

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
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Dated: September 1, 1998.
Jamie Rappaport Clark,
 Director, Fish and Wildlife Service.
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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), *Calyptridium 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 *Calyptridium 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

site. The sole population is threatened by urbanization and inadequate regulatory mechanisms, however the immediacy of these threats has remained unchanged for the last 10–12 years. This species is also vulnerable to extirpation from random events due to the small range of the species.

Joseph Congdon collected the type specimen of *Calyptidium pulchellum* on "Pea Ridge" in Mariposa County in 1901. Alice Eastwood (1902) first described this plant as *Spraguea pulchella*. Robert Hoover (1940) revised the genera *Spraguea* and *Calyptidium* and renamed this plant *Calyptidium pulchellum* based upon vegetative organization and habitat. *Calyptidium pulchellum* is a small, compact, rosette forming, annual herb belonging to the purslane family (Portulacaceae). The smooth, slender, prostrate stems are 1 to 2 dm (4 to 8 in) long. The spatula-shaped leaves have smooth surfaces. Rose-colored, four-petaled flowers appear in loose panicles between May and August. This fibrous rooted plant grows in small, barren areas on decomposed granitic sands, between 460 and 1,090 m (1,500 to 3,600 ft) in the annual grasslands and woodlands in the southwestern foothills of the Sierra Nevada Mountains. The seven populations in six locations are estimated to occupy a total of only 6 ha (14 ac) in Fresno, Madera, and Mariposa counties over a range of about 64 km (40 mi) (CNDDDB 1997). Six of the seven populations occur on private land. Five of these populations are marginal in quality and contain fewer than 300 plants (Ann Mendershausen, Mariposa Resource Conservation District, pers. comm. 1997; CNDDDB 1997). The sixth population on private land has about 900 plants (CNDDDB 1997). The seventh population of *C. pulchellum*, occurs on lands administered by the Sierra National Forest and is fenced to protect it from livestock trampling and grazing (James Boynton and Joanna Clines Sierra National Forest, *in litt.*, 1993). *Calyptidium pulchellum* is threatened with urbanization. Due to the few populations and low numbers, the species is susceptible to extirpation from random events.

Frank Vasek (1964) described *Clarkia springvillensis* based on his collection along Balch Park Road, the type locality, near Springville. *Clarkia springvillensis* is an erect annual herb in the evening primrose family (Onagraceae). The 1 m (3 ft) tall plant has simple or usually branched stems. The bright green leaves are 2 to 9 centimeters (cm) (0.8 to 3.5 in) long and 5 to 20 millimeters (mm) (0.2 to 0.8 in) broad. The lavender-pink flowers appear in May to July and

usually have a dark purplish basal spot. *Clarkia springvillensis* can be separated from the co-occurring *C. unguiculata* by the absence of long hairs on the calyx and ovary, the purple sepals, and the dark purplish spot at the base of the petals. *Clarkia springvillensis* is found on granitic soils in sunny sites from 360 to 910 m (1,220 to 3,000 ft) in elevation. *Clarkia springvillensis* grows mostly on the uphill slope of roadbanks, on small decomposing granitic domes, and in openings within the blue oak (*Quercus douglasii*) woodland community in the foothills of the southern Sierra Nevada Mountains of Tulare County, where 15 populations occur. Collectively, the populations are estimated to occupy a total of 61 ha (150 ac) (CNDDDB 1997). All but one of the 15 populations are found within about a 24 km (15) mi range, with the remaining population occurring 26 km (16 mi) to the northwest. One site is partially protected by the CDFG, one is on Bureau of Land Management (BLM) land, eight are on U.S. Forest Service land, and five are on private land. With the variability typical of an annual plant, six populations of *C. springvillensis* have ranged from 20 to 200 plants. Four populations along roadsides have become restricted to a narrow band just above a zone of herbicide use and just below heavily grazed terrain. The largest population of this plant occurs on the 1.8 ha (4.5 ac) preserve owned by the CDFG. The status of *C. springvillensis* is stable to declining according to the CDFG (CDFG 1995). *Clarkia springvillensis* is threatened by urban development, inadequate regulatory mechanisms, heavy livestock grazing, and roadway maintenance activities. Due to its few populations and low numbers, *C. springvillensis* is vulnerable to extirpation from random events.

Harold A. Moldenke (1942) described *Verbena californica* from specimens collected by Robert Hoover from an area north of Keystone in Tuolumne County. *Verbena californica* is an erect perennial herb belonging to the vervain family (Verbenaceae). *Verbena californica* grows to 60 cm (23 in) in height and has opposite, bright green, stalkless (sessile) leaves. White-blue to purple blossoms appear in May through September. *Verbena californica* grows in nine populations between 260 and 335 m (850 to 1,150 ft) in elevation. The populations are restricted to intermittent and perennial streams within serpentine areas of the Red Hills of Tuolumne County. The entire range of the species is about 16 km (10 mi). Within this narrow range, the total area

occupied by the populations is estimated to be 36 ha (90 ac) (CNDDDB 1997). Eight of the nine populations occur in drainages that feed into Don Pedro Reservoir; five of these eight are on Six Bit Gulch and its tributaries. The ninth population is on Andrew Creek that feeds into Tullock Reservoir (CDFG 1993, CNDDDB 1997). Four of the nine populations are wholly on BLM lands, and two are partially on BLM lands, although these six sites contain only 15 percent of *Verbena californica* plants. The remaining 85 percent of *Verbena californica* plants are on private lands. When last surveyed, two populations were estimated to contain several thousand plants each, four populations were estimated to contain 200 to 500 plants each, and the remaining three populations were estimated to contain fewer than 100 plants each (CDFG 1993, CNDDDB 1997). The two largest populations, at Andrew Creek and Big Creek, occur entirely or primarily on private lands (CDFG 1993, CNDDDB 1997). *Verbena californica* is threatened by urbanization, recreational placer gold mining, off-highway vehicle use (OHV), inadequate regulatory mechanisms, dumping, and heavy grazing and trampling. Due to the few populations and low numbers, it is also vulnerable to extirpation from random events.

Previous Federal Action

Federal government actions on these four plants began as a result of section 12 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct in the United States. This report, designated as House Document No. 94–51, was presented to Congress on January 9, 1975, and included *Brodiaea pallida* as endangered. The Service published a notice in the July 1, 1975, **Federal Register** (40 FR 27823) of its acceptance of the report of the Smithsonian Institution as a petition within the context of section 4(c)(2) (petition provisions are now found in section 4(b)(3) of the Act) and its intention thereby to review the status of the plant taxa named therein. *Brodiaea pallida* was included in the July 1, 1975, notice. On June 16, 1976, the Service published a proposal in the **Federal Register** (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to section 4 of the Act. The list of 1,700 plant taxa was assembled on the basis of comments and data received by the Smithsonian Institution and the Service in response to House Document No. 94–

51 and the July 1, 1975, **Federal Register** publication. *Brodiaea pallida* and *Calyptidium puchellum* were included as endangered in the June 16, 1976, **Federal Register** document.

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

The Service published an updated Notice of Review for plants on December 15, 1980 (45 FR 82480). This notice included *Brodiaea pallida*, *Calyptidium puchellum*, *Clarkia springvillensis*, and *Verbena californica* as category 1 candidates. Category 1 species were those for which the Service had on file substantial information on biological vulnerability and threats to support preparation of listing proposals.

