 acres), including C. *tenuis* ssp. *capillaris* habitat, to the county for use as a park (S. Swedenborg, pers. comm., 1993). The county is considering restricting the park to passive recreation only; however, no final policy has yet been determined (Betty Guggolz, pers. comm., 1993). This donation may afford protection to part of the second population of C. *tenuis* ssp. *capillaris*, but since the transfer has not yet taken place and final plans have not been made concerning protection of the plant, the population still should be considered threatened by development.

Calochortus tiburonensis is, at present, protected from development and fenced to reduce the incidence of off-road vehicle use because the land on which it occurs is owned and managed by The Nature Conservancy (TNC), a group whose management goals are the maintenance of biodiversity and the protection of rare and endangered species (Larry Serpa, pers. comm., 1992). The preserve is still accessible to bicycles, motorbikes, and pedestrians, however, and it is not patrolled. The proximity of the preserve to residential areas renders it vulnerable to overuse and vandalism. Because TNC cannot completely control access to the site or activities on the site, listing is needed. Furthermore, this preserve, being on The Nature Conservancy's list of potential divestitures, will transfer ownership when a suitable organization is found to manage it (Larry Serpa, pers. comm., 1992).

Castilleja affinis ssp. *neglecta* has never been widespread. Three of the six populations occur on the Tiburon Peninsula in Marin County, one occurs in Napa County, and one in Santa Clara County. Two recently discovered populations, one on the Golden Gate National Recreation Area and one east of Anderson Lake, extend the known range to western Marin and Santa Clara Counties, respectively. Each of the three occurrences on the Tiburon Peninsula has multiple landowners. The Nature Conservancy owns over half of the Ring Mountain occurrence and the town of Tiburon owns portions of the occurrence in the Middle Ridge area of the peninsula. The remainder of each of these occurrences is privately-owned. The third occurrence on the peninsula is on private property near St. Hilary's Church in Tiburon. Development on the Tiburon Peninsula is extensive and rapid; over 60 percent of *C. affinis* ssp. *neglecta* habitat has already been destroyed by development (Hunter 1989a). Residential development is ongoing on several parcels of the Middle Ridge occurrence and proposed for both parcels of the St. Hilary's occurrence (Andrew Allen, pers. comm., 1993). The habitat at both of these sites also is threatened by pedestrian traffic. The plants on Ring Mountain Preserve are protected from development but are threatened by sliding of the slope on which they occur. The toe of the slope was removed to accommodate residential development in the 1960s. Soil material that slides into the street at the base of the slope is removed by the City of Corte Madera, and the slope continues to slump. Managers from The Nature Conservancy estimate that approximately one-third of the population is at risk (Lynn Lozier, The Nature Conservancy, pers. comm., 1992). The Napa County population occurs on private property near a gravel quarry. Although quarry expansion plans that would result in the destruction of more than 80 percent of the population are no longer actively being pursued, the potential for expansion still exists. The Santa Clara population consists of 13 plants that may be subject to grazing (R. Bittmann, pers. comm., 1993).

Streptanthus niger is an extremely narrowly-distributed species; its entire range amounts to less than one-third of a square mile. Urban development has destroyed over 40 percent of potential *S. niger* habitat (Hunter 1989b). Both of the two known occurrences have multiple landowners. The town of Tiburon owns portions of the occurrence on the Middle Ridge of the peninsula, and the occurrence at St. Hilary's Church in Tiburon is owned in part by the Tiburon Landmark Society. The remainder of each of these two occurrences is privately-owned and proposed for development. An area containing 20 plants adjacent to one of the parcels recently was bulldozed for construction of condominiums (Andrew Allen, pers. comm., 1993). Residential development is ongoing at several parcels of the Middle Ridge occurrence (Eva Buxton, Belvedere-Tiburon Landmark Society, pers. comm., 1993, Andrew Allen, pers. comm., 1993).

Clarkia franciscana was once thought to be restricted to the Presidio in San Francisco County but about 10 years ago, a population was discovered in Alameda County in the Oakland Hills. The two populations in San Francisco County occur at the Presidio, currently owned by the National Park Service. These populations are threatened by habitat degradation. Pedestrian and mountain bicycle traffic on and near casually established ''social trails'' threatens the habitat.

