

withdrawal of the direct final rule and inform the public that the rule will not take effect. All public comments received will then be addressed in a subsequent final rule based on the proposed rule. The EPA will not institute a second comment period. Only parties interested in commenting should do so at this time. If no such comments are received, the public is advised that this rule will be effective on November 13, 1998, and no further action will be taken on the proposed rule.

III. Administrative Requirements

A. Executive Order 12866

The Office of Management and Budget (OMB) has exempted this regulatory action from review under Executive Order 12866, entitled Regulatory Planning and Review.

B. Executive Order 13045

This final rule is not subject to Executive Order 13045, entitled Protection of Children from Environmental Health Risks and Safety Risks, because it is not an "economically significant" action under Executive Order 12866.

C. Regulatory Flexibility

The Regulatory Flexibility Act (RFA) generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions. This final rule will not have a significant impact on a substantial number of small entities because SIP approvals under section 110 and subchapter I, part D of the CAA do not create any new requirements but simply approve requirements that the State is already imposing. Therefore, because the Federal SIP approval does not create any new requirements, I certify that this action will not have a significant economic impact on a substantial number of small entities. Moreover, due to the nature of the Federal-State relationship under the CAA, preparation of flexibility analysis would constitute Federal inquiry into the economic reasonableness of state action. The CAA forbids EPA to base its actions concerning SIPs on such grounds. *Union Electric Co., v. U.S. EPA*, 427 U.S. 246, 255-66 (1976); 42 U.S.C. 7410(a)(2).

D. Unfunded Mandates

Under Section 202 of the Unfunded Mandates Reform Act of 1995 ("Unfunded Mandates Act"), signed into law on March 22, 1995, EPA must prepare a budgetary impact statement to accompany any proposed or final rule that includes a Federal mandate that may result in estimated costs to State, local, or tribal governments in the aggregate; or to private sector, of \$100 million or more. Under Section 205, EPA must select the most cost-effective and least burdensome alternative that achieves the objectives of the rule and is consistent with statutory requirements. Section 203 requires EPA to establish a plan for informing and advising any small governments that may be significantly or uniquely impacted by the rule.

EPA has determined that the approval action promulgated does not include a Federal mandate that may result in estimated costs of \$100 million or more to either State, local, or tribal governments in the aggregate, or to the private sector. This Federal action approves pre-existing requirements under State or local law, and imposes no new requirements. Accordingly, no additional costs to State, local, or tribal governments, or to the private sector, result from this action.

E. Submission to Congress and the Comptroller General

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. This rule is not a "major rule" as defined by 5 U.S.C. 804(2).

F. Petitions for Judicial Review

Under section 307(b)(1) of the CAA, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by November 13, 1998. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review, nor does it extend the time within which a petition for judicial review may be filed, and

shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Hydrocarbons, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Ozone.

Dated: August 24, 1998.

A. Stan Meiburg,

Acting Regional Administrator, Region 4.

Chapter I, title 40, Code of Federal Regulations, is amended as follows:

PART 52—[AMENDED]

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart B—Alabama

2. Section 52.50 is amended by adding paragraph (c)(72) read as follows:

§ 52.50 Identification of plan.

* * * * *

(c) * * *
(72) The State of Alabama submitted revisions to the ADEM Administrative Code for the Air Pollution Control Program on March 5, 1998. These revisions involve changes to Chapters 335-3-1, 335-3-12, 335-3-14 and Appendix F.

(i) Incorporation by reference. Rules 335-3-1-.02(gggg), 335-3-12-.02(1)(b), 335-3-14-.01(7)(c), 335-3-14-.05(2)(c)2, 335-3-14-.05(3)(c), and Appendix F were adopted on February 17, 1998.

(ii) Other material. None.

[FR Doc. 98-24605 Filed 9-11-98; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AD34

Endangered and Threatened Wildlife and Plants; Final Rule To Determine Endangered or Threatened Status for Six Plants From the Mountains of Southern California

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Fish and Wildlife Service (Service) determines endangered status

pursuant to the Endangered Species Act of 1973, as amended (Act), for two plants, *Poa atropurpurea* (San Bernardino bluegrass) and *Taraxacum californicum* (California taraxacum), and determines threatened status for four plants, *Arenaria ursina* (Bear Valley sandwort), *Castilleja cinerea* (ash-gray Indian paintbrush), *Eriogonum kennedyi* var. *austromontanum* (southern mountain wild buckwheat), and *Trichostema austromontanum* ssp. *compactum* (Hidden Lake bluecurls). These six plant taxa are found in the San Bernardino, San Jacinto, Laguna, and Palomar mountains of southern California. They are imperiled by one or more of the following factors—destruction and degradation of habitat by urbanization, off-road vehicle (ORV) use, trampling, recreational development, domestic animal grazing, livestock grazing, alteration of the hydrological regimes, competition from introduced plants, over collection, and hybridization (genetic absorption) by alien species. This rule implements the Federal protection and recovery provisions afforded by the Act for these six plants. A notice of withdrawal of the proposal to list *Arabis johnstonii* (Johnston's rock-cress), which was proposed for listing along with the six plant taxa considered in this rule, is being published in the **Federal Register** concurrently with this final rule.

EFFECTIVE DATE: This rule is effective October 14, 1998.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Carlsbad Field Office, 2730 Loker Avenue West, Carlsbad, California 92008.

FOR FURTHER INFORMATION CONTACT: Gary D. Wallace, Ph.D., Botanist, U.S. Fish and Wildlife Service (see **ADDRESSES** section above or telephone 760/431-9440; facsimile 760/431-9624).

SUPPLEMENTARY INFORMATION:

Background

Arenaria ursina, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum* are low perennial plants that predominantly occur on pebble plain habitat within a 240 square kilometer (sq km) (92 square mile (sq mi)) area in the San Bernardino Mountains of San Bernardino County, California (Derby and Wilson 1978, Derby 1979, Krantz 1981a, Neel and Barrows 1990). Pebble plains are characteristically treeless openings within the surrounding montane pinyon-juniper woodland or coniferous forest, located at elevations between

1,800 and 2,300 meters (m) (6,000 and 7,500 feet (ft)). Pebble plains are remnants of a Pleistocene lake bed, which are level to sloping plains with clay soils covered with quartzite pebbles (Derby 1979, Krantz 1983). Frost heaving and alternating wet and dry cycles force associated saragosa quartzite pebbles to the soil surface to create the characteristic appearance of the pebble plains (Neel and Barrows 1990). These soils have an extremely slow infiltration rate and, thus, have a high runoff potential (Neel and Barrows 1990). Pebble plains are the result of a combination of soil and climatic factors that support a unique assemblage of plant species, some of which are endemic while others represent disjunct occurrences of species more common elsewhere. Neel and Barrows (1990) noted that pebble plains often are associated with meadow habitats in the Big Bear Lake area. Natural meadows and pebble plains provide habitat for several sensitive taxa (Krantz 1981b).

The pebble plain taxa included in this final rule are predominantly restricted to pebble plain habitat. Each of these taxa has a mosaic distribution among the various pebble plain complexes and within a given complex. All nine pebble plain complexes (except Coxey Meadow) noted by Neel and Barrows, 1990, support two or more of the pebble plain taxa included in this rule. Coxey Meadow is more isolated and not as well known as the other pebble plain sites, but supports other elements of the known pebble plain flora (e.g. *Arabis parishii* and *Ivesia argyrocoma*).

Damage or curtailment of any pebble plain habitat will threaten the continued existence and recovery of *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum*, as well as other associated pebble plain flora. Coxey Meadow may represent a historical occurrence or ecologically marginal pebble plain.

Poa atropurpurea and *Taraxacum californicum* are found in meadow habitats in the Big Bear Valley in the San Bernardino Mountains. The former species also is found in seven meadow areas in San Diego County. There were 38 hectares (ha) (93 acres (ac)) of *P. atropurpurea* meadow habitat in the Big Bear area in 1981 (Krantz 1981b). *Trichostema austromontanum* ssp. *compactum* is found about the margins of a single vernal pool in the San Jacinto Mountains at 2,650 m (8,600 ft).

Discussion of the Six Plant Taxa

Arenaria ursina

Arenaria ursina, a member of the pink family (Caryophyllaceae), was described by Benjamin L. Robinson (1894) on the basis of a collection made in 1882 by Samuel B. Parish at Bear Valley in the San Bernardino Mountains, California. This taxon was reduced to a variety of *A. capillaris* by Robinson (1897) but Maguire (1951) and subsequent authors (Munz and Keck 1959, Munz 1974, Hartman 1993) treat it as a species. *Arenaria ursina* is a low, tufted, perennial herb with stems from 6 to 15 centimeters (cm) (2 to 6 inches (in)) long. The leaves are opposite, 4 to 12 millimeters (mm) (0.16 to 0.5 in) long. The white, five-parted flowers are arranged in open cymes (clusters) 4 to 15 cm (1.5 to 6 in) high. The petals are 4 to 5 mm (0.16 to 0.2 in) long, the sepals are up to 4 mm (0.16 in) long in fruit. This species flowers from May to August. *Arenaria ursina* is distinguished from other members of the genus within its range by its glabrous (hairless), filiform (thread-like), nerveless leaves less than 2 mm (0.08 in) wide and its rounded, 3 to 4 mm (0.12 to 0.16 in) long sepals (Hartman 1993).

Arenaria ursina is found on pebble plains and dry slopes in the San Bernardino Mountains of southwest San Bernardino County. The dry slopes mentioned here are areas that fit the general description of pebble plains but do not support both characteristic species *Arenaria ursina* and *Eriogonum kennedyi* var. *austromontanum* (Neel and Barrows 1990). Populations of *A. ursina* are known from eight pebble plain complexes in the vicinity of Big Bear and Baldwin lakes (Krantz 1981a, Neel and Barrows 1990, California Natural Diversity Data Base (CNDDB) 1997). Most of the occurrences are on U.S. Forest Service (FS) land at elevations from 1,800 to 2,900 m (6,000 to 9,500 ft) (Griggs 1979, Krantz 1981a, Neel and Barrows 1990). Some occur on land owned by the California Department of Fish and Game (CDFG), The Nature Conservancy (TNC), or private landowners. *Arenaria ursina* is threatened at six of the eight sites where it occurs.

Castilleja cinerea

Castilleja cinerea, a member of the figwort family (Scrophulariaceae), was described by Asa Gray (1884) based on a collection made in 1882 by S.B. and W.F. Parish at Bear Valley, San Bernardino Mountains, California. Jepson (1925) included this species in the genus *Orthocarpus* as *O. cinereus*

(A. Gray) Jepson, although this combination has not been recognized by any other authorities (Chuang and Heckard 1993). *Castilleja cinerea* is a semi-parasitic perennial with several, ascending to decumbent (trailing), grayish stems sprouting from the root-crown. The stems are 1 to 2 decimeters (dm) (4 to 8 in) tall. The inflorescence (flower stalk) is greenish yellow (occasionally reddish-orange tinged) with distinctive yellowish hairs on the lower bracts. The calyx (united sepals) is nearly equally divided into linear lobes, and the corolla is yellowish. It flowers primarily in June and July. *Castilleja cinerea* is distinguished from other species of *Castilleja* within its range by its perennial nature, ashy-puberulent (short hairs) stems and leaves, yellowish flowers, and calyx lobes of equal length (Chuang and Heckard 1993).

Castilleja cinerea is known from fewer than 20 localities at the eastern end of the San Bernardino Mountains, (Heckard 1980, Neel and Barrows 1990). Most populations occur on pebble plains, but *C. cinerea* is also found in pine forest habitats near the Snow Valley Ski Area, along Sugarloaf Ridge, and in the vicinity of Lost Creek. *Castilleja cinerea* is known to occur on private lands, CDFG land, and FS land including that leased for vacation homes and a ski area.