On November 28, 1983, the Service published in the **Federal Register** a supplement to the Notice of Review (48 FR 53640) in which *Brodiaea pallida* and *Verbena californica* were designated as category 1 candidates for Federal listing. This supplement also changed *Clarkia springvillensis* and *Calyptidium puchellum* to category 2. Category 2 included taxa for which information in the possession of the Service indicated that a listing proposal was possibly appropriate, but for which sufficient data on biological vulnerability and threat were not available to support a proposed rule. On February 28, 1996, the Service published a Notice of Review in the **Federal Register** (61 FR 7596) that discontinued the designation of category 2 species as candidates.

The plant notice was revised again on September 27, 1985 (50 FR 39526). The status of these four plants remained unchanged from the 1983 supplement. Another revision of the plant notice was published on February 21, 1990 (55 FR 6184). In this revision, *Clarkia springvillensis* was returned to category 1 status. On September 30, 1993, the Service published another notice and the status of the species remained unchanged (58 FR 51144).

Section 4(b)(3)(B) of the Act requires the Secretary to make certain findings on pending petitions within 12 months of their receipt. Section 2(b)(1) 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 *Brodiaea pallida* because the 1975 Smithsonian report had been accepted as a petition. 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 on January 20, 1984 (49 FR 2485). Such a finding requires the petition to be recycled, pursuant to section 4(b)(3)(C)(i) of the Act. The finding was reviewed in October of 1984 through 1993.

On October 4, 1994, the Service published a proposed rule in the **Federal Register** (59 FR 50540) to list *Brodiaea pallida*, *Calyptidium pulchellum*, *Lupinus citrinus* var. *deflexus*, and *Mimulus shevockii* as endangered and *Allium tuolumnense*, *Clarkia springvillensis*, *Carpenteria californica*, *Fritillaria striata*, *Navarretia setiloba*, and *Verbena californica* as threatened. This proposed rule constituted the warranted finding for *Brodiaea pallida*.

Based upon information received during public comment periods subsequent to the publication of the proposed rule, the Service now determines *Brodiaea pallida*, *Calyptidium pulchellum*, *Clarkia springvillensis*, and *Verbena californica* to be threatened species. The proposed listing of *Allium tuolumnense*, *Carpenteria californica*, *Fritillaria striata*, *Lupinus citrinus* var. *deflexus*, *Mimulus shevockii*, and *Navarretia setiloba* is being withdrawn by the Service as announced in a separate **Federal Register** notice published concurrently with this final rule.

The processing of this final rule follows the Service's fiscal years 1998 and 1999 listing priority guidance published in the **Federal Register** on May 8, 1998 (63 FR 25502). The guidance establishes the order in which the Service will process rulemakings. The guidance calls for giving highest priority to handling emergency situations (Tier 1) and second highest priority (Tier 2) to resolving the listing status of outstanding proposed listings. Processing critical habitat determinations is included in Tier 3 of the guidance. This final rule is a Tier 2 action and is being completed in accordance with the current listing priority guidance.

Summary of Comments and Recommendations

In the October 4, 1994, proposed rule (59 FR 50540) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to development of a final rule. Appropriate Federal agencies, State agencies, County and City governments, scientific organizations, and other interested parties were contacted and requested to provide comments. Newspaper notices inviting public comment were published in the *Bakersfield Californian* and *Porterville Recorder* on October 10, 1994, and the *Fresno Bee* and *Tuolumne Union Democrat* on October 25, 1994. The comment period closed on December 5, 1994.

As a result of receiving seven requests for one or more public hearings, the Service reopened and extended the comment period until February 13, 1995 (59 FR 67268). The Service held informational meetings with interested parties about the proposed rule in Fresno on January 25, 1995, in Visalia on January 26, 1995, and in Bakersfield on January 27, 1995. On January 31, 1995, the Service conducted a public hearing in Bakersfield. The Service received three requests to postpone or delay the public hearing and three additional requests to extend the comment period beyond February 13, 1995. Responding to these requests, the Service extended the comment period until June 4, 1995 (60 FR 8342). From April 1995, through April 1997, the Service was under a congressionally imposed moratorium on final listings. The Service reopened the comment period on February 4, 1997, (62 FR 5199) and again on June 30, 1997, (62 FR 35116) to update and clarify information received during the three prior comment periods.

The Service has reviewed all the comments received during the four comment periods. General comments received on all ten taxa included in the proposed rule, and specific comments on the four taxa for which the Service has determined that listing is appropriate are addressed in this final rule. Specific comments pertaining to the six taxa being withdrawn (*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* (Puite Mountain navarretia)) are addressed in a separate **Federal Register** notice published concurrently with this rule.

The Service received 525 comments (i.e., letters, phone calls, facsimiles, and oral testimony) from 164 individuals or agencies or group representatives concerning the proposed rule. Seventy-one commenters provided opposing comments, 39 commenters provided supporting comments, and 54 commenters provided neutral comments. Of the 525 comments, 310 were opposed to the proposed listing, 87 supported the listing, and 128 had no position regarding the proposed listing. Several commenters provided additional information that, along with other clarifications, has been incorporated into the "Background" or "Summary of Factors" sections of this final rule. Opposing and technical comments have been organized into specific issues. These issues and the Service's response to each, are summarized as follows.

Issue 1—Insufficiency of Data

Comment: Several commenters stated that data used in the proposed rule to list these ten plants was either inaccurate, insufficient, inconsistent, erroneous, unsubstantiated, unverified, unjustified, based only on biased opinions in favor of listing the species, not peer-reviewed, or required additional research.

Service Response: Information used by the Service to list the species was gathered from a variety of sources, including Federal and State agencies, local governments, and private individuals, including species experts and scientists. This information, and additional information received during public comment periods, including those of peer reviewers and comments received at public hearings, provide the foundation for determining the final status of these ten plants. All information received was carefully evaluated in accordance with the interagency policy on information standards under the Act, published on July 1, 1994 (59 FR 34271). Five of the seven independent species experts that reviewed the proposed rule supported the listing of one or more of the ten plant taxa. Criteria for what information may be considered are discussed in the "Summary of Factors Affecting the Species" section. As previously stated, this final rule concerns four of the ten taxa proposed on October 4, 1994. The other six taxa are addressed in a separate notice published concurrently with this final rule.

Comment: Several commenters stated that the information on these four plants was collected during drought years, and therefore, the data were biased. Another commenter suggested that the Service

extend the comment period for another two or three growing seasons so more information could be collected on the species in non-drought years.

Service Response: Professional and amateur botanists have known of and searched for three of the four plants for decades. *Brodiaea pallida*, *Calyptidium pulchellum*, and *Verbena californica* were all described prior to 1960 and were included in Philip Munz and David Keck's, "A California Flora of California, 1959." The first State-wide inventory of rare plants was assembled by the California Native Plant Society (CNPS) in 1974. Monitoring efforts on the locations and habitats of the four plants have been more consistent since this time. Continuing inventory efforts have not been conducted on all populations of the four plants in all years over the last twenty years. However, site visits to locations of populations of these plants have been undertaken in both drought and non-drought years, as discussed in the "Summary of Factors Affecting the Species" section. Under section 4(b)(1)(A) of the Act, the Service is required to make its determination upon the best available scientific and commercial data. The Service is neither required, funded, nor authorized to conduct further surveys for these species, and concludes that the best available information is sufficient to support the listing of these species under the Act.