The three populations of *Clarkia franciscana* in Alameda County are all threatened by alien species (see Factor E). The smallest of the three, consisting of 30 plants (Olson 1991c), occurs on an undeveloped site adjacent to a proposed 32-unit residential development (Nixon

Lamb, Oakland Planning Dept., pers. comm., 1993).

One occurrence of *Cirsium fontinale* var. *fontinale* has been reported from Santa Clara County, but the site is thought to have been destroyed by urbanization (Niehaus 1977). The three remaining populations grow in San Mateo County. The largest population occurs to the east of Crystal Springs Reservoir and north of State Highway 92, along both sides of Interstate 280. It occurs partly on San Francisco Water Department land and partly on a California Department of Transportation right-of-way. Given its proximity to the roadside, it is likely to be affected by any highway projects in the area. Major realignments of Highway 92 were planned several years ago but the plans have been abandoned due to lack of funding (Richard Vonarb, California Department of Transportation, pers. comm., 1992). They could be revived, however, if funding becomes available. At present, a smaller project to widen Highway 92 east of the reservoir causeway is under review. Provision for the removal of water from the increased road surface may adversely affect some of the plants. The California Department of Transportation is aware of the plant locations and vulnerability. The proposed construction of multi-use recreational trails on San Francisco Water Department land presents an additional threat. Trail construction would threaten the plants through direct destruction of the habitat or through modification of hydrologic regimes. Because *C. fontinale* var *fontinale* is dependent upon seeps and springs to provide abundant soil moisture, any disruption in the flow of water (such as that caused by road, trail, or drain construction) would threaten the plants.

A second and substantially smaller population of *Cirsium fontinale* var. *fontinale* occurs in the ''Triangle'' west of Interstate 280. One to two hundred plants have been observed on San Francisco Water Department lands; an outlying colony of about 25 plants occurs on an easement held by the California Department of Transportation. This colony occupied a smaller territory in 1992 than it had in previous years (Susan Sommers, pers. comm., 1992). The plants on Water Department land are threatened by proposed trail construction, as discussed for *Hesperolinon congestum*. In addition, a general management plan for the Water Department lands currently is being developed (Ed Stewart, San Francisco Water Department, pers. comm., 1992).

The single specimen of *Cirsium fontinale* var. *fontinale* in Edgewood County Park occurs in a drainage ditch beside a trail. Clearing of the ditch to improve or maintain drainage could damage or destroy this plant or any seedlings it may produce.

Eriophyllum latilobum has been reported from only two locations, one of which is likely erroneous (specimen misidentified, according to Barry Prigge, pers. comm., 1992). The single remaining population consists of about 300 plants that occur along 4 km (2.5 miles) of Crystal Springs Road in San Mateo County. Seventy-five percent of the plants occur within 9 m (30 ft) of the road, where land ownership is poorly defined (McGuire and Morey 1992). The City of Hillsborough, the County of San Mateo, and the San Francisco Water Department have varying jurisdictions over the land. The steep slopes along Crystal Springs Road provide a very unstable habitat for *E. latilobum*. The slopes are subject to erosion and soil slippage. After soil slippage occurs, road maintenance crews remove the slumped soil, which may contain mature individuals, seedlings, and/or seeds of *E. latilobum*. The road cut is then reshaped, which may damage plants remaining on the banks. The proposed construction of the San Mateo Creek Trail (McGuire and Morey 1992) would have adverse impacts on the plant if trail design does not incorporate plant conservation. The paved trail, which is 3 m (10 ft) wide, is expected to run adjacent to Crystal Springs Road from Skyline Boulevard to the San Mateo City boundary. Construction of the trail could damage or eliminate colonies of *E. latilobum*, alter site hydrology, accelerate soil erosion through increased pedestrian and bicycle traffic, and allow for the introduction of aggressive alien plant species.