Eriogonum kennedyi var.
austromontanum

Eriogonum kennedyi var. *austromontanum*, a member of the buckwheat family (Polygonaceae), was described by Munz and Johnston (1924) based on a collection made on July 4, 1920, by R. D. Harwood near the lake at Big Bear Valley in the San Bernardino Mountains, California. *Eriogonum kennedyi* var. *austromontanum* was treated as a subspecies by Stokes (1936), Munz and Keck (1959), and Munz (1974). The taxon was treated as a variety by Reveal and Munz (1968) and Hickman (1993).

Eriogonum kennedyi var. *austromontanum* is a woody-based perennial with stems forming loose cushion-like leafy mats 5 to 35 cm (6 to 14 in) wide. The leaves are oblanceolate (with rounded end broader than the base), 6 to 10 mm (0.2 to 0.4 in) long and densely white hairy. The inflorescences are 8 to 15 cm (3 to 6 in) high, bearing head-like flower clusters. The perianth (united calyx and corolla) is white to rose, and composed of inner and outer lobes that are similar in appearance. This taxon flowers from July through September. This variety can be distinguished from *E. kennedyi*

var. *kennedyi* and *E. kennedyi* var. *alpigenum*, which also occur in the San Bernardino Mountains, by its long, loosely woolly-haired inflorescences, longer involucres (whorl of bracts) (2.5 to 4 mm (0.1 to 0.2 in) long), longer (3.5 to 4 mm (0.2 in)) fruits, and longer leaves (6 to 10 mm (0.2 to 0.4 in)) (Reveal 1989, Hickman 1993). *Eriogonum kennedyi* var. *austromontanum* could also be confused with *E. wrightii* ssp. *subscaposum*. However, *E. wrightii* ssp. *subscaposum* has racemose flower stalks, wider (2 to 4 mm (0.1 to 0.2 in)) leaves, shorter (2 to 2.5 mm (0.1 in)) fruits, and is found in yellow pine forest (Reveal 1989, Neel and Barrows 1990, Hickman 1993).

Eriogonum kennedyi var. *austromontanum* is known from seven pebble plain complexes in the San Bernardino Mountains (Krantz 1981a, Neel and Barrows 1990, CNDDDB 1997). Reports of this taxon in Ventura County (Twisselmann 1967, Reveal 1979, and Hickman 1993) are based on specimens subsequently determined to be *E. kennedyi* var. *kennedyi* (Reveal and Munz 1968, Reveal 1989). *Eriogonum kennedyi* var. *austromontanum* is known to occur on FS, CDFG, and private lands. All of the sites supporting this taxon are threatened.

Poa atropurpurea

Poa atropurpurea, a member of the grass family (Poaceae), was described by Frank Lamson-Scribner (1898) based on two collections by Samuel B. Parish. One specimen (number 2968) was collected in 1894 and another (number 3696) was collected in 1895 at Bear Valley, San Bernardino Mountains, California. This species has not been known by any other name (Keck 1959, Soreng 1993). *Poa atropurpurea* is a dioecious (separate male and female plants), tufted perennial with creeping rhizomes (Soreng 1993). The inflorescence is an erect, dense spike-like panicle (compound floral axis) 3 to 7 cm (8 to 18 in) high. The lemmas (lower of the two bracts enclosing the flower in the spikelet of grasses) are smooth, faintly nerved and less than 3.5 mm (0.14 in) long. The glumes (scaly bracts of the spikelets) are 1.5 to 2 mm (0.06 to 0.08 in) long. This species flowers from early May to June or July. *Poa atropurpurea* may be distinguished from *P. pratensis* (Kentucky bluegrass), with which it is often associated, by its shorter inflorescences, contracted panicles, and glabrous lemmas and calluses (extension of the inner scale of the spikelet) (Soreng 1993).

Poa atropurpurea occurs in montane meadows in the Big Bear region of the

San Bernardino Mountains, as well as in meadows in the Laguna Mountains and Palomar Mountains of San Diego County at elevations of 1,800 to 2,300 m (6,000 to 7,500 ft) (Sproul 1979, Krantz 1981b, Winter 1991, Curto 1992). This species occurs near the drier margins of meadows (Krantz 1981b, Winter 1991) described as vernal wet marshlands by Hirshberg (1994). Eleven population centers of *P. atropurpurea* currently are known to exist in the San Bernardino Mountains and are often found at meadow sites with *Taraxacum californicum* (Krantz 1981b). Clones, consisting of numerous erect culms (stems), are about 1 m (3 ft) in diameter and may intermingle (Soreng, pers. comm. 1996). Two of the 11 known populations in the San Bernardino Mountains are about 9 ha (23 ac) in size and are located on FS land (Holcomb Valley and Wildhorse Meadows), one 2 ha (5 ac) site is administered by CDFG (North Baldwin Lake), one 9-ha (20-ac) site is cooperatively owned by the FS and a private youth camp (Hitchcock Ranch), and seven sites, about 20 ha (50 ac) total, are privately owned (Krantz 1981b). Eight of the sites are less than 2.5 ha (6 ac) in area. Fewer than 40 ha (100 ac) of habitat for this species are known to remain in the San Bernardino Mountains.

Sproul (1979) reported that there were four known populations of *Poa atropurpurea* in the Laguna Mountains of San Diego County, California. Curto (1992) reported a 1981 collection of *P. atropurpurea* from Mendenhall Meadow in the Palomar Mountains of San Diego County. *Poa atropurpurea* was thought to be extirpated from the Laguna Mountains and the Palomar Mountains (Curto 1992). However, in 1993, two populations, each consisting of about 50 individuals, were located within the Cleveland National Forest in the Laguna Mountains (Winter, pers. comm. 1993). Hirshberg (1994) reported finding more than 1,000 plants of *P. atropurpurea* at seven sites near Laguna Meadow. Five of these sites appear to encompass the four sites noted by Sproul (1979), the other two are apparently newly reported sites. In total, this species is known from less than 20 populations throughout its range.

Co-occurrence of male and female plants of this species is necessary for seed production. Curto (1992) found that although male and female culms were about equal in number among herbarium collections of this species from the San Bernardino Mountains, collections from Big Laguna and Mendenhall meadows of San Diego County were all female culms. Hirshberg (1994) found only four male

plants, two at each of two different sites, during her study of *P. atropurpurea* on the Cleveland National Forest in San Diego County. Soreng (pers. comm. 1996) suggested that it is possible the San Diego County populations have turned apomictic (not needing fertilization). This would be evident by a seed set of 20 percent or higher. See Factor E for further discussion of the importance of dioecy in this species.

Taraxacum californicum

Taraxacum californicum, a member of the sunflower family (Asteraceae), was described by Philip A. Munz and Ivan Johnston (1925) based on a specimen collected by W.M. Pierce in May 1922 in Bear Valley, San Bernardino Mountains, California. Specimens referable to this species have been previously considered *T. officinale* var. *lividum* (Waldst. & Kit.) Koch (Hall 1907), *T. lapponicum* Kilim. (Handel-Mazzetti 1907), *T. ceratophorum* DC. (Sherff 1920), or *T. ceratophorum* var. *bernardinum* Jepson (Jepson 1925). The first three combinations are taxa now known not to be present in the region or included with other European species. The last combination (Jepson 1925) was published after the combination *T. californicum* had been published and therefore is considered a synonym.

Taraxacum californicum is a thick-rooted perennial herb. The leaves, arranged in basal rosettes, 0.5 to 2 dm (2 to 8 in) high, are light green, oblanceolate, nearly entire to sinuate-dentate (wavy toothed) from 5 to 12 cm (2 to 5 in) long and 1 to 3 cm (0.4 to 1.2 in) wide. The light yellow flowers are clustered in heads on leafless stalks. The outer phyllaries (bracts of the inflorescence) are erect, lance-ovate and 5 to 7 mm (0.2 to 0.3 in) long while the inner phyllaries are lance-linear, and 12 to 15 mm (0.5 to 0.6 in) long. Plants flower from May to August. *Taraxacum californicum* is readily distinguished from other exotic members of this genus within its range by its lighter green foliage, sub-entire leaves, stocky cylindrical heads with truncate bases, erect phyllaries, paler yellow flowers, and small fruits (Munz and Johnston 1925, Stebbins 1993).

Taraxacum californicum occurs in moist meadow habitats in the San Bernardino Mountains at elevations from 2,000 to 2,800 m (6,700 to 9,000 ft) and is often associated with *Poa atropurpurea*. These taxa are restricted to the relatively open edges apart from more mesic plants such as *P. pratensis*, *Carex* spp. or *Juncus* spp. (Krantz 1981b). The perimeter of such meadows often intergrades with sagebrush scrub

dominated by sagebrush or pine forest (Krantz 1981b). *Taraxacum californicum* is known to occur on FS, CDFG, municipal, and private lands. About 20 occurrences of the species are currently known, with population sizes ranging from 2 to 300 individuals. About half of these occurrences are located within, or adjacent to, urbanized areas such as Big Bear City, Big Bear Lake Village, and Sugarloaf in San Bernardino County, California. All of these occurrences are threatened by urbanization.

Trichostema austromontanum ssp. *compactum*

Trichostema austromontanum ssp. *compactum*, a member of the mint family (Lamiaceae), was described by F. Harlan Lewis (1945) based on specimens collected in 1941 by M. L. Hilend at Hidden Lake, San Jacinto Mountains, Riverside County, California. *Trichostema austromontanum* ssp. *compactum* is a compact, soft-villous (with long, shaggy hairs) annual approximately 10 cm (4 in) tall with short internodes (stem segments between leaves). The leaves are elliptic (oval but narrowed at both ends). The blue, five-lobed flowers are less than 7 mm (0.3 in) long, with two blue stamens. The fruit is a smooth, four-lobed nutlet. This taxon flowers in July and August. *T. austromontanum* ssp. *compactum* is shorter and has shorter internodes than *T.*

austromontanum ssp. *austromontanum*. *Trichostema austromontanum* ssp. *compactum* historically has been restricted to a single vernal pool known as Hidden Lake (Lake Surprise in Hall (1902)) at an elevation of about 2,650 m (8,700 ft) in the Mount San Jacinto State Wilderness. Hidden Lake is the only naturally occurring body of water in the San Jacinto Mountains. The entire known range for this plant encompasses less than 0.8 ha (2 ac) (Michael Hamilton, pers. comm., 1996). The population size of *T. austromontanum* ssp. *compactum* declines during periods of either above or below normal precipitation because of its position along the perimeter of the vernal pool habitat (Hamilton 1991). Between 1979 and 1991, the population sizes of this species fluctuated from less than 50 to 10,000 individuals (Hamilton 1991).

Previous Federal Action

Federal government action on five of the six taxa contained in this rule began as a result of section 12 of the Act, which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be threatened, endangered, or extinct in the

United States. This report, designated as House Document No. 94-51, and presented to Congress on January 9, 1975, recommended *Arenaria ursina*, *Poa atropurpurea*, and *Trichostema austromontanum* ssp. *compactum* for endangered status. *Castilleja cinerea*, and *Taraxacum californicum*, included in House Document No. 94-51, were recommended for threatened status. The Service published a notice in the July 1, 1975, **Federal Register** (40 FR 27823) of its acceptance of the report as a petition within the context of section 4(c)(2) (now section 4(b)(3)(A)) of the Act, and of the Service's intention to review the status of the plant taxa named therein, including *Arenaria ursina*, *Castilleja cinerea*, *Poa atropurpurea*, *Taraxacum californicum*, and *Trichostema austromontanum* ssp. *compactum*. On June 16, 1976, the Service published a proposal in the **Federal Register** (41 FR 24523) to list approximately 1,700 vascular plant species as endangered species pursuant to section 4 of the Act. *Arenaria ursina*, *Trichostema austromontanum* ssp. *compactum*, *Poa atropurpurea*, and *Eriogonum kennedyi* var. *austromontanum* were included in the June 16, 1976, **Federal Register** notice.