Comment: Several commenters stated that data were, or may have been, collected by trespass and questioned the legality and admissibility of the data under those circumstances.

Service Response: Among the information sources used by the Service is the information from the CNDDDB, a part of the California Department of Fish and Game (CDFG). The data comprising the CNDDDB and data at the Sacramento Fish and Wildlife Office is checked for accuracy, but whether or not observers obtained written or verbal permission to visit private land is not investigated. Many of the older observations may predate the more recent heightened sensitivity of landowners to individuals searching for rare plants on their property. Neither the Service nor the CDFG condone trespassing.

Comment: Several commenters expressed concern that the Service did not collect information from ranchers and that the information to list the four plants may not be accurate without this information.

Service Response: The Service collected and has used the best scientific and commercially information available from Federal, State and local

agencies, species experts, ecologists, botanists, and interested individuals in the preparation of the proposed and final rules, consistent with section 4(a)(1)(B) of the Act. A list of all data sources and information used to formulate the proposed and final rules are available from the Sacramento Fish and Wildlife Office upon request. The Service participated in two informal information exchange meetings with State and County representatives and private landowning ranchers in Bakersfield, California, to discuss the importance, usefulness, and thresholds of useful information during the fourth comment period and received information from ranchers during all comment periods. Some of this information pertained to specific or general locational references and has been incorporated into this final rule.

Issue 2—Species Are Not Threatened or Threats Are Not Substantiated

Comment: Several commenters stated that some of the species are more common than indicated in the proposed rule, or some, if not all of the species are not threatened by one or more factors across the range of the species. One commenter stated that *Clarkia springvillensis* is not threatened by urbanization, timber operations, or road maintenance across its range. Another commenter stated that *Clarkia springvillensis* is more widespread than is indicated in the proposed rule.

Service Response: The Service has reviewed all the information and comments from many sources and has determined that logging does not pose a significant threat to *Clarkia springvillensis*. Urbanization poses a threat to *C. springvillensis* on private lands, but not to those populations found on public lands. Road maintenance threatens the species at four of its 15 locations. Additional information regarding threats to the species are discussed in the "Summary of Factors Affecting the Species" section of this document. The Service has determined that each of these four taxa meets the definition of a threatened species under the Act. A list of all data sources and information used to formulate the proposed and final rules are available at the Sacramento Fish and Wildlife Office upon request.

Issue 3—Economic Effects of Listing

Comment: Numerous commenters stated that listing may limit, curtail, or impinge on the existing uses of private property, or that listing would result in the loss of management opportunities on private lands as well as the loss of economic productivity of those lands.

Service Response: The Act does not restrict the damage or destruction of listed plants due to otherwise lawful private activities on private land beyond any level of protection that may be provided under State law. Listing the four plants as threatened or endangered will not regulate logging, farming, or ranching operations, including cattle grazing, on private land. Other activities that do not violate the taking prohibitions of section 9(a)(2) of the Act, as well as prohibited activities, are discussed further under "Available Conservation Measures" section of this rule.

Comment: Numerous commenters stated that the Service should consider the economic effects of the listing on the local economies and industries in the counties where the plants occur.

Service Response: Under section 4(b)(1)(A) of the Act, a listing determination must be based solely on the best scientific and commercial data available about whether a species meets the Act's definition of a threatened or endangered species. 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 considerations from affecting such decisions," H.R. Rep. NO. 97-835, 97th Cong., 2nd Sess. 19 (1982). As further stated in the legislative history, "applying economic criteria . . . to any phase of the species listing process is applying economics to the determinations made under section 4 of the Act and is specifically rejected by the inclusion of the word "solely" in the legislation," H.R. Rep. NO. 97-835, 97th Cong. 2nd Sess. 19 (1982). Because the Service is precluded from considering economic impacts, in a final decision on a proposed listing, the Service does not examine such impacts.

Comment: One commenter stated that listing may result in "takings" of private property and therefore the Service should complete a Takings Implications Assessment.

Service Response: The U.S. Attorney General has issued guidelines to the Department of the Interior (Department) on the implementation of Executive Order 12630, "Governmental Actions and Interference with Constitutionally Protected Property Rights." Under these guidelines, a special rule applies when an agency within the Department is required by law to act without exercising its usual discretion. The provisions in the guidelines relating to non-discretionary actions clearly are applicable to the determination of endangered or threatened status for the four plants in this rule.

In this context, an agency's actions might be subject to legal challenge if it did not consider or act upon economic data. In these cases, the Attorney General's guidelines state that Takings Implications Assessments (TIA) will be prepared after, rather than before, the agency makes the decision upon which its discretion is restricted. The purpose of TIAs in these special circumstances is to inform policy makers of areas where unavoidable takings exposures exist. Such TIAs shall not be considered in the making of administrative decisions that must, by law, be made without regard to their economic impact. In enacting the Act, Congress required the Department to list species based solely upon scientific and commercial data indicating whether they are in danger of extinction. Thus, by law and U.S. Attorney guidelines, the Service cannot conduct such TIA's prior to listing.

Issue 4—Designation of Critical Habitat

Comment: Several commenters stated that the Service needed to designate critical habitat, and had no prudent basis for refusal to do so.

Service Response: The Service has determined that critical habitat for these four species is not prudent. Please refer to the "Critical Habitat" section of this rule for a detailed discussion of the Service's basis for not designating critical habitat at this time.

Comment: One commenter stated that the Service needed to designate critical habitat to help locate populations and verify data. Another commenter disagreed with the Service that the designation of critical habitat and subsequent publication of critical habitat maps would cause vandalism to the plants.

Service Response: Protection that these species will receive as a result of listing is discussed under "Available Conservation Measures" portion of this rule. The public has access to general locational information on all four of these plants through the CDFG's CNDDDB. The Service considers the risk of malicious damage to most of these plants to be relatively small, especially for the species that are inconspicuous. Please refer to the "Critical Habitat" section of this rule for a detailed discussion of the Service's reasons for not designating critical habitat at this time.

Issue 5—Recovery Planning

Comment: Several commenters stated that the Service should not list these four species without a recovery plan. Another commenter stated that the lack of a recovery plan hampers a county's

ability to provide adequate protection measures for these species. One commenter stated that the Service could not prepare a recovery plan without an economic assessment.

Service Response: The recovery planning process typically occurs after the species has been listed and provides recovery objectives and criteria to delist the species. The recovery planning process will involve species experts, scientists, and interested members of the public in accordance with interagency policy on recovery plans under the Act, published on July 1, 1994 (59 FR 34272). The information and public education needs for successful recovery of these species are many and will be incorporated into the recovery plan. Economic assessments are not part of the recovery planning process; however, every recovery plan includes an estimate of the costs of all recovery tasks identified in the plan.

Issue 6—National Environmental Policy Act and Information Availability

Comment: Numerous commenters stated that the Service needed to prepare an Environmental Impact Statement (EIS) or an Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA) on this rule.

Service Response: For reasons described in the NEPA section of this document, the Service has determined that the rules issued pursuant to section 4(a) of the Act do not require the preparation of an EIS. The Federal courts have held in *Pacific Legal Foundation v. Andrus*, 657 f2d. 829 (6th Circuit 1981) that an EIS is not required for listing under the Act. The court decision noted that preparing an EIS on listing actions does not further the goals of NEPA or the Act.