Fourteen populations of *Hesperolinon congestum* exist. One Marin County population is protected at The Nature Conservancy's Ring Mountain Preserve. Two relatively small populations occur on land owned by the Marin Municipal Water District. Another small population is found in the Golden Gate National Recreation Area above Nicasio Reservoir. A fifth population occurs, in part, on a small preserve at St. Hilary's Church and, in part, on private land which recently has been proposed for development (Robison and Morey 1992a). The sixth Marin County site is the Middle Ridge area of the Tiburon Peninsula, on which occur a few scattered groups of plants. Some plants grow on land designated as open space by the city of Tiburon. The remainder of the plants occur on private land and are threatened by ongoing or proposed residential development.

One population of *Hesperolinon congestum* is known from San Francisco County. Footpaths through the population threaten the plants with trampling (Robison and Morey 1992a).

In San Mateo County, three populations of *Hesperolinon congestum* are known to occur on private property. These plants are threatened by proposed development and by the consequences of recently completed development, such as trampling, trash dumping, and changes in hydrology caused by irrigation runoff (Robison and Morey 1992a). Two populations occur on land owned by the San Francisco Water Department. Their habitat is threatened by the proposed construction of trails in the watershed. The construction of these trails and the accompanying fences may damage *Hesperolinon congestum* habitat.

Pentachaeta bellidiflora historically ranged from Marin County to Santa Cruz County. Three populations in Marin County and two in San Mateo County were destroyed by urbanization. One Marin County occurrence was destroyed by off-road vehicles. Two sites in Santa Cruz County no longer support *P. bellidiflora* (Robison and Morey 1992b). The single remaining population of *P. bellidiflora* was bisected by the construction of California Interstate 280 in the late 1960s. The largest portion of the population occurs in the Triangle, on land administered by the San Francisco Water Department. A small remnant of this population is located to the east of Interstate 280, on Edgewood County Park. The proposed construction of trails on Water Department land threaten the *P. bellidiflora* habitat (Robison and Morey 1992b).

Ceanothus ferrisae is known from three populations in Santa Clara County. The largest population, consisting of approximately 5,000 plants, occurs near Anderson Dam, partially on Santa Clara County Park property and partially on private property. The county proposes further recreational development in the park, which threatens *Ceanothus ferrisae* (Chris Nagano, U.S. Fish and Wildlife Service, pers. comm., 1992). An outlying population occurs 3.2 km (2 miles) west on land leased and managed by a waste management firm. Waste Management, Inc. and The Nature Conservancy jointly funded research on *C. ferrisae;* a three-year monitoring program at the Waste Management site has shown no evidence of natural recruitment. A fire killed 95 percent of the plants in this population in 1992. No seed production or seedlings have been observed since that time (Kathy Freas, CH²M Hill, *in litt.*, 1993).

Researchers have found that *C. ferrisae* is relatively easy to propagate from seed, and both Waste Management and the Santa Clara Valley Water District have been experimenting with the use of *C. ferrisae* for revegetation projects. The third population, consisting of approximately 500 plants (Corelli 1989) occurs on private land scheduled for development.

Dudleya setchellii always has been restricted to the Coyote Valley area of Santa Clara County. Eleven of the 14 populations are on private land and are subject to various levels of threat due to development. The three northernmost populations, which occur in southeastern San Jose, and the three southernmost populations, which occur in the area around Morgan Hill, approximately 27 km (17 miles) southeast of San Jose, are at greatest risk. One of the northern populations is threatened with the proposed Cerro Plata Project, consisting of 550 dwelling units and a 67 ha (164 ac) golf course on a 236 ha (575 ac) site. This population contains approximately 20,000 plants, 61 percent of all known plants, of which approximately 2,380 would be directly eliminated by planned construction activities (City of San Jose 1993). All remaining plants would be exposed to human activities during and after construction that would result in significant impacts to the population. These impacts include potentially harmful runoff from an upslope golf course, introduction of weedy species during construction, and uncontrolled foot traffic. Another of the northern sites is threatened by the proposed construction of the Valley Christian School and South Valley Christian Church. This construction would eliminate 74 percent of the approximately 1,900 *D. setchellii* plants found on the site (City of San Jose 1992). The other four sites also are developing rapidly and have been proposed for development at one time or another. Two of the central populations also are threatened with imminent development including residential development and road construction. One central population, due to its proximity to an off-road motorcycle park, may be threatened by off-road motorcycle traffic and unauthorized dumping. The remaining two populations that occur on private land are on the grounds of the IBM Bailey Avenue laboratory. The company apparently plans to preserve the habitat (McCarten 1992a). Three populations occur on land owned by Santa Clara County. Of these, two populations occur in county parks.