General comments received in response to the June 16, 1976, proposal were summarized in an April 26, 1978, **Federal Register** notice (43 FR 17909). A revision of the Smithsonian report (Ayensu and DeFilipps 1978), provided new lists based on additional data on taxonomy, geographic range, and endangered status of taxa as well as suggestions of taxa to be included or deleted from the earlier listing. *Eriogonum kennedyi* var. *austromontanum*, not included in the first Smithsonian report, was recommended for threatened status in Ayensu and DeFilipps (1978). The recommended status for other taxa listed above did not change from the House Document 94-51 listings. Acknowledgment of the Service's acceptance of this document as a petition was included in a notice of findings on certain petitions published in the **Federal Register** on February 15, 1983 (48 FR 6752). Although the 1978 amendments to the Act 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. On December 10, 1979, **Federal Register** (44 FR 70796), the Service published a notice of withdrawal for the portion of the June 16, 1976, proposal that had not been made final, along with four other proposals that had expired.

The Service published an updated Notice of Review of plants on December 15, 1980 (45 FR 82479). This notice included *Poa atropurpurea*, *Taraxacum californicum*, and *Trichostema austromontanum* ssp. *compactum* as category-1 candidates. Category-1 candidates were those species for which the Service had sufficient information concerning biological vulnerability and threats to support preparation of listing proposals. *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum* were included in the notice as category-2 candidate species. Category-2 candidates were those species for which available data indicated listing was probably appropriate, but for which sufficient data on biological vulnerability and threats were not presently available to support proposed rules. On November 28, 1983, the Service published a supplement (48 FR 53639) to the December 15, 1980, Notice of Review, (45 FR 82479). The status of the six taxa remained unchanged until the Service published a Notice of Review in the **Federal Register** on February 21, 1990 (55 FR 6183), in which the status of *Arenaria ursina* was changed to category-1. Subsequent to the 1990 notice, additional information became available resulting in *Castilleja cinerea* and *Eriogonum kennedyi* var. *austromontanum* being changed to category-1 status.

On August 2, 1995, the Service published in the **Federal Register** (60 FR 39337) a proposal to list two species, *Poa atropurpurea* and *Taraxacum californicum*, as endangered and four taxa, *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, and *Trichostema austromontanum* ssp. *compactum*, as threatened. That proposed rule also included *Arabis johnstonii* to be listed as threatened. The proposal to list *Arabis johnstonii* has been withdrawn and is addressed in a separate document published concurrently in this same **Federal Register** issue. The Service now determines *Poa atropurpurea* and *Taraxacum californicum* to be endangered species and *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, and *Trichostema austromontanum* ssp. *compactum* to be threatened species.

Section 4(b)(3)(B) of the Act requires the Secretary to make findings on petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. This was the case for the six taxa covered by this rule,

because the 1975 and 1978 Smithsonian reports had been accepted as petitions. On October 13, 1983, 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 in the **Federal Register** on January 20, 1984 (49 FR 2485). Such a finding requires the petition to be recycled annually, pursuant to section 4(b)(3)(C)(i) of the Act. The finding was reviewed each October, annually from 1984 through 1993. Publication of the proposed rule constituted the warranted finding for these six taxa.

The processing of this final rule follows the Service's listing priority guidance published in the **Federal Register** on May 8, 1998 (63 FR 25502). The guidance clarifies the order in which the Service will process rulemakings. Highest priority will be processing emergency listing rules for any species determined to face a significant and imminent risk to its well being (Tier 1). Second priority will be processing final determinations on proposed additions to the lists of endangered and threatened wildlife and plants; the processing of new proposals to add species to the lists; the processing of administrative petition findings to add species to the lists, delist species, or reclassify listed species (petitions filed under section 4 of the Act); and a limited number of delisting and reclassifying actions (Tier 2). Processing of proposed or final designations of critical habitat will be accorded the lowest priority (Tier 3). This final rule is a Tier 2 action and is being completed in concurrence with the current Listing Priority Guidance. All six taxa in this rule face high magnitude threats. This rule has been updated to reflect any changes in information concerning distribution, status and threats since the publication of the proposed rule.

Summary of Comments and Recommendations

In the August 2, 1995, proposed rule (60 FR 39337) 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 30-day comment period closed on October 9, 1995. Appropriate Federal and State agencies, County and City governments, scientific organizations, and other interested parties were contacted and requested to comment. Individual newspaper notices of the proposed rule were published in the *San Diego Union-Tribune* and *The Press-Enterprise* on

August 10, 1995. No request for a public hearing was received.

During the comment period, the Service received two written comments, both of which opposed the proposed listing. Both comments related only to the taxa that occur in the Big Bear Valley region of the San Bernardino Mountains, California. The comments relevant to this final rule have been organized into specific issues. These issues and the Service's response to each are summarized as follows:

Issue 1: One commenter questioned the existence of pebble plains in Big Bear Valley.

Service Response: Pebble plains as a biological community have been described in several scientific studies (Holland 1986; Skinner and Pavlik 1994; Krantz 1981a, 1983; Freas and Murphy 1990; Neel and Barrows 1990; and Sawyer and Keeler-Wolf 1995). They were first called pavement plains (Derby 1979, Derby and Wilson 1978). Several of these studies (Derby 1979, Krantz 1981a) describe the distribution of pebble plain habitat in Big Bear Valley. The ecologically unique nature of these areas and their associated flora were discussed in Derby and Wilson (1978). Pebble plains have been described as the "most spectacular ecologic island" in Southern California (Schoenherr 1992).

Issue 2: One commenter stated that although meadow and pebble plains habitat was eliminated by the filling of Big Bear Lake Reservoir, the plants are "still abundant in the entire valley." This commenter also stated that mining was not a threat to the plant species because vegetation was still growing on the old mine tailing piles.

Service Response: Pebble plains are often associated with montane meadow habitat, as described in the Background section. Meadow habitat in the Bear Valley region, including near Holcomb Valley and Erwin Lake, decreased by 76 percent between the late 1800's and 1932. From 1932 to 1990 there was a further decrease of 64 percent in remaining meadow habitat (Krantz 1990). Overall there has been a 91 percent decrease in meadow habitat since the late 1800's. A 91 percent decrease is significant because it represents the permanent loss of occupied and potential habitat for several of the taxa included in this final rule, and other sensitive or listed species associated with this habitat. Although a number of native and exotic plant species are able to grow on mine tailing piles, this habitat does not provide suitable conditions for any of the species addressed in this final rule. Meadow and pebble plain habitat has

never been extensive in the Big Bear Valley area relative to the surrounding forest region. For example, one estimate of the number of remaining acres of pebble plain habitat on National Forest lands is 208 ha (514 ac) or about 0.3 percent of the total acreage of just the Big Bear Ranger District. These taxa, endemic to the Big Bear Valley area, are, by all accounts, rare in the region, the County, and the State.

Issue 3: One commenter stated that the threat of hybridization or "promiscuous occupation of genetic absorption with exotic species" is not supported by documentation.

Service Response: In a recent review of extinction by hybridization, Rhymer and Simberloff (1996) stated that non-indigenous taxa can bring about the extinction of native flora or fauna. They cited examples among mammals, birds, amphibians, fish, and plants. Rieseberg (1991) outlined case histories of introgression in plants, including *Cercocarpus traskiae*, an endangered species from Santa Catalina Island, California. Krantz (in litt. 1993) noted specimens that had characteristics of both *Taraxacum californicum* and the introduced species *T. officinale*. The precise origin of these intermediate individuals has not yet been determined. Genetic swamping by *Poa pratensis* is a possible threat to *P. atropurpurea* (Curto 1992).

Issue 4: One commenter questioned the threat of fuelwood harvesting to the pebble plain species. The commenter noted that people are required to have a permit to cut fuelwood and are not allowed to drive off existing roads to collect this wood. The commenter further stated that there would be less harm done to plant growth by trampling and rolling of cut wood to get to the trucks if the trucks were allowed to drive to the trees on the old woodcutters' roads, which have now been fenced off.

Service Response: Fuelwood harvest is permitted in designated areas of the Big Bear region, such as portions of Holcomb Valley (SBNF, in litt. 1995). Most sensitive habitats are not within the areas where fuelwood harvesting is permitted. However, impacts related to the use of roads that traverse nearby sensitive habitats do occur. The San Bernardino National Forest (Odell 1988) has closed roads to protect sensitive plant habitat in the Arrastre Flats and Union Flats area. Few, if any, areas of the Forest open to permitted fuelwood harvest have been impacted by these road closures. The closures do not preclude access by forest users and have produced no adverse cumulative impacts. However, vehicles utilizing

unauthorized off-road areas directly impact pebble plains habitat (Odell 1988). Damage caused by ORVs on pebble plains and meadows can be significant. ORVs destroy smaller shrubs and annuals (Wilshire 1983). There have been numerous incidents of damage to the vehicle exclusion fencing around several pebble plain sites (Henderson, in litt. 1997). These incidents were often associated with damage to the habitat. An incident of vehicle trespass on a pebble plain in March 1992, resulted in direct damage to approximately 930 square meters (10,000 sq ft) of habitat (Neel and Chaney 1992). Also, damage to surface hydrological characteristics occurred because the soils were wet and deep ruts were produced by the vehicle. These incidents are further discussed under Factor A.

Issue 5: One commenter questioned the economic value of the taxa listed herein and another stated that listing these plants would result in severe depreciation of property value.

Service Response: Under section 4(b)(7)(A) of the Act, a listing determination must be based solely on the best scientific and commercial data available. The legislative history of this provision clearly states the intent of Congress to "ensure" that listing decisions are "based solely on biological criteria and to prevent non-biological criteria from affecting such decisions" (H.R. Rep. No. 97-835, 97th Cong. 2d Sess. 19 (1982)). As further stated in the congressional report, "economic considerations have no relevance to determinations regarding the status of species." Because the Service is specifically precluded from considering economic impacts in a final decision on a proposed listing, the Service cannot consider the possible economic consequences of listing the six taxa.

Issue 6: A commenter questioned whether cattle grazing is a threat to these species because he claims cattle had not grazed in Big Bear Valley for over 40 years.

Service Response: Several of the meadow sites in the Big Bear area have been impacted by grazing by domestic livestock (e.g., Bluff Lake, Hitchcock Ranch, Shay Meadow, Wildhorse Meadow (Krantz 1981b; Krantz, in litt. 1993)). All of the populations of *Poa atropurpurea* in the Laguna Meadow and Mendenhall Meadow are located within grazing allotments currently used by cattle (Winter 1991). Grazing by domestic and feral animals other than cattle also poses a threat to the species listed herein. Native ungulates are facultative browser/grazers or browsers (feed primarily on woody plants) rather than grazers (feed primarily on

herbaceous plants) (Painter 1995). Domestic ungulates are grazers which tend to do more damage to herbaceous plants such as *Poa atropurpurea*. Krantz (1981a) documented the presence of feral burros on the Sawmill and Baldwin Lake pebble plains. Neel and Barrows (1990) concurred with this assessment and added that burros regularly have been observed on the Gold Mountain pebble plain. Grazing can destabilize plant communities by aiding the spread and establishment of non-native taxa (Painter 1995) and thus diminish populations of *Poa atropurpurea* (Winter 1991), as well as *T. californicum* because *Taraxacum officinale* is favored over *T. californicum* under grazing conditions (Henderson, in litt. 1997).

Issue 7: One commenter asked why Federal and State agencies and their projects or actions are exempt from protecting endangered or threatened species.

Service Response: The Act directs Federal agencies to protect and promote the recovery of listed species. Collection of listed plants on Federal lands is prohibited. Proposed Federal projects and actions including activities on private or non-Federal lands that involve Federal funding or permitting require review to ensure they will not jeopardize the survival of any listed species, including plants. The Act does not prohibit "take" of listed plants on private lands, but landowners should be aware of State laws protecting imperiled plants.

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 designated. 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 a listed species or 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.