Comment: Several commenters wanted to personally view the evidence used by the Service to list these plants, or specifically wanted to know the names of individuals who conducted site visits or provided peer review for the proposed rule.

Service Response: A full administrative record of the information considered in the proposed and final rules for these species is available at the Sacramento Fish and Wildlife Office (see ADDRESSES section).

Issue 7—Existing Regulatory Mechanisms

Comment: Numerous commenters stated that the existing regulatory measures available through State, Federal and local laws, rules and regulations provide adequate protection for the four species to be listed in this

rule. Other commenters stated that the existing regulatory mechanisms were not sufficient to protect the species included in this rule, and therefore the listing should go forward to provide the protection necessary for the continued existence of these species.

Service Response: The Service believes that the existing regulatory mechanisms provided in the State, local and county regulations are inadequate to protect these four plants. Please see Factor D of the "Summary of Factors Affecting the Species," section of this rule.

Issue 8—Grazing

Comment: Several commenters stated that grazing and/or trampling is good for these species by promoting plant vigor, or creates a better seedbed. One commenter stated that the Service holds the position that all grazing is overgrazing. One commenter stated that other environmental factors (e.g., rainfall) are more of an issue for these species than grazing.

Service Response: The Service has no evidence to support the general position that grazing is beneficial or detrimental for these species. Numerous factors involved in livestock management and grazing practices, such as season of use, intensity, duration, and stocking levels, as well as varying climatic conditions, may affect these species and/or their habitats. No available literature supports the position that grazing is beneficial to these species. Site specific observations and local extirpations suggest that heavy grazing may have impacted some populations of these species. The Service does not hold that all grazing is overgrazing, but rather that grazing at some locations has had adverse impacts on the species considered in this rule. Virtually all the information that the Service received or located regarding beneficial and adverse livestock grazing effects on the four taxa is anecdotal. However, repeated observations over time coupled with knowledge of historical land uses has validity even though that information was not scientifically collected. That kind of information was provided for some of the locations for some of the taxa in this rule. Based upon this information, it appears that some levels of livestock grazing are compatible with, and may be beneficial to, some of these species. Competition from alien grasses may pose a threat to some of these species and grazing, to the extent that it can alleviate such competition without eliminating or weakening a rare plant population through direct consumption or trampling, or secondary effects such as accelerated soil erosion, is

compatible with rare plants on many sites. The listing provisions of the Act provide that species may be determined to be endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act. The effects of herbivory by any animal, including livestock, is discussed under Factor C of the "Disease and Predation" section of this rule.

Comment: Several commenters stated that threats associated with livestock grazing were either false, purely speculative, or lacked any scientific credence.

Service Response: During the preparation of this rule, the Service evaluated site specific observations of known plant populations, and reviewed an extensive body of literature on the impacts of grazing mammals to plant species. Please refer to Factor C in the "Summary of Factors Affecting the Species" section of this rule for further discussion on the effects of herbivory, including livestock grazing.

Comment: Several commenters stated that grazing of *Clarkia springvillensis* is not a problem or that grazing is necessary for the survival of the species.

Service Response: Grazing, in combination with other environmental and human factors, have led to deleterious effects on the habitat of *Clarkia springvillensis*. According to observers (Tim Holtsford and Kimberlie McCue-Harvey, University of Missouri, *in litt.* 1993), livestock grazing is damaging eight of the 15 known locations of this species by direct consumption and trampling. The Service believes that these effects, together with other threats discussed in "Summary of Factors Affecting the Species" section support the determination of threatened status for this species.

Issue 9—Alternative Status

Comment: Several commenters requested that the species considered in this rule should either not be listed at this time, be listed with an alternate status, withdrawn, delayed in listing, or retain current status.

Service Response: Substantive information provided by commenters in support of arguments for alternative listing status, including delay or withdrawal, has been incorporated into this final rule and the accompanying withdrawal notice. The Service believes there is sufficient information to list these four species, and that the appropriate determination of the status of each of these species has been made. The Service has made these determinations based on consideration of the best available information, in

accordance with section 4(a)(1)(B) of the Act. Please refer to the "Summary of Factors Affecting the Species" section of this rule regarding threats to *Brodiaea pallida*, *Calyptidium pulchellum*, *Clarkia springvillensis*, and *Verbena californica*, and to the notice of withdrawal being published concurrently with this rule [insert FR#] for information regarding *Allium tuolumnense*, *Carpenteria californica*, *Clarkia springvillensis*, *Fritillaria striata*, *Lupinus citrinus* var. *deflexus*, *Mimulus shevockii*, and *Navarretia setiloba*.

Issue 10—Lack of Regulatory Authority to List Plant Species

Comment: One commenter stated the Service lacks jurisdiction to enact the proposed rule, and that the rule should be withdrawn since there is no connection between regulation of these plants and a substantial effect on "interstate commerce."

Service Response: The Service maintains that it does have the authority to list plants such as those included in the proposed rule pursuant to the Act. Several Federal court cases have confirmed this authority (see e.g. *National Association of Home Builders v. Babbitt*, 130 F.3d 1041 (D.C. Cir. 1997), *petition for cert. filed* (March 5, 1998)).

Peer Review

Consistent with the interagency policy on peer review published on July 1, 1994 (59 FR 34270), the Service solicited the expert opinions of seven independent and appropriate specialists regarding pertinent scientific or commercial data and assumptions relating to the taxonomy, population status, and supporting biological and ecological information for the ten proposed plants. Five of the seven peer reviewers provided comments. Not all reviewers commented on all of the taxa that were proposed for listing. One reviewer supported the listing of all species addressed in this rule, noted that each species is taxonomically distinct, and commented that the low numbers of individuals in populations make them especially susceptible to detrimental genetic phenomena, including inbreeding depression and loss of genetic variability. This reviewer characterized the population sizes of *Brodiaea pallida* and *Calyptidium pulchellum* as "perilously low" and the populations of *Clarkia springvillensis* and *Verbena californica* as approaching that condition. A second reviewer also supported the listing of all species addressed in this rule and commented specifically on *Brodiaea pallida*,

Calyptridium pulchellum, and *Clarkia springvillensis*. The reviewer noted that the restriction of *Brodiaea pallida* to a single population and its "dangerously low" population size make it susceptible to extinction by random events. The same reviewer also commented that further reductions in populations of *Calyptridium pulchellum* and *Clarkia springvillensis* may place them in danger of extinction by random events. A third reviewer, who only addressed *Calyptridium pulchellum* and *Clarkia springvillensis*, noted that each is taxonomically distinct and of such limited range that listing is warranted. A fourth reviewer provided information on the taxonomic distinctiveness, ecology, and non-native competitors of *Navarretia setiloba*, a species that is being withdrawn, and also emphasized the importance of conserving the species. The fifth reviewer provided no specific comments but supported the listing of all four taxa addressed in this final rule.

Summary of the Factors Affecting the Species

Section 4 of the 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 lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Brodiaea pallida* Hoover (Chinese Camp brodiaea), *Calyptridium pulchellum* (Eastwood) Hoover (Mariposa pussypaws), *Clarkia springvillensis* Vasek (Springville clarkia), and *Verbena californica* Moldenke (California vervain) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Brodiaea pallida, *Calyptridium pulchellum*, *Clarkia springvillensis*, and *Verbena californica* are restricted to grassland and woodland communities of the southwestern foothills of the central Sierra Nevada Mountains. These four species have been variously impacted and face future impacts from development projects and other human activities.