The known historical distribution of *Streptanthus albidus* ssp. *albidus* is as restricted as its current distribution. It is found only in the Coyote Valley area of Santa Clara Valley, primarily on the east side of the valley. Of the 13 documented sites, 9 are known to still harbor plants. Two populations are known to have been extirpated, one by the construction of Anderson Dam, and the other as a result of being covered by fill from a housing development. Two occurrences are known from herbarium records only. One of these historical sites was revisited in 1990, but no plants were found. *Streptanthus albidus* ssp. *albidus* was last observed at the other historical site in 1895. One population consisting of approximately 9,000 plants, approximately 45 percent of all known plants, occurs on the proposed site of the Cerro Plata residential and golf course project (City of San Jose 1993). Although no direct destruction of any plants is planned, construction activities, human disturbance, and habitat fragmentation would result in significant impacts to the population. The proposed construction of the Valley Christian School and South Valley Christian Church would destroy 61 percent of the 2,700 plants occurring on the site (City of San Jose 1992). The remaining seven populations also are threatened by impending or potential development.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Overutilization is not currently known to be a factor for any of the 12 plants, but unrestricted collecting for scientific or horticultural purposes or excessive visits by individuals interested in seeing rare plants could result from increased publicity as a result of this final rule. *Calochortus tiburonensis* is a strikingly unusual member of a much-collected genus. *Eriophyllum latilobum*, with its showy golden flowers and proximity to roads and the proposed San Mateo Creek trail, might prove to be especially tempting to collectors. *Dudleya setchellii* also is vulnerable because of the horticultural appeal of succulents and the slow growth of the plants. The remaining plants are usually not spectacular in flower, but may nonetheless appeal to collectors because of their rarity.

C. *Disease or predation.* Both horses and deer have been reported to browse on *Cordylanthus tenuis* ssp. *capillaris* but the number of plants damaged generally appears to be minimal (Lynn Lozier, pers. comm., 1992). Cattle grazing has been reported to threaten the western Marin population of *Castilleja affinis* ssp. *neglecta* (Martin 1991) and a portion of the American Canyon occurrence (Hunter 1989a). Another source suggests, however, that cattle provide little threat to the American Canyon population because the plants occur on a very steep slope (Jake Ruygt, Napa Valley Chapter, California Native Plant Society, pers. comm., 1992). Grazing threatens one population of *Streptanthus albidus* ssp. *albidus* in southeast San Jose and three populations in the Metcalf Canyon/south Coyote area (McCarten 1992b).

Seed predation by beetle larvae has been reported for *Cirsium fontinale* var. *fontinale* (Dean Kelch, University of California, Davis, pers. comm., 1992), however, the impact of this seed predation on *C. fontinale* var. *fontinale* is unknown. Beetle larvae also have been observed in seed heads of *Eriophyllum latilobum*, however, the extent of predation is unknown (McGuire and Morey 1992).

D. *The inadequacy of existing regulatory mechanisms.* Under the Native Plant Protection Act (Division 2, Chapter 10, section 1900 *et seq.* of the Fish and Game Code) and California Endangered Species Act (Division 3, Chapter 1.5, section 2050 *et seq.*), the California Fish and Game Commission has listed three of these species (*Cirsium fontinale* var. *fontinale, Clarkia franciscana*, and *Streptanthus niger*) as endangered, two species (*Calochortus tiburonensis* and *Castilleja affinis* ssp. *neglecta*) as threatened, and one species (*Cordylanthus tenuis* ssp. *capillaris*) as rare. The California Fish and Game Commission recently voted to list two other species (*Eriophyllum latilobum* and *Pentachaeta bellidiflora*) as endangered, and one species (*Hesperolinon congestum*) as threatened. Although both statutes prohibit the ''take'' of State-listed plants (Chapter 1.5 section 2080 and Chapter 10 section 1908), State law appears to exempt the taking of such plants via habitat modification or land use change by the landowner. After the California Department of Fish and Game notifies a landowner that a State-listed plant grows on his or her property, State law requires only that the landowner notify the agency ''at least ten days in advance of changing the land use to allow salvage of such plant.'' (Chapter 10 section 1913).