Although State law may provide a measure of protection to species, these laws are not adequate to protect the species in all cases. Numerous activities do not fall under the purview of State law, such as certain projects proposed by the Federal government and projects falling under State statutory exemptions. Where overriding social and economic considerations can be demonstrated, these laws allow project proposals to go forward, even in cases where the continued existence of the

species may be jeopardized or where adverse impacts are not mitigated to the point of insignificance. The inadequacy of existing State and Federal regulatory mechanisms is one of the factors that necessitates Federal listing of these plant taxa. Please see the "Summary of Factors Affecting the Species" section, specifically Factor D, and the "Available Conservation Measures" section in this rule for additional information about this issue.

Issue 8: One commenter stated that "large scale" timber harvest does not occur in the Big Bear Valley region, only dead trees are removed and some thinning is done by the FS, therefore timber harvest is not a threat to the plant species.

Service Response: The "Background" section of the proposed rule identified timber harvest as having affected the habitat of *Arenaria ursina*, *Castilleja cinerea* over the past 100 years, and further stated that timber harvest has continued to affect the habitat of *Eriogonum kennedyi* var. *austromontanum*, *Poa atropurpurea*, and *Taraxacum californicum*. Although impacts have occurred in the past from timber harvest, the final rule has been revised and does not identify timber harvest as a current threat to any of the plant taxa.

Issue 9: One commenter questioned the threat from hiking and other recreational activities, as well as threats from collecting, scientific studies, and "overutilization."

Service Response: Excessive trampling may alter the hydrology of the habitats of the taxa listed herein and cause conditions such as ponding along trails or drying below the trails as a result of soil compression. These in turn may lead to conditions that affect seedling establishment or species persistence in these areas. Recreational activities that include the use of ORVs continue to have significant negative impacts on pebble plain habitat (see discussion under Factor A). Botanists often prefer to collect species considered rare for exchange with other institutions (see discussion under Factor B). Some limited collection from Federal lands could be permitted for responsible research by qualified individuals, as well as for periodic documentation purposes for recognized institutional collections.

Peer Review

In accordance with interagency policy published on July 1, 1994 (59 FR 34270), the Service solicited the expert opinions of three independent specialists regarding pertinent scientific or commercial data and assumptions relating to the taxonomy, population models, and supportive biological and ecological information for the taxa under consideration for listing. The purpose of such review is to ensure listing decisions are based on scientifically sound data, assumptions, and analyses, including input of appropriate experts and specialists. There were no responses to the Service's

requests for peer review of this listing action.

Summary of Factors Affecting the Species

Section 4 of the Endangered Species Act (Act) 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 list. 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) of the Act. These factors and their application to *Arenaria ursina* B.L. Rob. (Bear Valley sandwort), *Castilleja cinerea* A. Gray (ash-gray Indian paintbrush), *Eriogonum kennedyi* S. Watson var. *austromontanum* Munz & I.M. Johnst. (southern mountain wild buckwheat), *Poa atropurpurea* Scribn. (San Bernardino bluegrass), *Taraxacum californicum* Munz & I.M. Johnst. (California taraxacum), and *Trichostema austromontanum* F.H. Lewis ssp. *compactum* F.H. Lewis (Hidden Lake bluecurls) are as follows. A summary of the threats to each of these taxa is provided in Table 1.

A. *The Present or threatened destruction, modification, or curtailment of their habitat or range.* The six taxa listed herein currently are imperiled by a variety of activities that result in habitat modification, destruction, degradation, and fragmentation. These activities include urbanization, ORV activity, alteration of hydrological conditions, and vandalism.

TABLE 1.—SUMMARY OF THREATS

Species	Threats					
	Trampling	Exotic plants	* ORV activity	Urbanization	Grazing/browsing	Limited numbers
<i>Arenaria ursina</i>	x	x	x	x		
<i>Castilleja cinerea</i>	x	x	x	x	x	
<i>Eriogonum kennedyi</i> var. <i>kennedyi</i>	x	x	x	x		
<i>Poa atropurpurea</i>	x	x	x	x	x	x
<i>Taraxacum californicum</i>	x	x	x	x	x	x
<i>Trichostema austromontanum</i> ssp. <i>compactum</i>	x					x

* ORV = off road vehicle.

Meadow Habitats

Significant loss of meadow habitats in the Bear Valley began in the late 1880's with the construction of a dam that resulted in the formation of Big Bear Lake. There were 6,200 ha (15,300 ac) of meadow/grassland in the Big Bear Valley region and Big Meadow area of the Santa Ana River prior to construction of the dam (Leiberg 1900) and 1,190 ha (2,900 ac) about 30 years later (USFS 1932). This represents an 81

percent decrease. Krantz (1990) estimated that there are currently less than 400 ha (1,000 ac) of meadow habitat remaining in Big Bear and Holcomb valleys. Overall, 91 percent of all meadow habitat in those areas has been destroyed since the turn of the century.

The decline of *Poa atropurpurea* and *Taraxacum californicum* can be attributed to urbanization, ORV traffic, and alteration of hydrological regimes

that have destroyed, degraded, or fragmented their meadow habitat (Krantz 1980, 1981b). Approximately 70 percent of the remaining *Poa atropurpurea* habitat in the Big Bear region is unprotected and none of the *P. atropurpurea* populations in San Diego County are protected (see Factor D and Factor E for additional discussion). Portions of two populations in Laguna Meadows were destroyed by telephone line trenching and soil removal for

construction of the earthen dam at Big Laguna Lake (Sproul and Beauchamp 1979). A portion of one site in Big Bear Valley, intentionally graded by the landowner in 1991, contained *P. atropurpurea* and habitat for the federally listed pedate checker-mallow (*Sidalcea pedata*) (Krantz, *in litt.*, 1993). Populations of *P. atropurpurea* were also destroyed by development of the facilities at Big Bear Airport and expansion of Bear Mountain Ski Area (Krantz, *in litt.*, 1993). Krantz (*in litt.*, 1993) further noted, without indicating causes, the apparent extirpation of the occurrences of *Taraxacum californicum* at Moonridge Meadow, Rathbone Meadow, Sugarloaf, and Erwin Lake.

Current continuing threats to the meadow taxa discussed in this rule include the relatively unrestricted development of privately owned parcels in the Big Bear area outside the boundaries of the San Bernardino National Forest. Apparently, all of the known occurrences of *Poa atropurpurea* and *Taraxacum californicum* that fall within areas depicted on a current zoning map for the City of Big Bear Lake are at sites zoned residential, commercial or flood plain. This includes four of the seven privately owned sites and over half of the privately owned habitat of *Poa atropurpurea* in the Big Bear area. This also includes four of the 10 privately owned sites supporting *Taraxacum californicum*. Within a tract on Eagle Point there is, however, one exclusionary 2.8 ha (7 ac) parcel set aside for rare plant protection by the City of Big Bear Lake that reportedly includes meadow habitat as well as some plants of *Castilleja cinerea* (City of Big Bear Lake, *in litt.* 1997). There are no apparent use restrictions on this parcel other than access limitations and no building sites. The City of Big Bear Lake zoning map includes the community of Moonridge. Within the area covered by this zoning map there are at least five occurrences of *Poa atropurpurea*, at least four occurrences of *Taraxacum californicum*, and occurrences of *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum*. Some sites for the listed species *Sidalcea pedata* are also covered by the zoning map. The Service is aware of interest by a property owner in opening a facility at Pan Hot Springs. This area supports *Poa atropurpurea* and *Taraxacum californicum*, as well as the federally listed endangered species *Sidalcea pedata* and *Thelypodium stenopetalum* (slender-petaled mustard). This proposed facility has the potential of

fragmenting and degrading the meadow habitat of these taxa. A current proposal for construction on nine parcels totaling 1.6 ha (4 ac) at Boulder Bay on the south shore of Big Bear Lake could adversely impact *Poa atropurpurea* and *T. californicum*. These taxa, as well as other sensitive taxa, are known to occur in the vicinity of the project site.

A road traverses a site along Rathbone Creek that was meadow and pebble plain habitat. The area between the road and the creek is a parcel being used as a dump site for dredge materials. Roads, such as the one just east of Bluff Lake, traverse occupied habitat of *Poa atropurpurea* and *Taraxacum californicum*. Several of the meadow sites, such as North Baldwin Lake, Wildhorse Springs, and Holcomb Valley are fragmented by ORV incursions. Road ruts can lead to alterations in the surface hydrology of meadow habitats (Krantz 1981b). Campground development has been proposed for meadow sites at Cienega Seca and the north shore of Big Bear Lake (CNDDDB 1997).

Poa atropurpurea faces high magnitude threats throughout the majority of its range from one or more of the following—development, grazing, road maintenance, and introduced taxa, as well as the increased fragmentation of habitat associated with the above activities. The dioecious nature (separate male and female plants) of this species compounds any threat at a given site. *Taraxacum californicum* faces the same high magnitude threats from the same sources over about half of its range.

Pebble Plains Habitat

The decline of *Arenaria ursina*, *Castilleja cinerea* and *Eriogonum kennedyi* var. *austromontanum*, all of which are largely confined to pebble plain habitats, can be attributed to habitat destruction, degradation, and fragmentation resulting from urbanization, ORV traffic, fuelwood harvesting, mining activities, and the alteration of hydrological regimes. Neel and Barrows (1990) listed the current total acreage of pebble plains as 220 ha (545 ac), including about 60 ha (150 ac) of pebble plains habitat not considered by Krantz (1981a, *in litt.* 1987). Krantz (*in litt.* 1987) estimated that historically there were 280 ha (700 ac) of pebble plains, and that currently there are only 170 ha (420 ac). Neel and Barrows' (1990) figure represents a 21 percent decrease from the estimated historic extent of pebble plains in the region. Krantz (*in litt.* 1987) did not include two areas considered pebble plains by Neel and Barrows (1990). These omissions were probably due, in part, to the fact

that these areas were not known to support an indicator species, *Eriogonum kennedyi* var. *austromontanum*.

Nine existing pebble plain complexes were identified by Neel and Barrows (1990). Of the 220 ha (545 ac) of this highly restricted habitat, about 208 ha (514 ac) is administered by the FS and 12 ha (32 ac) occurs on private land (Neel and Barrows 1990). Nearly all the complexes support populations of these species and generally, such populations are fairly evenly distributed throughout.

Urbanization has resulted in the destruction of 85 ha (210 ac) of former habitat in the Sawmill complex near the community of Sugarloaf (Krantz, *in litt.* 1987). Similarly, development has eliminated habitat within the Big Bear Lake complex, including areas near Fawnskin, Mallard Lagoon, Eagle Point, and Metcalf Bay (CNDDDB 1997) and has continued on small unprotected sites (Neel and Barrows 1990). Relatively unrestricted development of privately owned parcels that support pebble plain species is a threat to *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum*. This was described above under the "Meadow habitats" section.

Unpermitted grading eliminated pebble plains habitat at Castle Glen (Krantz, *in litt.*, 1993). A current proposal for development on nine parcels totaling 1.6 ha (4 ac) at Boulder Bay (Big Bear Lake complex) on the south shore of Big Bear Lake could adversely impact sensitive taxa including *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* ssp. *austromontanum*.

The most significant and persistent threat to the pebble plains is ORV activity (Krantz, *in litt.* 1987; Neel and Barrows 1990; Henderson, *in litt.* 1997). Incidents involving destruction or degradation of pebble plains habitat by ORVs continue to present a significant threat to all pebble plain sites (Maile Neel, SBNF, pers. comm. 1993; Krantz, *in litt.* 1993; Henderson, *in litt.* 1997). Most privately owned pebble plain sites receive no protection. A few sites, however, have voluntary non-binding landowner agreements (see Factor D).