Historically, the only known population of *Brodiaea pallida* extended up to 0.6 km (1 mi) south of the Red Hills Road; however, large parts of the population were destroyed by non-permitted construction around 1982 (Blaine Rogers, Columbia College, *in litt.* 1990; CNDDDB 1997). A subdivision has been proposed for the remainder of the

site (B. Rogers, *in litt.* 1997; Pat Stone, CNPS, *in litt.* 1997). The proposed subdivision divides some of the population into 2 ha (5 ac) parcels and would impact approximately one half of all the known individual plants (P. Stone, *in litt.* 1994). No construction activity has occurred since 1989 at the proposed subdivision that was believed to threaten *B. pallida*. No construction activity is currently planned at the site where the species occurs. Thus, in reassessing the threat to the single population of *Brodiaea pallida* and recognizing that the threat is less imminent than initially thought, the Service has determined that threatened status is more appropriate for *Brodiaea pallida*.

Two populations of *Calyptridium pulchellum* occur on lots in the midst of a subdivision (Ann Mendershausen, Mariposa County Resource Conservation District, pers. comm. 1993, 1997; CNDDDB 1997). This subdivision had a vacancy rate of 23 percent as of March 1997 (David Deel, Madera County Planning Department, pers. comm. 1997) and additional human impacts may occur to the two populations as the subdivision fills to 100 percent occupancy. A third population of *C. pulchellum* occurs in an area including commercial and residential zoning adjacent to the location of the population (A. Mendershausen *in litt.* 1995; Thomas Kidwell, Madera County Assessors Office, *in litt.* 1997; D. Deel, *in litt.* 1997). Although one subdivision was constructed prior to the proposed rule, none of the proposed subdivisions that were thought to threaten populations of *C. pulchellum* have been constructed since the proposed rule was published in 1994. No construction activities are planned at the sites where the species occurs. A fourth population of *C. pulchellum* occurs on a ranch that is for sale (A. Mendershausen pers. comm. 1993, 1997; CNDDDB 1997). The populations of Madera and Mariposa counties, where *C. pulchellum* occurs on private lands, are expected to increase by 58 percent and 55 percent, respectively, between 1996 and 2010 (California Department of Finance 1993, 1996). Thus, the Service has determined that the threats to populations of *Calyptridium pulchellum* from subdivisions are not as imminent as first thought and has determined that threatened status is more appropriate for *Calyptridium pulchellum*.

Two populations of *Clarkia springvillensis* on the Sequoia National Forest (CNDDDB 1997) and three populations on non-Federal lands are threatened by road maintenance activities such as grading and roadside

mowing (T. Holtsford, *in litt.* 1993, T. Holtsford and K. McCue-Harvey, *in litt.* 1993, CNDDDB 1997). These five populations comprise more than 40 percent of the known acreage of *C. springvillensis* habitat (CNDDDB 1997). Four of these five populations are small and have become restricted to a narrow band above and/or below the part of the roadbank that is not graded and above and/or below the heavily grazed terrain across a fence adjacent to the roadway (CDFG 1990). Mowing usually occurs when the grass turns golden, just when *C. springvillensis* begins to flower (James Shevock, U.S. Forest Service, *in litt.* 1985). One of the five sites is along a county road (County Road M-220) that is graded infrequently by the Tulare County Public Works Department; the plants extend to the edge of the road and are graded and buried periodically (T. Holtsford, 1994 pers. comm.). At this same site, *C. springvillensis* appears to be threatened by the Public Works Department dumping of sand (T. Holtsford, pers. comm. 1994).

A sixth population of *Clarkia springvillensis*, on private land, is threatened by development (Andrew Pacheco, Tulare County Planning Department, *in litt.* 1997; CNDDDB 1997). Zoning in portions of the area allows one dwelling per ha (2.5 ac) as long as the dwellings are occupied by family, employees, or farm laborers (A. Pacheco, *in litt.* 1997). This is in addition to an allowance for one dwelling for the owner. Further subdivision of parcels requires an amendment to the general plan. Applications for general plan amendments can be submitted whenever, and as frequently as, the land owner wishes in Tulare County (A. Pacheco pers. comm. 1997). Three small populations of *C. springvillensis* occur on lands owned by Tulare County. These populations are subject to incidental impacts associated with frequent large nature group walks and livestock grazing (CNDDDB 1997).

The largest population of *Clarkia springvillensis* occurs on a 1.8 ha (4.5 ac) preserve owned by CDFG. Prior to acquisition by CDFG, this property had an access road cut into the preserve, a water well drilled, and a knoll leveled as a pad for home construction. The type locality for *C. springvillensis*, which covered a 27 ha (67 ac) area, was extirpated by mobile home development (CNDDDB 1997).

Both of the largest populations of *Verbena californica* are on private land that currently is being developed, or could be developed soon. When last surveyed, each of these populations was estimated to contain several thousand

plants; the next largest population was estimated to contain fewer than 500 plants (CDFG 1993, CNDDDB 1997). In August 1997, the Tuolumne County Board of Supervisors rescinded the 1994 Environmental Impact Report (prepared pursuant to CEQA, discussed below) for a planned subdivision at one of these populations on Andrew Creek. Because of this action, a 1989 vested map dividing the land into 23 parcels is in effect (Robin Wood, Tuolumne County Planning Department, pers. comm. 1997a). Grading and road building are currently occurring in *V. californica* habitat on the site (Rich Hunter, Central Sierra Environmental Resources Center, pers. comm. 1997; R. Wood, pers. comm. 1997a). This population was estimated to contain at least 35 to 40 percent of all *V. californica* plants, based on CDFG 1993 population sizes. In addition, it is the only population of *V. californica* known from the Andrew Creek drainage and the most westerly population of the species. The second of the two largest populations of *V. californica* is on Big Creek (CDFG 1993). The parcel recently was sold, and the owners are planning to build a house on a knoll about 300 feet from the creek where *V. californica* grows. The parcel is currently zoned so that it could be divided into 15 ha (37 ac) parcels. The parcel could be further divided if the general plan was amended; amending can take place three times a year in Tuolumne County. In addition, the busy, nearby intersection of Old Don Pedro Road and La Grange Road may be developed, if the general plan is amended. Other areas of rapid development in the vicinity of *V. californica* in Tuolumne County include the intersection of Highways 108 and 120 and the area around Chinese Camp (R. Wood, pers. comm. 1997b).

Recreational placer gold mining has not been allowed since 1993 in Andrew and Big creeks, but it is still allowed in Poor Man's and Six Bit gulches (Art Champ, U.S. Army Corps of Engineers *in litt.* 1995). Three populations of *Verbena californica* on BLM land in Six Bit Gulch and one on BLM land in an unnamed drainage between Six Bit Gulch and Big Creek are threatened by recreational placer gold mining (CDFG 1993). Impacts from casual mining continue to occur despite designation of the entire Red Hills as an Area of Critical Environmental Concern by BLM (Ed Hastey, BLM, *in litt.* 1992). *Verbena californica* was only found on areas of the stream in the Six Bit Gulch area where mining activities had not changed land contours and habitat (Rogers 1983). Another impact from

recreational mining is trampling by humans, which negatively affects *V. californica* and its habitat (Anne Knox, BLM, pers. comm. 1997a).

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Overutilization is not currently known to be a factor for these four plants, but unrestricted collecting for scientific or horticultural purposes or excessive visits by individuals interested in seeing rare plants could result from increased publicity as a result of this final rule.