The California Environmental Quality Act (CEQA) requires a full public disclosure of the potential environmental impacts of proposed projects. The public agency with primary authority or jurisdiction over the project is designated as the lead agency and is responsible for conducting a review of the project and consulting with other agencies concerned with resources affected by

the project. Section 15065 of the CEQA Guidelines requires a finding of significance if a project has the potential to ''reduce the number or restrict the range of a rare or endangered plant or animal.'' Species that are eligible for listing as rare, threatened, or endangered, but are not so listed, are given the same protection as those species that are officially listed with the State. Once significant effects are identified, the lead agency has the option to require mitigation for effects through changes in the project or to decide that overriding considerations make mitigation infeasible. In the latter case, projects may be approved that cause significant environmental damage, such as destruction of endangered species or their habitat. The protection of threatened and endangered species through CEQA is, therefore, dependant upon the discretion of the lead agency involved and, in practice, statements of overriding considerations are commonly prepared.

Three of the species occur at Edgewood County Park in San Mateo County. The park was designated on May 5, 1992, as a natural preserve; however, this designation was revoked in August of the same year. The park, subsequently, was considered as a site for construction of a golf course, although this plan has been rejected and the park will continue to be managed as public open space (Richard Silver, San Mateo County Board of Supervisors, pers. comm., 1993).

Section 404 of the Clean Water Act regulates the placement of dredge and fill materials into waters of the United States (including small acreages above the headwaters of streams). The U.S. Army Corps of Engineers (Corps) is the agency responsible for administering the section 404 program. The Service, as part of the section 404 review process, provides advisory comments on both pre-discharge notices for nationwide permits and public notices for individual permits.

Under section 404, nationwide permits, which undergo minimal public and agency review, can be issued for projects involving less than 10 acres of waters of the United States and adjacent wetlands, unless a listed species may be adversely affected. Individual permits, which are subject to more extensive review, are required for projects that affect greater than 4.1 ha (10 acres). A project proponent planning to fill less than 0.4 ha (1 acre) is only required to notify the Corps of their intent to fill wetlands. Compensatory mitigation generally is not required for projects affecting less than 0.4 ha (1 acre). Additionally, the loss of upland watersheds, which are not protected, may result in altered wetland hydrology and may adversely affect the plants. In practice, the Corps' actions under section 404 would not adequately protect *Cirsium fontinale* var. *fontinale,* which occurs in riparian serpentine seep areas.

Most projects within the range of *Cirsium fontinale* var. *fontinale* may require approval from the Corps, as currently described in section 404 of the Clean Water Act. Federal listing of this species would ensure greater consideration of the effects of permitted actions during the review process as well as provide the protections of section 7 of the Act.

E. *Other natural or manmade factors affecting its continued existence.* As discussed in the ''Background'' section, the large and still increasing numbers of people in the San Francisco Bay area place a great strain on undeveloped wildlands, through activities such as pedestrian and off-road vehicle traffic, hiking and bicycle trails, and unauthorized garbage dumping. Disturbance may directly impact plants; it can increase erosion and allow the invasion of alien species such as the many introduced annual grasses common in California. Competition with introduced species is a serious threat to serpentine natives (McCarten 1987b). Edaphic specialists (plants restricted to a certain soil type) with small populations such as the serpentine species discussed herein, may have low genetic variability (Menges 1991). As a result, populations that become subdivided by alterations in habitat from road construction and urbanization or from natural catastrophes such as disease, fire, or drought, may be at high risk of genetic changes that decrease the ability of the populations to survive (Menges 1991).