Over 11 km (7 mi) of FS roads and 16 km (10 mi) of unauthorized routes directly impact pebble plain sites, such as Arrastre/Union Flats (complex), Sawmill (part of Sawmill complex), Holcomb Valley (complex), and Nelson Ridge (part of the North Baldwin Lake complex) (Odell 1988). Although the FS does not permit activities that alter the hydrology of pebble plains or meadows, unauthorized ORV traffic continues to be a problem in many areas and contributes to hydrological

modifications of these sensitive habitats. The majority of the pebble plains complexes are directly impacted by vehicle routes that may lead to alterations in the surface hydrology (Krantz 1981a, Neel and Barrows 1990, Neel and Chaney 1992).

Normally, surface water flows evenly across the relatively impervious pebble plains (Odell 1988). Pebble plains are extremely susceptible to damage during spring thaw (Krantz 1981a). ORVs can destroy plants and create deep ruts that change the water flow patterns over the pebble plains and lead to increased erosion, which indirectly affects a greater number of plants (Neel and Barrows 1990). ORVs can cause the breakdown of soil structure although the erosion potential of the soil is not considered high due to the moderate slopes and rainfall (Neel and Barrows 1990). Vehicular activity also favors the establishment of species more tolerant of such disturbance, thereby altering the composition of the plant community over time (Lathrop 1983).

The pebble plain site at upper Sugarloaf (part of the Sawmill complex) has been completely devegetated by ORV activity (Krantz *in litt.*, 1987) and Horseshoe Meadow has been degraded by unregulated vehicle activity (Krantz, *in litt.* 1993). Pebble plain habitat in upper Holcomb Valley (part of the Holcomb Valley complex) has been degraded by vehicles driven around depressions with standing water during winter (Neel and Barrows 1990; Krantz, *in litt.* 1987). This vehicle traffic creates muddy areas unsuitable for the persistence or recruitment of the plants. Vehicle roads and tracks lead to habitat fragmentation and increase the potential for edge effects on the pebble plains.

The FS has implemented a number of measures including fencing, signage, road closures, and active monitoring in an effort to protect pebble plains from illegal ORV activity. Despite this action, over 40 percent of the pebble plain habitat within FS jurisdiction remains unprotected (Neel and Barrows 1990).

Fences that protect virtually all of the large pebble plain sites are often cut or removed, thus enabling vehicles to enter the plains (Henderson, *in litt.*, 1997). In February 1997, the FS removed rocks placed on the Sawmill pebble plain, filled holes, and rewired the gate as a result of "extreme vehicle use" at the Upper Sugarloaf/Sugarloaf pebble plain area in August 1996. Vehicles were observed on a closed road in Union Flat in July 1996, and, in that same month, vehicles had driven onto the pebble plain at Gold Mountain (Henderson, *in litt.* 1997). All of these incidents occurred within fenced sites.

The FS has kept records of incidents of human-caused damage and destruction to fenced areas of pebble plains from 1990 to 1997 (Henderson, *in litt.* 1997), but has not always correlated specific habitat destruction events with incidents of trespass. However, a single, well documented example is cited below.

The pebble plains near North Baldwin Lake, fenced and posted as rare plant habitat, were extensively damaged in March 1992. A construction vehicle from the San Bernardino County landfill was driven over this site in an apparently intentional act of vandalism (Krantz, *in litt.* 1993; Neel and Chaney 1992). The driver trespassed, drove over the identifying signs and fences, and caused extensive damage to the habitat (Neel and Chaney 1992). The soils were highly vulnerable to disturbance because they were saturated. Over 1,200 sq m (13,000 sq ft) of pebble plain habitat was moderately to severely damaged during this incident (Neel and Chaney 1992). Restoration was required by the FS, but it was not entirely successful because the indirect effects of the vehicle incursion, including alteration of surface hydrology and the subsequent invasion of exotic species, have significant, long-term effects (Neel and Chaney 1992; Krantz, *in litt.* 1993).

Some sites near Baldwin Lake are subject to quartzite theft (CNDDDB 1997). Mineral rights have been claimed on or near several of these pebble plains, such as Arrastre Flat and North Baldwin Lake. There is a deposit of high grade limestone just west of lower Holcomb Valley. Quarrying of this limestone would eliminate the pebble plain (Neel and Barrows 1990). Mining activities threaten pebble plain habitat by direct removal or indirect impacts. This pebble plain reportedly supports *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum*. The associated meadows likely to be impacted support *Poa atropurpurea* and *Taraxacum californicum*.

Activation or installation of wells north of the pebble plain in lower Holcomb Valley (Neel and Barrows 1990), near Baldwin Lake (Barrows 1989), or in Garner Valley, can alter the hydrological regime of the habitat and threaten sensitive species. Alteration of the direction of surface flow and rate of percolation may lead to changes in the species composition of the site (Neel and Barrows 1990), make the site unsuitable for one or more of the native taxa, and/or facilitate the encroachment of non-native species.

The majority of the pebble plains and their associated species have been and

continue to be affected by habitat destruction and degradation most frequently associated with ORV traffic and development of privately owned parcels.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Some of the taxa may have become vulnerable to collecting by curiosity seekers as a result of the increased publicity following publication of the proposed rule. Some professional and amateur botanists favor rare or unusual species for their collections or because these are valuable to trade with other individuals or collections (Mariah Steenson pers. comm. 1997). A survey of the collections of a major herbarium in the region showed significant increases in the numbers of collections of several pebble plain taxa, following publication of an article describing this new habitat type. These taxa include *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, considered in this rule, as well as other pebble plain taxa, such as *Arabis parishii*, *Antennaria dimorpha*, and *Dudleya abramsii* ssp. *affinis* (Wallace, *in litt.* 1997). A similar increase in numbers of collections of the rare, native, meadow species *Taraxacum californicum* occurred but not for the associated introduced exotic *T. officinale* (Wallace pers. obs. 1997). Ayensu and DeFilipps (1978) specifically cite over-collection as a threat to *Eriogonum kennedyi* var. *austromontanum*. It is likely that the additional attention given to these taxa as a result of this final rule will result in efforts by some to collect specimens. This potential would be exacerbated by publication of maps and descriptions of critical habitat.

C. *Disease or predation.* Disease is not known to be a factor affecting any of the taxa listed herein. The indirect effects of grazing/browsing are discussed under Factor E. Soreng (pers. comm. 1996) found considerable thrip (minute insects that feed on plants) damage to the ovaries of *Poa atropurpurea* in the Big Bear area. This may result in low seed set but is presumably a natural phenomenon. In some taxa, low seed set, high seed mortality, and infrequent establishment may be offset by low mortality and greater longevity of the plants (Pavlik 1987). Soreng (pers. comm. 1996) stated that seed set in sexual taxa of *Poa* is about 10 percent. The additional impacts associated with persistent grazing could eliminate any seed production by this taxon. This, in turn, could decrease or eliminate establishment of new plants of divergent genetic constitution.

D. *The inadequacy of existing regulatory mechanisms.* Existing regulatory mechanisms that could provide some protection for these species include—(1) listing under the California Endangered Species Act (CESA), (2) consideration under the California Environmental Quality Act (CEQA), (3) FS management policies, (4) conservation provisions under section 404 of the Federal Clean Water Act, and (5) land management by Federal, State, or local agencies, or by private groups and organizations.

State Laws

The six taxa addressed in this rule are included in the California Native Plant Society's Inventory (Skinner and Pavlik 1994), but none have been listed as endangered or threatened by the State. Thus, the CESA (Division 3, chapter 1.5, section 2050 *et seq.*) and the Native Plant Protection Act (NPPA) (Division 2, chapter 10, section 1900 *et seq.* of the California Fish and Game Code) provide no protection for the six taxa in this rule.

The CDFG recognizes that the majority of plants on Lists 1A, 1B, and 2 of the CNPS Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994) would normally qualify for State listing (Morey and Berg 1994). All six plant taxa in this rule are in the CNPS Inventory on List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere) (Skinner and Pavlik 1994). Under CEQA, impacts to List 1B plants are considered significant and must be addressed. CEQA obligates disclosure of environmental resources within proposed project areas and may enhance opportunities for conservation efforts. However, CEQA does not guarantee that such conservation efforts will be implemented and several projects have resulted in the unmitigated loss of habitat for *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, *Poa atropurpurea*, and *Taraxacum californicum*. These projects include expansion of the Big Bear Airport, construction of ski areas, development of the Moonridge Golf Course (Krantz 1981b), and approval of the Eagle Point development (Neel, *in litt.* 1993). Furthermore, these taxa face threats that are not easily controlled by existing regulations, particularly those discussed under Factor A.

The CEQA requires a full 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 the other agencies concerned with the 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." 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 resulting in the loss of sites supporting State-listed species. Mitigation plans usually involve the transplantation of the plant species to an existing habitat or an artificially created habitat. Following the creation of the transplantation plan, the original site is destroyed. Therefore, if the mitigation effort fails, the resource has already been lost. Protection of listed species through CEQA is, therefore, dependent upon the discretion of the lead agency involved.

FS Management

With the exception of *Trichostema austromontanum* ssp. *compactum*, which only occurs on State lands, all of the taxa listed herein are found on the San Bernardino National Forest and are recognized by the FS as "sensitive species" (SBNF 1989). The FS has policies to protect sensitive plant taxa, including attempting to establish these species in suitable or historic habitat, encouraging land acquisitions to protect sensitive plant habitat, establishing refugia for pebble plains species, and not permitting activities that may alter the hydrology or meadow habitat for sensitive plants (SBNF 1989). These guidelines, however, have not been entirely effective. Bluff Lake, which is privately owned and contains populations of *Poa atropurpurea* and *Taraxacum californicum*, was identified as a potentially suitable mitigation bank of wetland and wet meadow habitat for urban developments in the region. However, plans by the FS to acquire Bluff Lake are no longer being pursued because the parcel is not available for sale (Maile Neel, SBNF, pers. comm. 1993). The extensive monitoring and fence maintenance activities carried out by the San Bernardino National Forest have not prevented damage to pebble plain sites in the area.

Even if most of the remaining pebble plain and meadow habitats on the San Bernardino National Forest could be adequately protected from human disturbance, the amount of habitat

presently occupied by *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, *Poa atropurpurea* and *Taraxacum californicum* may not be sufficient to maintain their long-term viability in the absence of appropriate recovery measures.

The Holcomb Valley/North Baldwin Lake region, which supports populations of *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, *Poa atropurpurea* and *Taraxacum californicum*, and significant examples of pebble plain habitat, was designated a Special Interest Area by the FS in 1989. No specific management plan has been developed for the area due to resources being directed to higher priority activities (Neel, pers. comm. 1993).

Management guidelines for meadow sites on the Cleveland National Forest supporting *Poa atropurpurea* are outlined by Winter (1991). These include the requirement to maintain viable populations at all known localities. Other guidelines call for protection, enhancement, and prevention of adverse modification of habitat for sensitive species. They also call for prevention of fragmentation of the montane meadows. However, there are no specific steps to achieve these goals outlined in the document.

Clean Water Act

Poa atropurpurea and *Taraxacum californicum* could potentially be affected by projects requiring a permit under section 404 of the Clean Water Act. Under section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (Corps) regulates the discharge of fill material into waters of the United States, which includes navigable and isolated waters, headwaters, and adjacent wetlands. Section 404 regulations require that applicants obtain an individual permit to place fill for projects affecting greater than 1.2 ha (3 ac) of waters of the United States or greater than 500 linear feet of a streambed. Nationwide Permit (NWP) No. 26 (33 CFR part 330) was established by the Department of the Army to facilitate authorization of discharges of fill into isolated waters (including wetlands and vernal pools) that cause the loss of less than 1.2 ha (3 ac) of waters of the United States, and that cause minimal individual and cumulative environmental impacts. Projects that qualify for authorization under NWP 26 and that affect less than 0.1 ha (1/3 ac) of isolated waters including wetlands may proceed. Although the permittee must submit a report to the Corps within 30 days of completion of the work, evaluation of

the impacts of such projects through the section 404 permit process is precluded. It is possible that even projects as small as 0.1 ha (1/3 ac) could destroy some of the smaller occurrences in the urbanized areas of Big Bear Valley, or alter the hydrology of a meadow or pebble plain site. Road widening or stream channelization, such as that near Fox Farm Road and Rathbone Creek may affect the surrounding habitat. Even though *Trichostema austromontanum* ssp. *compactum* is associated with a single vernal pool, it would not be affected by the Clean Water Act because its entire distribution lies within Mount San Jacinto State Wilderness.