C. Disease or Predation

Many *Clarkia springvillensis* sites are reported to be grazed by domestic livestock (Kimberlie McCue, Missouri Botanical Garden, *in litt.* 1997). Grazing can negatively affect *C. springvillensis* although the degree of impact depends on the timing and intensity of grazing. Grazed plants have the ability to continue producing flowers, but heavy, repeated, and/or late season grazing can adversely affect the plants (K. McCue, *in litt.* 1997). Intensive grazing has been identified as one of the greatest threats to the species and the "basic cause of its rarity" (J. Shevock *in litt.* 1985). Heavy livestock grazing and/or trampling have been reported in three populations of *C. springvillensis* in Tulare County (T. Holtsford and K. McCue-Harvey, *in litt.* 1993; CNDDDB 1997). An additional five occurrences are grazed, but heavy grazing and/or trampling have not been reported at these sites (CNDDDB 1997). Appropriate grazing regimes may benefit *C. springvillensis* in some situations by reducing the abundance of alien plants and thereby lessening competitive pressure on *C. springvillensis* (K. McCue, *in litt.* 1997).

Several populations of *Verbena californica* are grazed (CNDDDB 1997). Although the effects of grazing on *V. californica* are not thoroughly understood, plants in grazed sites are noticeably smaller than those in ungrazed sites (Mark Skinner, CNPS, pers. comm. 1993; A. Knox, pers. comm. 1997b). Field observations suggest that *V. californica* can tolerate only light grazing before it disappears from occupied habitat (Rogers 1983). Even if grazing itself does not threaten *V. californica*, trampling associated with grazing negatively impacts the plants and their habitat (A. Knox, pers. comm. 1997a, b). One of the two largest populations of *V. californica* is subject to trampling (A. Knox, pers. comm. 1997b) and heavy grazing (CNDDDB 1997). When last surveyed, this population contained several thousand

plants on about 13 percent of the total acreage occupied by *V. californica*, and was estimated to contain approximately 40 to 50 percent of all *V. californica* plants (CDFG 1993; CNDDDB 1997). Recently, a cattle feeder was installed 3 m (10 ft) from the creek where *V. californica* grows at this site (P. Stone, pers. comm. 1997a), which may increase trampling effects. Trampling has also been identified as a threat at two other populations of *V. californica* (CDFG 1993; A. Knox, pers. comm. 1997b). At one of these sites, the trampling was due to trespass grazing (A. Knox, pers. comm. 1997b).

The Service has not received any scientific studies suggesting that heavy livestock grazing has adverse effects on any of the populations of the four taxa in this final rule. The Service maintains that, depending on a wide variety of circumstances, livestock grazing may have little, or no detectable, adverse effects on plant communities. The effects on plants from livestock grazing are highly variable and dependent on many factors, including but not limited to, livestock class, timing, intensity, and duration of livestock use, and the species of plants themselves, (Heady 1975). Soil and ambient air temperatures, along with effective soil moisture from spring rainfall also influence plant germination, growth, and availability for livestock consumption (Heady 1975; Huenneke and Mooney 1989). Livestock grazing occurs where many of the four plant species populations are located, and the Service is aware of numerous circumstances where, under a specific set of circumstances, livestock grazing has no or little adverse effect on any of the four plants. The BLM and Sierra National Forest constructed livestock exclusion fences around one population of *Verbena californica* and one population of *Calyptidium pulchellum* to promote and protect the plants and their habitats. There have been observations of neutral, little, and adverse effects of livestock grazing on these four taxa (K. McCue, *in litt.* 1997; CNDDDB 1997).

D. The Inadequacy of Existing Regulatory Mechanisms

The State of California Fish and Game Commission has listed *Brodiaea pallida* and *Clarkia springvillensis* as endangered species under the California Endangered Species Act (CESA) (Chapter 1.5 § 2050 *et seq.* of the CDFG Code and Title 14 California Code of Regulations 670.2). In September 1994, the California Fish and Game Commission listed *Verbena californica* as a threatened species (Chapter 1.5

§ 2050 *et seq.* of the California Fish and Game Code and Title 14 California Code of Regulations 670.2). Listing by the State of California requires individuals to obtain a memorandum of understanding with the California Department of Fish and Game (CDFG) to possess or "take" a listed species. Although the "take" of State-listed plants is prohibited (California Native Plant Protection Act (CNPPA), Chapter 10 § 1908 and CESA, Chapter 1.5 § 2080), State law appears to exempt the taking of such plants via habitat modification or land use changes by the owner. After CDFG notifies a landowner that a State-listed plant grows on his or her property, State law evidently requires that the land owner notify the agency "at least 10 days in advance of changing the land use to allow salvage of such a plant" (CNPPA, Chapter 10 § 1913). California Senate Bill 879, passed in 1997 and effective January 1, 1998, requires individuals to obtain a section 2081(b) permit from CDFG to take a listed species incidental to otherwise lawful activities, and requires that all impacts be fully mitigated and all measures be capable of successful implementation. These new requirements have not been tested and several years will be required to evaluate their effectiveness in protecting species.

The California Environmental Quality Act (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." Species that are eligible for listing as rare, threatened, or endangered but are not so listed are given the same protection as those species that are officially listed by the State or Federal governments. Once significant effects are identified, the lead agency has the option of requiring mitigation for effects through changes in the project or deciding that overriding considerations make mitigation infeasible. In the latter case, projects that cause significant environmental damage, such as destruction of endangered species, may be approved. Protection of listed species through CEQA is therefore dependant upon the discretion of the agency involved. In

addition, CEQA guidelines recently have been revised in ways which, if made final, may weaken protections for threatened, endangered, and other sensitive species.

Brodiaea pallida and *Verbena californica* occur in seeps, springs, and overflow channels, and in intermittent and perennial streams, respectively. Such features may be treated as waters of the United States for regulatory purposes by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. However, the Clean Water Act, alone, does not provide adequate protection for *Brodiaea pallida* and *Verbena californica*. For example, Nationwide Permit (NWP) No. 26 (33 CFR part 330 Appendix B (26)) was established by the Corps to facilitate issuance of permits for discharge of fill into wetlands. Under current regulations, NWPs may be issued for fills up to 1.2 ha (3.0 ac); fills greater than 1.2 ha require an individual permit (61 FR 65916). For project proposals falling under NWP 26, the Corps seldom withholds authorization unless a listed threatened or endangered species' continued existence would be jeopardized by the proposed action, regardless of the significance of other wetland resources. Moreover, for fills less than 0.13 ha (0.3 ac) only an after-the-fact report is required by the Corps. This report must be submitted within 30 days of completion of the work and include only the name, address, and telephone number of the permittee; location and description of the work; and, the type and acreage of the loss (61 FR 65917). Populations of *Verbena californica* and some parts of the single population of *Brodiaea pallida* may occur in wetlands smaller than 0.13 ha (0.3 ac). Although General Condition 11 of the NWP states that "no activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species . . . or which is likely to destroy or modify the critical habitat of such species" (61 FR 65880), the after-the-fact nature of the reporting requirement is inadequate to ensure the protection of populations that occur in areas smaller than the 0.13 ha (0.3 ac) threshold. For *Brodiaea pallida* and *Verbena californica*, the reporting requirement may be inadequate to prevent significant destruction of many individual plants and associated habitats.

