general distribution in southern California.

On December 14, 1990, the Service received a petition dated December 5, 1990, from Mr. David Hogan of the San Diego Biodiversity Project, to list *Nolina interrata* as an endangered species (Hogan, *in litt.* 1990). The petitioner also requested the designation of critical habitat for this species. Since *N. interrata* was included in the 1975 Smithsonian Institution Report, the Service regards the 1990 petition as a second petition for the same action.

On September 16, 1991, the Service received a petition dated September 13, 1991, from Mr. Steve Boyd of the Rancho Santa Ana Botanic Garden, to list Ceanothus ophiochilus as an endangered species (Boyd 1991). The Service published a 90-day finding in the Federal Register on August 10, 1992 (57 FR 37513), that substantial information was presented in the petition to indicate that the requested action may be warranted. This species was included as a category 2 species in the September 30, 1993, Notice of Review (50 CFR 51144). This proposed rule constitutes the 12-month finding on this petitioned action.

On July 29, 1983, Nolina interrata was included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES is a treaty established to prevent international trade that may be detrimental to the survival of plants and animals.

Summary of Factors Affecting the Species

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 set forth the procedures for adding species to the Federal lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to Ceanothus ophiochilus S. Boyd, T. Ross and L. Arnseth (Vail Lake ceanothus), Berberis nevinii A. Gray (Nevin's barberry), Fremontodendron mexicanum Davidson (Mexican flannelbush), and Nolina interrata H. Gentry (Dehesa beargrass), are as follows:

A. The present or threatened destruction, modification, or curtailment of their habitat or range. The specific soil and/or hydrologic requirements of the four plant taxa considered herein, naturally limit their distribution to clay soils formed from gabbro and alluvial scrub (sandy washes

and terraces) within the chaparral plant community. Generally, urban development and mining have impacted these habitats more than other activities within the chaparral community because the terrain is more accessible than the typically rugged and boulder covered terrain of the surrounding chaparral.

A study conducted by the Metropolitan Water District of Southern California suggests that much of southwestern Riverside County will be converted to urban development within the decade (Monroe et al. 1992, California Department of Finance 1993). Urban development encroachment in the Vail Lake area of southwestern Riverside County threatens one of the two largest populations of *Berberis nevinii* and the only known population complex of Ceanothus ophiochilus. The Vail Lake area is included in a Community Plan, planned and approved by the County, which allows subdivision of parcels into 9-ha (20acre) lots (Boyd 1991, Schaffer 1993). In 1995, a new land owner offered the Riverside County Habitat Conservation Agency (RCHCA) an option to acquire the portion (as a conservation bank) of the Vail Lake planned community that contains the *C. ophiochilus* population (see Factor D). However, the option is unlikely to be taken and the current land owner (a real estate management company) may sell the property to an entity, or multiple entities that may develop the property (Michelle Shaughnessy, Fish and Wildlife Service Biologist, pers. comm. 1995). Berberis nevinii populations at Vail Lake could be eliminated by development (Jeff David and Associates 1995). If the conservation bank is not adopted and if subdivision of this area occurs, several types of impacts would be expected in addition to the direct removal of B. nevinii and C. ophiochilus and their habitat. Fire management strategies for developed areas would impact the natural fire processes to which natural plant communities have become adapted (see Factor E below). Individual landowners are likely to convert existing habitat to gardens, lawns, and pastures. Development would introduce invasive plants that compete with these taxa, and degrade habitat quality as a result of conversion to later successional stages of plant communities (Boyd

Several other sources of habitat degradation also threaten *Berberis nevinii* and *Ceanothus ophiochilus* in the Vail Lake area of Riverside County. State Route 79 (SR 79) has been proposed for widening from two to four lanes and may impact some populations

of *B. nevinii* as well as promoting development in the area (Monroe *et al.* 1992). Grading for fire breaks can destroy populations and their habitat. For example, grading destroyed about 3 percent of the *C. ophiochilus* population at Vail Lake, north of SR 79 and 3 percent or more in the Agua Tibia Wilderness of the Cleveland National Forest, south of SR 79 (Boyd *et al.* 1989; Boyd 1991; S. Cochrane, *in litt.* 1993).

Öf 32 known populations of *Berberis nevinii*, those occurring in alluvial scrub habitats have been the most heavily impacted (CNDDB 1992). Most of these populations have been extirpated by urban development, road widening, or habitat degradation from excessive recreational use. The quality of the remaining populations is poor compared to historical accounts (Boyd 1987). The vast San Fernando Valley alluvial scrub habitat has been largely urbanized, but once supported numerous populations, including the type locality for *B. nevinii* (Boyd 1987).

*Nolina interrata* and Fremontodendron mexicanum are being affected by the same suite of threats that accompany the encroachment of urbanization described above. The Otay Ranch and BLM boundaries divide Cedar Canyon in southern San Diego County near the Mexican border, which is the only confirmed *F. mexicanum* population in the United States and consists of 2 groups of F. mexicanum (CNDDB 1992). About 50 percent of the potentially occupied habitat of F. mexicanum exists on BLM land and about 50 percent is on private property designated as open space, which will be surrounded by residential development under the Otay Ranch Plan (Ogden Environmental and Energy Services, Inc. 1992). Habitat potentially occupied by F. mexicanum at Brown Field and Otay Lakes is degraded by four-wheel drive roads and deep gully erosion.

Over 50 percent of the population of Nolina interrata exists on private land zoned for development (Dice, pers. comm. 1995). The primary population of N. interrata at McGinty Mountain is under management by The Nature Conservancy, however, the remaining population occurs in subdivided private ownerships (CNDDB 1993). Losses of N. interrata to easements and grading have already occurred at McGinty Mountain, and fragmentation and degradation of remaining habitat continues (Dice, pers. comm. 1995). The future of the very large Sycuan Mountain population is uncertain at the present even though the landowner possesses development entitlements and CDFG may purchase a portion of this population (Royce Riggan, RBR Associates, pers. comm.