The Corps may require that an individual section 404 permit be obtained if projects otherwise qualifying under NWP 26 would have greater than minimal individual or cumulative environmental impacts. The Corps has been reluctant to withhold authorization under NWP 26 unless the existence of a federally listed threatened or endangered species would be jeopardized.

Land Management

Representatives from various Federal, State, and local agencies, and individuals from the private sector are developing a Coordinated Resource Management Plan (CRMP) for the Big Bear Valley region. The CRMP process is a planning tool that operates on the local level to minimize conflicts among various user groups, landowners, and governmental agencies. The goal of this process is to identify sensitive biological resources and to integrate conservation efforts with those of public and private entities. Although the Service supports these efforts, little or no protection for the species described herein will be guaranteed. This process is not legally binding.

E. Other natural or manmade factors affecting their continued existence. The six taxa listed herein are threatened by a variety of other factors including trampling by livestock and humans, indirect effects of grazing and browsing, competition with other plant species, habitat fragmentation, and hybridization with non-native taxa.

Trampling may degrade habitat by soil compression and introduction of seeds of non-native species. This leads to changes in the composition of the vegetation and facilitates persistence of these non-native species (Lathrop 1983, Fleischner 1994). The presence of livestock typically changes the composition of native plant communities by reducing or eliminating those species that cannot withstand trampling, which enables more

resistant, usually non-native species to increase in abundance (Painter 1995).

Sites supporting *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum* have been moderately to heavily degraded by cattle trampling in the past (e.g., Wildhorse Meadow, Holcomb Valley, and North Baldwin Lake) (Krantz 1981a, Neel and Barrows 1990, Krantz, *in litt.* 1993). These same taxa are occasionally trampled by horses which gain access to some fenced pebble plain sites when the fences are cut (Henderson, *in litt.* 1997). Some areas continue to be impacted by cattle, horses, and feral burros. Habitat degradation from trampling by feral burros continues at the North Baldwin Lake, Sawmill, Onyx, and Gold Mountain pebble plain complexes (Barrows 1989, Neel and Barrows 1990). This threat will be alleviated once burros are completely removed and kept away from pebble plain sites, except Broom Flat (about 50 percent of the Onyx complex). This removal process is currently underway under provisions of the Big Bear Wild Burro Territory Management Plan (Lardner 1996). It is not clear whether burros will attempt to return to the area and what the FS's response will be if that occurs.

Trampling by hikers and visitors has been noted at some sites. Due to its accessibility, and localized habitat, the *Trichostema austromontanum* ssp. *compactum* population at Mount San Jacinto State Wilderness is particularly vulnerable to trampling by recreational users. This site has been popular since the development of the Palm Springs tramway in 1964 and the Desert Divide Trail from 1979 to 1981 (Hamilton, pers. comm. 1996). Several measures were initiated by the State during the past decade to protect the vernal pool ecosystem and the *Trichostema* population, including removing references to the site from park interpretive materials and the elimination of marked trails to the lake. These measures, however, have not prevented on-going impacts from trampling by hikers and horses. Trampling by horses crushes plants and creates depressions that retain water where seeds and adult plants of *T. austromontanum* ssp. *compactum* drown (Hamilton 1991; Hamilton, pers. comm. 1996). Livestock concentrate their activities around ponds and vernal wetlands. As a result, impacts to mountain meadows may persist for decades (Painter 1995).

Trampling by livestock and people adversely affects *Taraxacum californicum* and favors the establishment of the non-native *T. officinale*. Only the latter species seems

to have the ability to produce flower heads and leaves close to the soil surface (Krantz, *in litt.* 1993). Several sites supporting this species are near, or traversed by trails, including Bluff Lake, sites along the south side of Big Bear Lake, and Cienega Seca, for example (CNDDG 1997). Two populations of *Poa atropurpurea* in Laguna Meadow (San Diego County) were damaged by cattle trails (Sproul 1979). All of the occurrences of *Poa atropurpurea* in Laguna Meadow and Mendenhall Meadow, Cleveland National Forest, San Diego County are on currently occupied grazing allotments, although cattle enclosures are on two of the sites (Winter 1991). Grazing by cattle during the fruiting season of *Poa atropurpurea* is likely to eliminate a significant portion of any seed produced in a given year. This problem is compounded by several factors; the species is dioecious (separate male and female plants), and destruction of flowers of either sexual form would likely directly affect the sexual reproductive success for that year, which could, in turn, decrease the potential for long term survival of the species. Meadow sites in the Big Bear area, such as Bluff Lake, are also subject to trampling by people and animals. One population of *Castilleja cinerea*, across from Snow Valley Ski Area, was fragmented by trampling associated with the construction of several large cabins, a parking lot, and trails.

Grazing by cattle, horses, and feral burros is a continuing threat to *Poa atropurpurea* and *Taraxacum californicum* at meadow sites such as Hitchcock Ranch, Shay Meadow, Bluff Lake, and Laguna Meadow (Winter 1991; CNDDG 1997; Lardner, pers. comm. 1997). Painter (1995) used the term grazing to mean feeding primarily on herbaceous plants, and the term browsing to mean feeding primarily on woody plants. Herbivory is a combination of both of these terms (Painter 1995). Painter (1995) considered cattle to be grazers, burros and horses to be browser/grazers, and native deer to be browser/grazers. The significance of the differences is that control of the non-native animals will reduce grazing and browsing damage to levels tolerable by the native species. Fleischner (1994) indicated that the loss of biodiversity, lowering of population density, and disruption of ecosystem functioning are some of the ecological costs of grazing by livestock. Krantz (1981b) noted that the number of seeds produced by *P. atropurpurea* is reduced if it is grazed during its flowering period.

Cattle grazing is a threat to *Poa atropurpurea* in grazing allotments on

the Cleveland National Forest (Winter 1991, CNDDDB 1997). Grazing can reduce or eliminate seed set and thereby decrease recruitment and genetic diversity. On the San Bernardino National Forest, there is no current permittee for the grazing allotment at Wildhorse Meadow (Lardner, pers. comm. 1997). *Castilleja cinerea* is on the Santa Ana grazing allotment on Sugarloaf Ridge, which lacks a current permittee (Lardner, pers. comm. 1997). Another population of *Castilleja cinerea* is at Broom Flat where burros will continue to be allowed under the Big Bear Wild Burro Territory Management Plan (Lardner, pers. comm. 1997).

Introduced species of grasses and forbs have invaded many of California's native plant communities, where they often displace the native flora. Non-native taxa often have greater invasive capabilities than endemic species (Huenneke and Thompson 1995). Disturbances, such as grazing, urban and residential development, and various recreational activities facilitate introduction of non-native species. Non-native plants may flourish under a grazing regime and may reduce or eliminate native taxa through crowding or competition for resources. Deposition of animal waste spreads ingested seeds and alters nutrient cycling patterns, often favoring non-native taxa. Introduced plant taxa have become established in many portions of the San Bernardino, San Jacinto, and Laguna mountains and have likely reduced the amount of suitable habitat for *Taraxacum californicum*, *Poa atropurpurea* (Krantz 1981b, Curto 1992) and other associated native plant taxa. For example, the invasion of the alien *Bromus tectorum* (cheatgrass) is a threat to the Sawmill pebble plain habitat, which supports populations of *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum* (Neel and Barrows 1990). Neel and Barrows (1990) also raised concerns that damaged pebble plain sites will be taken over by native pines. Pines can shade out other plants and the decay of their leaves releases nutrients that support additional trees, further decreasing available pebble plain habitat (Neel and Barrows 1990). Introduced species are used as forage in San Bernardino and Cleveland National Forest grazing allotments. *Poa atropurpurea* cannot successfully compete with non-native grass species that are locally abundant by comparison (Winter 1991).

The dissected nature of the pebble plain complexes maximizes the potential of edge effects on these complexes. There are normally low

levels of gene transfer among the complexes because of the differing seasonal developmental stages of plants from different sites (Freas and Murphy 1990). Further dissection of pebble plain sites makes them more vulnerable to incursions of invasive exotics. There would likely also be a decrease of gene flow among the remaining pebble plains sites. *Poa atropurpurea* is dioecious (separate male and female plants) and has a limited range. These species attributes are likely to increase the probability that the species could be threatened if its habitat or populations were further dissected.

Taraxacum californicum may be threatened by hybridization with the introduced *T. officinale* (Krantz, in litt. 1993). Apparent hybrids between these two taxa were observed in areas where they overlap in distribution (Krantz, in litt. 1993; Krantz 1980). Because *T. californicum* rarely occurs in the absence of *T. officinale*, the potential for loss of genetic distinctiveness of the restricted species exists. *Poa atropurpurea* may be threatened with the loss of its genetic distinctiveness due to hybridization with *P. pratensis*. Curto (1992) describes the different distinctive morphs of *Poa pratensis* complex maintained by apomictic means described by Clausen (1961). Clausen (1961) demonstrated, in controlled experiments, that progeny of crosses between *P. pratensis* and other *Poa* species are morphologically within the range of variation of *P. pratensis*. According to Clausen (1961), *Poa pratensis* has the ability to absorb other entities. Curto (1992) speculated that this may have been the fate of *Poa atropurpurea* in Laguna Meadow. Mixed or simultaneous collections of both *Poa atropurpurea* and *P. pratensis* are found in herbaria (Curto 1992, Wallace pers. obs. 1997). This is in contrast to a statement by Hirshberg (1994) that *P. atropurpurea* flowers 3 to 4 weeks earlier than *P. pratensis*.

When a species exists in limited numbers of individuals, factors that negatively affect the individuals may pose more significant threats to the survival of the species. *Poa atropurpurea*, *Taraxacum californicum*, and *Trichostema austromontanum* ssp. *compactum* face this threat. *Poa atropurpurea* has limited and possibly localized distribution of the different sexual forms of the species. If one sexual form is effectively isolated from the other, formation of fertile seeds may be precluded and this will likely lead to some loss of genetic diversity. Grazing may eliminate all of the seed crop for the year. The threat of limited numbers in *Taraxacum californicum* would

likely make grazing and hybridization threats more significant within local populations. The limited numbers and extremely localized range of *Trichostema austromontanum* ssp. *compactum* make this taxon more susceptible to single disturbance events such as trampling during the flowering season or alteration of the local water table from soil compression.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these six taxa in determining to issue this final rule. Based on this evaluation, the preferred action is to list *Poa atropurpurea* and *Taraxacum californicum* as endangered. About 91 percent of the meadow habitat for these species has been eliminated since the turn of the century. Approximately 70 percent of the remaining meadow habitat is unprotected, subject to development such as that recently proposed at Boulder Bay, wildlife viewing walks at Baldwin Lake, fragmentation from ORV traffic, and grazing at several sites such as Bluff Lake and Laguna Meadows. Both *P. atropurpurea* and *T. californicum* may be crowded out by successful, invasive, co-occurring, non-native species with which they may also hybridize. All of the San Diego County sites for *P. atropurpurea* are on unprotected grazing lands. These taxa are in danger of extinction throughout all or a significant portion of their ranges due to habitat destruction and alteration resulting from urban and recreational development, alteration of hydrological regime, grazing by livestock and feral burros, hybridization with non-native taxa, and competition from exotic plant species. Alternatives to this action were considered but not preferred because not listing these species, or listing them as threatened, would not provide adequate protection and would not be consistent with the Act.