E. Other Natural or Manmade Factors Affecting its Continued Existence

Although the public lands in the Red Hills are closed to OHV use, a public loop road was constructed through the

area in 1995, and OHV use continues to threaten populations of *Verbena californica* (P. Stone, pers. comm. 1997b; Patti Wilson, CNPS, *in litt.* 1997; CNDDDB 1997). The BLM continues to issue small numbers of citations for shooting and OHV use in the Red Hills (Steve Martin, BLM, pers. comm. 1997). Trash dumping has also damaged one population of *Verbena californica* on BLM lands in Six Bit Gulch (A. Knox, pers. comm. 1997b).

Small population size increases the susceptibility of a population to extirpation from random demographic, environmental and/or genetic events (Shaffer 1981, 1987; Lande 1988; Meffe and Carroll 1994). *Brodiaea pallida* exists in only a single population comprising 26 ha (65 ac). Population sizes of 100 or fewer are known for at least five populations of *Calyptidium pulchellum* and three populations of *Verbena californica*, and populations sizes of 20 to 200 plants are reported for *Clarkia springvillensis* (CDFG 1990; CNDDDB 1997). Although neither regular nor systematic inventories have been conducted for all populations at every location, populations of these plants have been examined in drought and non-drought years from 1901 for *Calyptidium pulchellum*, 1964 for *Clarkia cvspringvillensis*, and 1942 for *Verbena californica*. Demographic events that may put small populations of *Calyptidium pulchellum*, *Clarkia springvillensis*, and *Verbena californica* at risk involve random fluctuations in survival and reproduction of individuals (Shaffer 1981, 1987; Lande 1988; Meffe and Carroll 1994). These species may also be subject to increased genetic drift and inbreeding as a consequence of their small population sizes (Menges 1991; Ellstrand and Elam 1993). Populations that are continually small in size are particularly susceptible to genetic changes due to drift. However, drift may also cause genetic changes with populations that occasionally fluctuate to small sizes (e.g., undergo population bottlenecks). Increased homozygosity resulting from genetic drift and inbreeding may lead to a loss of fitness (ability of individuals to survive and reproduce) in small populations. In addition, reduced genetic variation in small populations may make any species less able to successfully adapt to future environmental changes (Ellstrand and Elam 1993).

Environmental events that may put small populations at risk include random or unpredictable fluctuations in the physical environment such as fire or flooding (Shaffer 1981, 1987; Primack 1993; Meffe and Carroll 1994). Human-

related activities, such as trash dumping or toxic chemical spills, may be considered random environmental events potentially leading to the extirpation of small populations. Thus, all four species are threatened by potential loss of fitness and/or genetic variability as well as by demographic and environmental events associated with small population sizes. The combination of few populations, small range, and/or restricted habitat makes all four species highly susceptible to extinction or extirpation from a significant portion of their ranges due to random events, such as flood, drought, disease, or other occurrences (Shaffer 1981, 1987, Meffe and Carroll 1994). Such events are not usually a concern until the number of populations or geographic distributions become severely limited, as is the case with the four species discussed here. Once the number of populations or the plant population sizes are reduced, the remnant populations, or portions of populations, have a higher probability of extinction from random events.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these taxa in determining to make this final rule. Urban development has reduced the range of *Brodiaea pallida* and continues to threaten the species. Inadequate regulatory mechanisms, the existence of only one population, and the small range of the species also threaten the existence of the species. Urbanization, small size of populations and small number of populations threaten *Calyptidium puchellum* throughout all or a significant portion of its range. Urbanization, roadway maintenance activities, inadequate regulatory mechanisms, the small range of the species, and heavy livestock grazing threaten *Clarkia springvillensis* throughout all or a significant portion of its range. Urbanization, OHV use, recreational placer gold mining, heavy livestock grazing and trampling, trash dumping, inadequate regulatory mechanisms, and random extirpation from small size and number of populations threaten *Verbena californica* throughout all or a significant portion of its range. The Act defines a threatened species as a species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. An endangered species is any species which is in danger of extinction throughout all or a significant portion of its range. The Service considered other

alternatives to this action, but based on the foregoing evaluation, the Service finds that all four species meet the definition of a threatened species throughout all or a significant portion of their range.

Critical Habitat

Critical habitat is defined in section 3 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 section 4 of 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 consideration or protection and; (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon determination that such areas are essential for the conservation of the species. “Conservation” means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is listed. 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—(1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species. Service regulations also state that critical habitat is not determinable when one or both of the following situations exist—(i) information sufficient to perform required analysis of the impacts is lacking, or (ii) the biological needs of the species are not sufficiently well known to permit identification of an area of (50 CFR 424.12(a)(2)). If the Service finds that it is not determinable, the Service may extend up to one year the designation of critical habitat.

The designation of critical habitat may benefit listed plant species when actions affecting the species are likely to involve a Federal agency. Federal involvement is most likely on two situations—(1) where the species occurs on Federal lands and (2) when a Federal agency is involved in authorizing or funding actions on non-Federal lands (for example, through section 404 of the Clean Water Act or actions involving Federal funding). The designation of

critical habitat may also provide benefit to a species by informing the general public about the species, and by identifying areas critical to species for purposes of recovery planning. Critical habitat designation may also provide information to Federal agencies in the instances when they may have to consult with the Service pursuant to section 7.

Brodiaea pallida

Brodiaea pallida occurs in a single location on private land (CNDDDB 1997). The local County government, present landowner and adjacent landowners are aware of *B. pallida* and its location. The California Commission of Fish and Game held a public hearing regarding the proposal to list *B. pallida* as an endangered species and later designated *B. pallida* an endangered species pursuant to CESA in 1978. In 1985, the CDFG offered an acquisition proposal to the landowners to obtain ownership of the occupied habitat of *B. pallida* but the landowners were not willing to sell to CDFG. Additionally, owing to the Services' extensive efforts of public outreach prior to, during, and after the public hearing to list *B. pallida*, additional public recognition and awareness would not result from designation of critical habitat. The small amount of potential habitat has been surveyed, but no other *B. pallida* sites have ever been identified (B. Rogers, *in litt.* 1997). No historic locations are known (CNDDDB 1997). The Service does not envision any benefits from designating critical habitat for *B. pallida* which is only on private lands. Although a Federal nexus for *B. pallida* may exist through the Clean Water Act because the species occurs in overflow channels, seeps and springs, the designation of critical habitat for this species would provide little or no benefit to the protection of this species beyond that provided by listing and any consultation that may occur in accordance with section 7 of the ESA. Because the area of occupied habitat is very small (i.e., an area 3 to 6 m (10 to 20 ft) wide and 0.8 km (0.5 mi) long), any adverse modification of the occupied habitat would likely jeopardize the continued existence of *B. pallida*. Critical habitat will not assist the Service or the general public in the recovery planning efforts because most interested parties are well informed about the range and distribution of *B. pallida*. Furthermore, the species experts that will be invited to assist the Service in developing a recovery plan for *B. pallida* will not be aided by the Service designating critical habitat. Because no benefits are to be found, the

Service finds that it is not prudent to designate critical habitat for *B. pallida*.

Calyptridium pulchellum

Calyptridium pulchellum is found in seven occurrences; six of these are on private lands and one is on the Sierra National Forest. No other sites containing *C. pulchellum* have been identified, and no historic locations are known (CNDDDB 1997). Given that targeted searches for potential habitat have been conducted, little likelihood exists of finding unknown populations within the range of the species. Owing to the Services' extensive efforts of public outreach prior to, during, and after the public hearing to list *C. pulchellum*, additional public recognition and awareness would not result from the designation of critical habitat.