Cordylanthus tenuis ssp. *capillaris* growing along roadsides is threatened by roadside maintenance such as mowing and spraying (Lynn Lozier, pers. comm., 1992). Vehicular traffic threatens plants in and near the parking area at the Harrison Grade Reserve, which is poorly defined and close to the plant population (McCarten 1987a). Unauthorized dumping of large items such as bottles, furniture, appliances, and cut wood is also a threat. Light disturbance at the Harrison Grade Reserve, such as infrequent grading of dirt roads, appears to increase the numbers of *C. tenuis* ssp. *capillaris* (Lynn Lozier, pers. comm., 1992), but higher levels of disturbance may facilitate the invasion of alien species (McCarten 1987a) and result in a decline of *C. tenuis* ssp. *capillaris.* The limited number and isolated condition of these populations make this species susceptible to stochastic extinction (Menges 1991).

Calochortus tiburonensis is threatened, by virtue of its occurrence in a single population, with chance events such as fire, severe drought, pest or disease outbreak, landslides, or other natural or human-caused disasters. The proximity of the plant to a large human population increases the likelihood that human-caused disasters or acts of vandalism could affect the plants or their habitat. The preserve is fenced to reduce the incidence of off-road vehicle use, but is still accessible to bicycles, motorbikes, and pedestrians, and it is not patrolled. Pedestrian traffic threatens both of the *Streptanthus niger* populations.

The Presidio, which contains one of the two populations of *C. franciscana,* represents a significant natural and cultural resource within San Francisco city limits, and is expected to be heavily used by visitors since its transfer to the National Park Service (T. Thomas, pers. comm., 1992). The heavy use will increase the negative impact of traffic on *C. franciscana.* The species presently is threatened by road maintenance (mowing) at the Presidio. Mowing of grasslands before the *C. franciscana* has set seed also threatens the populations. Populations at the Presidio also are threatened by the encroachment of alien plant species, including *Senecio mikanioides* (German ivy), *Carpobrotus* sp. (iceplant), *Rubus* spp. (blackberries), and by natives planted outside their natural range, such as *Pinus radiata* (Monterey pine) (California Department of Fish and Game 1988). The population size at the type locality increased following removal of alien plant species in the late 1980s. Constant vigilance and effort is needed to prevent reinvasion.

At latest report, the largest population of *Clarkia franciscana,* occurring at Redwood Regional Park in Alameda County, consisted of 4,000 to 5,000 plants (Gottlieb and Edwards 1992, Olson 1991a). The East Bay Regional Park District is aware of the *Clarkia franciscana* population and has been taking it into account in their management plans (Ray Budzinski, East Bay Regional Park District, pers. comm., 1992). The habitat is threatened by competition with annual grasses (Ray Budzinski, pers. comm., 1992) and other alien plants, including *Cortaderia selloana* (pampas grass) and *Cytisus monspessulanus* (French broom) (Olson 1991a). The two smaller populations in Alameda County, consisting of 200 plants (Olson 1991b) and 30 plants (Olson 1991c), respectively, also are

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

threaten 10 of the 14 populations of *Hesperolinon conjestum*. If appropriate management actions are not taken to protect these two species, they are likely to become in danger of extinction in the near future. As a result, the preferred action is to list *Calochortus tiburonensis* and *Hesperolinon congestum* as threatened.

Alternatives to this action were considered but not preferred. Not listing the species or listing *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 threatened would not provide adequate protection and would not be in keeping with the Act.