For the reasons discussed below, the Service finds that *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, and *Trichostema austromontanum* ssp. *compactum* are likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges if identified threats are not reduced or eliminated. Threats to these four taxa include habitat destruction and alteration from urban development, ORV activity, habitat degradation, predation by livestock and feral burros, and trampling. The Service has determined that threatened rather than endangered status is appropriate for these taxa primarily because the FS has

initiated measures that afford some protection to *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum* and the State has taken measures to protect *Trichostema austromontanum*. Management activities conducted by the FS (such as fencing, signing, and monitoring various sensitive habitat areas) have reduced the potential for habitat destruction by human activities to the degree that the danger of extinction for these three taxa is not imminent. Measures implemented by the State to obscure access routes to the only known locality of, and delete references to *Trichostema austromontanum* ssp. *compactum* in recreational literature afford this plant some measure of protection. Alternatives to this action were considered but not preferred because not listing these species would not provide adequate protection and would not be consistent with the Act. In addition, listing the species as endangered would not be appropriate because the FS and the State of California have significantly decreased the danger of extinction of these taxa at the present time.

Critical Habitat

Critical habitat is defined in section 3(5)(A) of the Act as: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. "Conservation" means the use of all methods and procedures that are necessary to bring the species to the point at which the measures provided pursuant to the Act are no longer necessary.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12(a)) require 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 taxa at this time. Service regulations (50 CFR 424.12(a)(1)) state that designation of critical habitat is not prudent when one or both of the following situations exist: (i) The species is threatened by taking or other human activity, and

identification of critical habitat can be expected to increase the degree of such threat to the species, or (ii) such designation of critical habitat would not be beneficial to the species.

Designation of critical habitat would likely increase the threat from vandalism, noted under Factor A. For the three pebble plain species, *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum*, the publication of precise maps and descriptions of critical habitat in the **Federal Register** would make these species more vulnerable to incidents of vandalism and, therefore, make recovery more difficult and contribute to the decline of these species. Several documented examples of a pattern of intentional destruction of pebble plains and associated habitats have been cited under Factor A. The San Bernardino National Forest has kept a record of repairs to fences around most of the larger pebble plain sites since 1990 (Henderson *in litt.* 1997). There is a record of persistent trespass into these fenced areas which have been variously marked with signs stating "Critical Rare Plant Habitat. No Vehicles." (Neel and Barrows 1990). The incidents recorded generally consist of entry following the cutting of fence wires but include records of vehicle access, placement of "rock art," removal of fence wires and fence posts, and destruction of signage (Henderson, *in litt.* 1997). These records indicate 40 such incidents at the Sawmill pebble plain complex between 1990 and 1997. At the north Baldwin Lake site these same records indicate 20 incidents of wires having been cut during the period 1990 to 1996. Pebble plain areas occasionally are associated with meadow sites containing several sensitive plant species. A specific act of vandalism was directed at a meadow-associated species following the release of location information for populations of *Sidalcea pedata*, a federally listed species resulted in a legal action suit (Krantz, *in litt.* 1993).

The threat of over-collection to the pebble plain and meadow taxa is discussed under Factor B. Significant increases were seen in the number of specimens in the collections in a large regional herbarium. Specimens of *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, as well as the meadow species *Taraxacum californicum* and *Poa atropurpurea*, were increased subsequent to the publication of two articles discussing these taxa and their unique habitats (Wallace pers. obs. 1997). Of particular interest is the fact that there was an

increase in the numbers of collections of *Poa pratensis*, commonly mistaken for *Poa atropurpurea* (Wallace pers. obs. 1997). Finally, there was an increase in the numbers of collections of *Taraxacum californicum* while there was no increase in the numbers of collections of the often associated introduced taxon *T. officinale* from the same areas (Wallace pers. obs. 1997). The implication is that collectors specifically sought out the rare *T. californicum*. It should be noted that often additional specimens, beyond those housed by the home institution, are collected for exchange with other institutions. The listing of species as endangered or threatened publicizes their rarity and may make them more susceptible to collection by researchers or curiosity seekers (Mariah Steenson pers. comm. 1997). This would likely be exacerbated by the publication of precise maps and descriptions of critical habitat in the **Federal Register**. Dissemination of sensitive site locations can encourage over-collection (M. Bosch, FS *in litt.* 1997). The Service feels that publication of precise maps for these species' locations (i.e., designation of critical habitat boundaries), coupled with this final listing rule, would put these species at further risk for over-collection by plant enthusiasts given this well documented history of previous collections.

Enforcement problems could increase as a result of critical habitat designation because frequent visits to many of the occurrences are not possible due to funding constraints as well as the distances and terrain involved (Neel and Barrows 1990). The meadow and pebble plain habitats rely, in part, on particular hydrological conditions and, as a consequence of the low visit frequency, remediation for incidents and vandalism may be too late to prevent erosion, revegetation, and other habitat alterations detrimental to the habitat and the species.

Arenaria ursina, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, *Taraxacum californicum* and *Poa atropurpurea* occur on Federal, State and private lands. The first three taxa are co-occurring endemics found primarily on pebble plain complexes in the San Bernardino Mountains. Private lands make up portions of four of the eight pebble plain complexes that support *Arenaria ursina*. Private lands make up all or portions of 5 of the 13 pebble plain complexes and other areas that support *Castilleja cinerea*. Private lands that support *Eriogonum kennedyi* var. *austromontanum* are nearly all associated with one, the Big Bear Lake

pebble plain complex, of the seven pebble plain complexes that support this taxon. Private lands make up 8 of the 20 occurrences of *Taraxacum californicum* in meadow areas of the San Bernardino Mountains. Private lands make up all or portions of 7 of the 18 occurrences in the San Bernardino, Laguna, and Palomar Mountains of the meadow associated species *Poa atropurpurea*.

Designation of critical habitat would be of little benefit to occurrences of these taxa on State and private lands. Any future Federal involvement, such as through the permitting process or funding by the U.S. Department of Agriculture, the Corps through section 404 of the Clean Water Act, the U.S. Federal Department of Housing and Urban Development or the Federal Highway Administration, would be subject to consultation under section 7 of the Act (as amended). Federal involvement, where it does occur, can be identified without the designation of critical habitat because interagency coordination requirements such as the Fish and Wildlife Coordination Act (FWCA) and section 7 of the Act are already in place. When these plant taxa are listed, activities occurring on all lands under Federal jurisdiction or ownership that may adversely affect these taxa would prompt the requirement for consultation pursuant to section 7(a)(2) of the Act and the implementing regulations pertaining thereto, regardless of whether or not critical habitat has been designated. The FWCA, for example, requires that any federally funded or permitted water resource development proposal or project be consulted on with the Service and State conservation agencies. Designating critical habitat would not create a management plan for these plant species, or establish numerical population goals for long-term survival of the species, nor directly effect areas not designated as critical habitat.

Arenaria ursina, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, *Taraxacum californicum*, and *Poa atropurpurea* occur on the Baldwin Lake preserve which is administered by the CDFG. The CDFG is aware of the occurrences of these taxa on this preserve and currently conducts demographic monitoring of *Sidalcea pedata* and *Thelypodium stenopetalum*, State and Federal listed taxa, at this site.

Trichostema austromontanum ssp. *compactum* occurs only in a wilderness area on State lands with little potential for Federal involvement. Trails, signage, map notations, and references to the habitat area have been removed by the

State to reduce impacts to this highly localized taxon. Designation of critical habitat would have little benefit to this taxon and would not increase the commitment or management efforts of the State. In fact, designation of critical habitat would likely be quite detrimental to this taxon. Publishing maps and descriptions of the exact locality identifies the site as a unique area which would likely encourage hikers and horseback riders to investigate the vernal pool, the very site that the State has attempted to protect by removing such map references and descriptions.

Four of the eight known occurrences of *Arenaria ursina* are completely on Federal lands, as are portions of the other four occurrences. Eight of the 13 known occurrences of *Castilleja cinerea* are on Federal lands, along with portions of another 4. Six of the eight known occurrences of *Eriogonum kennedyi* var. *austromontanum* are on Federal lands, while portions of two other occurrences are also on Federal lands. Ten of the nearly 20 known occurrences of *Taraxacum californicum* are on Federal lands as well as a portion of another. Nine of the 18 known occurrences of *Poa atropurpurea* are on Federal lands and portions of three other occurrences are also on Federal lands.

There would be no benefit from designating critical habitat for the occurrences on FS (i.e. Federal) lands supporting the taxa noted above. The FS is aware of the occurrences of this species on their lands. The San Bernardino National Forest has developed a management plan for pebble plain species including *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum*. The FS actively conducts management and monitoring activities that include these species and has already fenced all of the larger pebble plain sites to protect them from trespass, ORV use, and grazing. The two meadow taxa, *Taraxacum californicum* and *Poa atropurpurea* are monitored to a lesser extent. The San Bernardino National Forest consults with the Service under section 7 for activities related to other listed taxa in the area and would be subject to similar requirements as a result of this listing. Designation of critical habitat would not increase the commitment or management efforts of the FS.

Section 7 of the Act requires that Federal agencies refrain from contributing to the destruction or adverse modification of critical habitat in any action authorized, funded or carried out by such agency (agency

action). This requirement is in addition to the section 7 prohibition against jeopardizing the continued existence of a listed species, and it is the only mandatory legal consequence of a critical habitat designation. Implementing regulations (50 CFR part 402.02) define "jeopardize the continuing existence of" and "destruction or adverse modification of" in very similar terms. To jeopardize the continuing existence of a species means to engage in an action "that reasonably would be expected to reduce appreciably the likelihood of both the survival and recovery of a listed species." Destruction or adverse modification of habitat means an "alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species." Common to both definitions is an appreciable detrimental effect to both the survival and the recovery of a listed species. In the case of adverse modification of critical habitat, the survival and recovery of the species has been appreciably diminished by reducing the value to the species' designated critical habitat. An action resulting in adverse modification may also jeopardize the continued existence of the species concerned. Given the limited range of *Trichostema austromontanum* ssp. *compactum* to a single vernal pool, adverse modification of the habitat would likely constitute jeopardy for the taxon.

The Service acknowledges that critical habitat designation, in some situations, may provide some value to the species by identifying areas important for species conservation and calling attention to those areas in special need of protection. Critical habitat designation of unoccupied habitat may also benefit these species by alerting permitting agencies to potential sites for reintroduction and allowing them the opportunity to evaluate proposals that may affect these areas. However, in this case, the existing sites of the listed taxa herein are currently known by the FS and State agencies. If future management actions include unoccupied habitat, any benefit provided by designation of such habitat as critical will be accomplished more effectively and efficiently with the current coordination processes.

Taking of plants is regulated by the Act only in cases of—(1) removal and reduction to possession of federally listed plants from lands under Federal jurisdiction, or their malicious damage or destruction on such lands; and (2) removal, cutting, digging-up, or damaging or destroying in knowing violation of any State law or regulation,

including State criminal trespass law. Designation of critical habitat provides no additional benefits beyond those that these taxa would receive by virtue of their listing as endangered or threatened species and likely would increase the degree of threat from vandalism, collecting, or other human activities. Protection of *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, *Taraxacum californicum*, *Poa atropurpurea*, and *Trichostema austromontanum* ssp. *compactum* will be most effectively addressed through the recovery process under section 4 and the consultation process under section 7 of the Act, and the current interagency coordination processes.

Given all of the above considerations, the Service finds that designation of critical habitat for these taxa is not prudent because the minimal benefit of such designation would be far outweighed by the increase of threats from vandalism, over-collection, or other human activities. All Federal and State agencies and local planning agencies involved have been notified of the location and importance of protecting habitat for these species.

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 public awareness and results in conservation actions by Federal, State and local agencies, private organizations and individuals. The Act provides for possible land acquisition from willing sellers and cooperation with the States and requires that recovery actions be carried out for all listed species. 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)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or 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 agencies expected to have involvement with section 7 regarding these species include the FS (through its management activities associated with, for example, grazing permits and ORV activity), and the Corps and the Environmental Protection Agency through their permit authority under section 404 of the Clean Water Act. The Federal Housing Administration may be affected through funding of housing loans where these species or their habitat occurs. The Federal Highway Administration may be affected through potential funding associated with compensation measures relating to future highway construction affecting these species. The Federal Energy Regulatory Commission may be involved through its permitting authority for utility projects that might potentially affect these taxa.