Critical Habitat

Section 4(a)(3) of the Act requires that, to the maximum extent prudent and determinable, the Secretary designate critical habitat concurrently with determining a species to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for these species. Because the 12 plants face numerous anthropogenic threats (see Factors A and E in ''Summary of Factors Affecting the Species'') and occur predominantly on private land, the publication of precise maps and descriptions of critical habitat in the **Federal Register** would make these plants more vulnerable to incidents of vandalism and, therefore, could contribute to the decline of these species and increase enforcement problems. The listing of these species as endangered or threatened also publicizes the rarity of these plants and, thus, can make them attractive to researchers or collectors of rare plants. Furthermore, critical habitat designation is not prudent due to lack of benefit to the species. All 12 species discussed herein are restricted to serpentine soils. Several of the species, *Eriophyllum latilobum, Calochortus tiburonensis, Streptanthus niger,* and *Streptanthus albidus* ssp. *albidus* likely have always been confined to their present habitat. No areas outside of their present range are known to have supported these plants in the past; therefore, no additional sites exist that could be considered essential to the species' recovery. For these reasons, the Service finds that designation of critical habitat for the 12 species is not prudent because it would provide no additional benefits to the species beyond those they would receive by virtue of their designation as endangered or threatened species. The proper agencies have been notified of the locations and importance of protecting the habitat of these species.

Protection of the habitat of these species will be addressed through the recovery process and through the section 7 consultation process. Therefore, the Service finds that designation of critical habitat for these plants is not prudent at this time, because such designation likely would increase the degree of threat from vandalism, collecting, or other human activities.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the State and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal activities potentially affecting 1 or more of the 12 plants will likely involve recreation-related projects and perhaps grazing practices on Federal land. Populations of 3 of the 12 plants occur on Federal land. Two populations of *Hesperolinon congestum* and one of *Castilleja affinis* ssp. *neglecta* occur on the Golden Gate National Recreation Area. Two populations of *Clarkia franciscana* occur at the Presidio.

The San Francisco Water Department owns 9,300 ha (23,000 acres) of land in San Mateo County. In 1969, a four-party agreement among the U.S. Department of the Interior, the State of California, San Mateo County, and the City and County of San Francisco established easements on the watershed lands to ensure that all future land use would be compatible with water quality criteria. These easements were granted to the U.S. Department of the Interior and are jointly administered by the San Francisco Water Department and the Golden Gate National Recreation Area. Populations of *Cirsium fontinale* var. *fontinale, Eriophyllum latilobum, Hesperolinon congestum,* and *Pentachaeta bellidiflora* occur on Water Department land.

Hesperolinon congestum, Pentachaeta bellidiflora, Dudleya setchellii, and *Streptanthus albidus* ssp. *albidus* co-occur with the bay checkerspot butterfly (*Euphydryas editha bayensis*) in San Mateo and Santa Clara counties. The bay checkerspot is listed as a threatened species under the Endangered Species Act. Permits for incidental take of this species granted under section 10(a) of the Act may affect the plant species listed above. Preparation of Habitat Conservation Plans for the bay checkerspot butterfly may, therefore, require internal section 7 consultation with regard to the four species listed above.

The 12 plants also may be affected by Federal mortgage programs, including the Veterans' Administration and the U.S. Department of Housing and Urban Development (Federal Home Administration loans), or by construction of roads and highways by the Federal Highway Administration. The Service is concerned over the loss of *Eriophyllum latilobum* during regular road maintenance and continuing soil slippage that results in plant loss; however, removal from roadways of debris containing *E. latilobum* plants or seeds that has fallen by natural causes into the roadway is not a violation of the Act.

At least one proposed project that may affect two of the plants also involves wetlands under the jurisdiction of the U.S. Army Corps of Engineers.

Listing these 12 plants will provide for development of a recovery plan (or plans) for them. Such plan(s) would bring together both State and Federal efforts for conservation of the plants. The plan(s) would establish a framework for agencies to coordinate

activities and cooperate with each other in conservation efforts. The plan(s) would set recovery priorities and estimate costs of various tasks necessary to accomplish them. They also would describe site-specific management actions necessary to achieve conservation and survival of the 12 serpentine plant species.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 for endangered species and 17.71 and 17.72 for threatened species set forth a series of general prohibitions and exceptions that apply to all endangered or threatened plants. With respect to the 12 plants from San Francisco Bay area serpentine habitats, all prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61 or 17.71, would apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export; transport in interstate or foreign commerce in the course of a commercial activity; sell or offer for sale in interstate or foreign commerce; remove and reduce to possession the species from areas under Federal jurisdiction; maliciously damage or destroy any such species on any area under Federal jurisdiction; or remove, cut, dig up, damage, or destroy any such endangered plant species on any other area in knowing violation of any State law or regulation or in the course of any violation of a State criminal trespass law. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62, 17.63, and 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered or threatened plant species under certain circumstances. The Service anticipates few trade permits would ever be sought or issued for the 12 species because the plants are not common in cultivation or in the wild.

It is the policy of the Service (59 FR 34272) to identify to the maximum extent practicable at the time a species is listed those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of the listing on proposed or ongoing activities. Activities affected by the listing were discussed previously in this section. The Service does not at this time know of any other activities affected by this listing.

Questions regarding whether specific activities will constitute a violation of section 9 should be directed to the Field Supervisor of the Service's Sacramento Office (see **ADDRESSES** section). Requests for copies of the regulations on listed plants and inquiries regarding them may be addressed to the U.S. Fish and Wildlife Service, Ecological Services, Permits Branch, 911 N.E. 11th Avenue, Portland, Oregon 97232–4181 (503/231–6241; FAX 503/231–6243).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Act. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

A complete list of all references cited herein is available, upon request, from the Field Supervisor, Sacramento Field Office (see **ADDRESSES** section).

Author: The primary author of this final rule is Elizabeth Warne, U.S. Fish and Wildlife Service, Sacramento Field Office (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulations Promulgation

Accordingly, Part 17 subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

PART 17—[AMENDED]

1. The authority citation for Part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

2. Section 17.12(h) is amended by adding the following species, in alphabetical order under the families indicated, and by adding a new family ''Linaceae—Flax Family,'' in alphabetical order, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
* *	*	*	*	*	*	
Asteraceae—Aster family:						
* *	*	*	*	*	*	
Cirsium fontinale var. *fontinale*	Fountain thistle	U.S.A. (CA)	E	575	NA	NA
* *	*	*	*	*	*	
Eriophyllum latilobum	San Mateo woolly sunflower.	U.S.A. (CA)	E	575	NA	NA
* *	*	*	*	*	*	
Pentachaeta bellidiflora	White-rayed pentachaeta.	U.S.A. (CA)	E	575	NA	NA
* *	*	*	*	*	*	
Brassicaceae—Mustard family:						
* *	*	*	*	*	*	
Streptanthus albidus ssp. *albidus*.	Metcalf Canyon jewelflower.	U.S.A. (CA)	E	575	NA	NA
Streptanthus niger	Tiburon jewelflower ..	U.S.A. (CA)	E	575	NA	NA

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
* * *	*	*	*	*	*	
Crassulaceae—Stonecrop family:						
* * *	*	*	*	*	*	
Dudleya setchellii	Santa Clara Valley dudleya.	U.S.A. (CA)	E	575	NA	NA
* * *	*	*	*	*	*	
Liliaceae—Lily family:						
* * *	*	*	*	*	*	
Calochortus tiburonensis	Tiburon mariposa lily	U.S.A. (CA)	T	575	NA	NA
* * *	*	*	*	*	*	
Linaceae—Flax family:						
Hesperolinon congestum	Marin dwarf-flax	U.S.A. (CA)	T	575	NA	NA
* * *	*	*	*	*	*	
Onagraceae—Evening-primrose family:						
* * *	*	*	*	*	*	
Clarkia franciscana	Presidio clarkia	U.S.A. (CA)	E	575	NA	NA
* * *	*	*	*	*	*	
Rhamnaceae—Buckthorn family:						
* * *	*	*	*	*	*	
Ceanothus ferrisae	Coyote ceanothus	U.S.A. (CA)	E	575	NA	NA
* * *	*	*	*	*	*	
Scrophulariaceae—Snapdragon family:						
* * *	*	*	*	*	*	
Castilleja affinis ssp. *neglecta*	Tiburon paintbrush ...	U.S.A. (CA)	E	575	NA	NA
* * *	*	*	*	*	*	
Cordylanthus tenius ssp. *capillaris*.	Pennell's bird's beak	U.S.A. (CA)	E	575	NA	NA
* * *	*	*	*	*	*	

Dated: December 16, 1994.

Mollie H. Beattie,

Director, U.S. Fish and Wildlife Service.

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