Five of the six plant taxa considered in this rule are found on lands managed by the FS. The FS provides a measure of protection for all of these taxa. Most areas of the Bear Valley are closed to fuelwood cutting (SBNF, *in litt.* 1995). The closure or relocation of some roads associated with fuelwood cutting sites, as well as those that traverse pebble plain sites (Odell 1988) offers some measure of protection for the plant taxa. Most of the larger pebble plain sites, which support *Arenaria ursina*, *Castilleja cinerea*, and *Eriogonum kennedyi* var. *austromontanum*, are protected by fencing to reduce or eliminate incursions by vehicle and grazers/browsers. The FS monitors these sites, records the type of fence damage and repairs the damage as soon as possible. Completion of the implementation of the Big Bear Wild Burro Management Plan will eliminate or significantly reduce impacts from burro grazing, browsing, and trampling in most pebble plain and meadow sites in the Big Bear Valley area, except Broom Flat.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered or threatened plants. All prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR parts 17.61 (endangered plants) and 17.71 (threatened plants), 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, or remove and reduce the species to possession the

species from areas under Federal jurisdiction. In addition, for plants listed as endangered, the Act prohibits the malicious damage or destruction on areas under Federal jurisdiction and the removal, cutting, digging up, or damaging or destroying of such plants in knowing violation of any State law or regulation, including State criminal trespass law. Seeds from cultivated specimens of threatened plants are exempt from these regulations provided that their containers are marked "Of Cultivated Origin." Certain exceptions to the prohibitions apply to agents of the Service and State conservation agencies.

It is the policy of the Service, published in the **Federal Register** on July 1, 1994 (59 FR 34272), to increase public understanding of the prohibited acts that will apply under section 9 of the Act. *Arenaria ursina*, *Castilleja cinerea*, *Eriogonum kennedyi* var. *austromontanum*, *Poa atropurpurea*, and *Taraxacum californicum* are known to occur on Federal lands under the jurisdiction of the FS. Collection, damage or destruction of listed species on Federal lands is prohibited, except as authorized under section 7 or section 10(a)(1)(A) of the Act. Such activities on non-Federal lands would constitute a violation of section 9 of the Act if activities were conducted in knowing violation of California State law or regulation, or in violation of California State criminal trespass law.

The Service believes that, based upon the best available information, the following actions will not result in a violation of section 9, provided these activities are carried out in accordance with existing regulations and permit requirements:

(1) Activities authorized, funded, or carried out by Federal agencies (e.g., grazing management, agricultural conversions, wetland and riparian habitat modification, flood and erosion control, residential development, recreational trail development, road construction, hazardous material containment and cleanup activities, prescribed burns, pesticide/herbicide application, pipelines or utility lines crossing suitable habitat,) when such activity is conducted in accordance with any reasonable and prudent measures given by the Service in a consultation conducted under section 7 of the Act;

(2) Casual, dispersed human activities on foot or horseback (e.g., bird watching, sightseeing, photography, camping, hiking);

(3) Activities on private lands that do not require Federal authorization and do not involve Federal funding, such as grazing management, agricultural conversions, flood and erosion control,

residential development, road construction, and pesticide/herbicide application when consistent with label restrictions;

(4) Residential landscape maintenance, including the clearing of vegetation around one's personal residence as a fire break.

The Service believes that the following might potentially result in a violation of section 9; however, possible violations are not limited to these actions alone:

(1) Unauthorized collecting of the species on Federal lands;

(2) Application of herbicides violating label restrictions;

(3) Interstate or foreign commerce and import/export without previously obtaining an appropriate permit. Permits to conduct activities are available for purposes of scientific research and enhancement of propagation or survival of the species.

Intentional collection, damage, or destruction on non-Federal lands may be a violation of State law or regulations or in violation of State criminal trespass law and therefore a violation of section 9. The Act and 50 CFR 17.62, 17.63, and 17.72 provide for the issuance of permits to carry out otherwise prohibited activities involving endangered or threatened plant species under certain circumstances. Such permits are available for scientific purposes and to enhance the propagation or survival of the species. None of the taxa are currently known to be in commercial trade. Intrastate commerce (commerce within the State) is not prohibited under the Act. However, interstate and foreign commerce (sale or offering for sale across State or international boundaries) requires a Federal endangered species permit.

The Act and 50 CFR 17.62 and 17.63 for endangered plants and 17.72 for threatened plants provide for the issuance of permits to carry out

otherwise prohibited activities involving endangered and threatened plants under certain circumstances. Such permits are available for scientific purposes and to enhance the propagation or survival of the species. For threatened plants, permits are also available for botanical or horticultural exhibition, educational purposes, or special purposes consistent with the purposes of the Act. It is anticipated that few permits would ever be sought or issued because none of these species are common in cultivation or common in the wild.

Questions regarding whether specific activities would constitute violations of section 9 should be directed to the Field Supervisor of the Service's Carlsbad Field Office (see **ADDRESSES** section). Requests for copies of the regulations concerning listed plants (50 CFR 17.61 and 17.71) and general inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Ecological Services, Endangered Species Permits, 911 N.E. 11th Avenue, Portland, Oregon, 97232-4181 (telephone 503/231-2063; facsimile 503/231-6243).

National Environmental Policy Act

The Service has determined that Environmental Assessments or Environmental Impact Statements, 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).

Paperwork Reduction Act

This rule does not contain any information collection requirements for which the Office of Management and Budget (OMB) approval under the Paperwork reduction Act, 44 U.S.C.

3501 *et seq.* is required. An information collection related to the rule pertaining to permits for endangered and threatened species has OMB approval and is assigned clearance number 1018-0094. This rule does not alter that information collection requirement. For additional information concerning permits and associated requirements for threatened species, see 50 CFR 17.32.

References Cited

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

Author. The primary authors of this document are Gary D. Wallace, Ph.D., Carlsbad Field Office (see **ADDRESSES** section) and Edna Rey Vizgirdas, Snake River Basin Field Office.

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

Accordingly, the Service amends part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, 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. Amend § 17.12(h) by adding the following, in alphabetical order under Flowering Plants, to the List of Endangered and Threatened Plants, to read as follows:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
FLOWERING PLANTS							
*	*	*	*	*	*		*
<i>Arenaria ursina</i>	Bear Valley sandwort.	U.S.A.(CA)	Carophyllaceae—Pink.	T	644	NA	NA
*	*	*	*	*	*		*
<i>Castilleja cinerea</i>	Ash-gray Indian paintbrush.	U.S.A.(CA)	Scrophulariaceae—Figwort.	T	644	NA	NA
*	*	*	*	*	*		*
<i>Eriogonum kennedyi</i> var. <i>Austromontanum</i> .	Southern mountain wild buckwheat.	U.S.A.(CA)	Polygonaceae—Buckwheat.	T	644	NA	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
<i>Poa atropurpurea</i>	San Bernardino bluegrass.	U.S.A.(CA)	Poaceae—Grass	E	644	NA	NA
<i>Taraxacum californicum</i> .	California taraxacum	U.S.A.(CA)	Asteraceae—Sun-flower.	E	644	NA	NA
<i>Trichostema austromontanum</i> ssp. <i>compactum</i> .	Hidden Lake bluecurls.	U.S.A.(CA)	Lamiaceae—Mint	T	644	NA	NA
*	*	*	*	*	*	*	*

Dated: September 1, 1998.

Jamie Rappaport Clark,

Director, Fish and Wildlife Service.

[FR Doc. 98-24502 Filed 9-11-98; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AC99

Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for Four Plants From the Foothills of the Sierra Nevada Mountains in California

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service determines threatened status for *Brodiaea pallida* (Chinese Camp brodiaea), *Calyptidium puchellum* (Mariposa pussypaws), *Clarkia springvillensis* (Springville clarkia), and *Verbena californica* (California vervain) pursuant to the Endangered Species Act of 1973, as amended (Act). These four plants are known from serpentine, clay, or granitic soils in the southwestern foothills of the Sierra Nevada Mountains in central California. These plants are variously threatened by one or more of the following: urbanization, roadway maintenance activities, off-highway vehicle use, recreational placer gold mining, heavy livestock grazing and/or trampling, and inadequate regulatory mechanisms. These species are also vulnerable to extirpations from random events due to small number and size of populations, and/or small range of the species. A notice of withdrawal of the proposal to list *Allium tuolumnense*

(Rawhide Hill onion), *Carpenteria californica* (carpenteria), *Fritillaria striata* (Greenhorn adobe lily), *Lupinus citrinus* var. *deflexus* (Mariposa lupine), *Mimulus shevockii* (Kelso Creek monkeyflower) and *Navarretia setiloba* (Piute Mountain navarretia) is being published concurrently with this final rule.

DATES: This rule becomes effective October 14, 1998.

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, Sacramento Fish and Wildlife Office, 3310 El Camino Avenue, Suite 130, Sacramento, California 95821-6340.

FOR FURTHER INFORMATION CONTACT: Ken Fuller or Dwight Harvey (see **ADDRESSES** section) telephone number 916/979-2725; facsimile 916/979-2128.

SUPPLEMENTARY INFORMATION:

Background

The U.S. Fish and Wildlife Service (Service) published a proposed rule (59 FR 50540) to list *Brodiaea pallida* (Chinese Camp brodiaea) and *Calyptidium puchellum* (Mariposa pussypaws) as endangered, and *Clarkia springvillensis* (Springville clarkia), and *Verbena californica* (California vervain) as threatened on October 4, 1994. Also included in the proposed rule were *Lupinus citrinus* var. *deflexus* (Mariposa lupine) and *Mimulus shevockii* (Kelso Creek monkeyflower) as endangered, and *Allium tuolumnense* (Rawhide Hill onion), *Carpenteria californica* (carpenteria), *Fritillaria striata* (Greenhorn adobe lily), and *Navarretia setiloba* (Piute Mountain navarretia) to be listed as threatened. The Service has determined that the threats to the latter six taxa are insufficient to warrant listing, and is publishing a withdrawal

notice for these six taxa concurrently with this final rule. This final rule discusses the final determination to list four species as threatened.

Robert Hoover (1938) first described *Brodiaea pallida* based on specimens collected near Chinese Camp in Tuolumne County. *Brodiaea pallida* is an erect, herbaceous perennial plant belonging to the lily family (Liliaceae). *Brodiaea pallida* grows from underground bulbs to a height of 1 to 3 decimeters (dm) (4 to 12 inches (in)), and has long, narrow, thick, succulent leaves. Several to many rose-pink flowers appear in an umbrella-like cluster at the top of a leafless stem in late May to early June. *Brodiaea pallida* grows in association with, and can hybridize with, *B. elegans* ssp. *elegans* (Skinner and Pavlick 1994). *Brodiaea pallida* can be distinguished from *B. elegans* ssp. *elegans* by the corolla being constricted mid-way to form a strongly recurved waist, the color of the corolla, and the non-pollen bearing stamens (staminodia) being held close to the stamens. *Brodiaea pallida* grows in overflow channels and seeps and springs in clays derived from serpentine soils. The Service is not listing hybrids of *B. pallida* and *B. elegans* ssp. *elegans*. The entire range of *B. pallida* is a 3 to 6 meter (m) (10 to 20 feet (ft)) wide and 0.8 kilometer (km) (0.5 mile (mi)) long stretch of an intermittent stream channel at an elevation of 385 m (1,260 ft). The entire population of *B. pallida* is scattered over an estimated 26 hectares (ha) (65 acres (ac)) (California Natural Diversity Data Base (CNDDB) 1997), all of which is privately owned. Because of the complex nature of *B. pallida* reproduction (spreading via shoots and suckers), the number of individuals in the population is unknown. Despite purposeful surveys for this species in other nearby areas, the species has been found only at this