Moreover, there would be no benefit from the designation of critical habitat for the six locations on private land because *C. pulchellum* does not occur in wetlands regulated under the Clean Water Act and no other Federal actions or authorizations are likely to occur in its habitat. Even if a Federal nexus were identified, because of the small number and size of the *C. pulchellum* occurrences, any activity that would destroy or modify the habitat of the species would also likely jeopardize its continued existence. Four of the seven populations of *C. pulchellum* are from 1 to 5 sq. m (11 to 53 sq ft) in area and two are 0.05 ha (0.125 ac) in area and any disturbances associated with the occupied habitat of any of the six populations are likely to preclude the recovery of the species. The Service envisions no benefits to the species will accrue through the section 7 consultation process by virtue of designating critical habitat. The single population occupying less than 0.4 ha (1 ac) on U.S. Forest Service land has been fenced to protect it from cattle trampling and grazing (CNDDDB 1997). Critical habitat will not assist the Service or the general public in the recovery planning efforts because most all interested parties are well informed about the range and distribution of *C. pulchellum*. Furthermore, the species experts that will be invited to assist the Service in developing a recovery plan for *C. pulchellum* will not be aided by the Service designating critical habitat. Therefore, the Service finds that it is not prudent to designate for *C. pulchellum* due to lack of benefit.

Clarkia springvillensis

Clarkia springvillensis is found in 15 occurrences. Eight of these occurrences are on U.S. Forest Service lands and one

is on BLM lands. The remainder are on non-Federal lands, including private, County, and State lands. Owing to the Services' extensive efforts of public outreach prior to, during, and after the public hearing to list *C. springvillensis*, additional public recognition and awareness would not result from the designation of critical habitat. The only other known *C. springvillensis* population was extirpated by mobile home development in 1983; the species has not been relocated at the site because the habitat for the species is no longer present (CNDDDB 1997). On Federal lands, modification of occupied habitat is unlikely to occur without consultation under section 7 of the Act because the presence of *C. springvillensis*, and its specific locations, are well known to the managers of the Sierra National Forest (Dale Pengilly, District Ranger, Sierra National Forest, *in litt.* 1996) and to the managers of the BLM lands where the species occurs (Susan Carter, BLM, *in litt.* 1995). The Sierra National Forest has written a species management guide for populations of *C. springvillensis* that occur on Federal lands. Likewise, the Bakersfield BLM office is aware of the single population of *C. springvillensis* which occurs on Federal land administered by that agency. On March 31, 1997, the Service completed formal consultation and formal conference and issued a 79-page biological opinion on the Caliente Resource Area Management Plan (CRMP). The CRMP covered many current and proposed land use actions, including those in Tulare County, which may affect *C. springvillensis*.

C. springvillensis does not occur in wetlands regulated under the Clean Water Act and no other Federal actions are likely to occur in its habitat on those sites located on non-Federal lands. Designation of critical habitat on Federal lands would provide no benefit to the species beyond listing because any action which would destroy or adversely modify the habitat of the remaining populations of this species would also likely jeopardize its continued existence. This is especially the case with such an edaphically (pertaining to soil) and narrowly restricted species as *C. springvillensis* because four populations have less than 300 plants and four others have less than 1,000 plants. Common actions such as logging, road building, and home construction would easily destroy populations of *C. springvillensis* and any adverse modification of *C. springvillensis* habitat would reduce appreciably the likelihood of the survival and recovery of *C.*

springvillensis. Critical habitat will not assist the Service or the general public in the recovery planning efforts because interested parties are well informed about the range and distribution of *C. springvillensis*. Furthermore, the species experts that will be invited to assist the Service in developing a recovery plan for *C. springvillensis* will not be aided by the Service designating critical habitat. Therefore, because there is no benefit in designating critical habitat, the Service finds that it is not prudent to designate critical habitat for *C. springvillensis*.

Verbena californica

Verbena californica occurs in nine locations. Four of the locations are wholly on BLM lands, and two are partially on BLM lands. Owing to the Services' extensive efforts of public outreach prior to, during, and after the public hearing to list *V. californica*, additional public recognition and awareness would not result from the designation of critical habitat. Additionally, as a part of the outreach prior to the State of California Fish and Game Commission (SCFGC) listing *V. californica* as threatened, the CDFG notified private landowners who had populations of *V. californica* in 1992. Furthermore, the SCFGC held a public hearing to take testimony regarding the proposed designation. As a consequence of the State hearing, the CDFG was directed to conduct additional public outreach with landowners within Tuolumne County. The Tuolumne County Planning Department has detailed maps showing the southwest trending stream channels and the distribution of *V. californica*. Despite the public education and awareness program for *V. californica* ongoing since 1992, destruction of parts of one population occurred in 1997.

Although six of nine known locations are entirely or partially on BLM lands, BLM lands contain only 15 percent of *V. californica* plants. On Federal lands, no modification of occupied habitat is likely to occur without consultation under section 7 of the Act because the presence of *V. californica*, and its specific locations are well known to the managers of these BLM lands (A. Knox, pers. comm., 1997a). BLM installed, but has not maintained, fencing to exclude cattle from riparian areas in the Andrews Creek drainage that support *V. californica* (Franklin 1996; Al Franklin, BLM, pers. comm., 1997). Eighty-five percent of *V. californica* plants are on private lands. Despite repeated searches for additional locations of *V. californica*, no other sites containing *V. californica*

have been identified, and no historic locations are known (CNDDDB 1997).

On private lands, a Federal nexus for *Verbena californica* may occur through the Clean Water Act because the species is found in a small series of southwest trending intermittent and perennial serpentic stream channels within three small watersheds. Although a Federal nexus for *V. californica* may exist through the Clean Water Act, the designation of critical habitat for *V. californica* would provide little or no benefit to the protection of this species beyond that provided by listing and any consultation that may occur in accordance with section 7 of the Act.

Designation of critical habitat for *V. californica* would provide little benefit to the species beyond listing because any action which would destroy or adversely modify the habitat of the remaining populations of this species would also likely jeopardize its continued existence. The rationale for this overlap is found in the basis of the edaphic restriction to serpentine substrates, the small size of some populations, and the small number of plants in many of the populations. *Verbena californica* has four populations that contain fewer than 250 individual plants covering an estimated 1.4 ha (4 ac). Any common actions such as construction of dikes, detention dams, stream crossings, or bridges could very easily and completely destroy any of these smaller populations of *V. californica*. Likewise, any adverse modification of *V. californica* habitat would seriously and easily reduce the likelihood of survival and recovery of *V. californica*. The Service finds that the designation of critical habitat for *V. californica* is not prudent due to lack of benefit.

For the reasons discussed above, the Service finds that the designation of critical habitat for the four plants in this final rule is not prudent due to lack of benefit. Protection of the habitat of these species will be addressed through the section 4 recovery process and the section 7 consultation process. The Service believes that Federal involvement in the areas where these plants occur can be identified without the designation of critical habitat because the resource staffs of the BLM, Bureau of Reclamation, and national forests already have working knowledge of the locations of occupied habitats of the species and have undertaken targeted inventories of potential habitat since the publication of the proposed rule.

Available Conservation Measures

Conservation measures provided to species listed as threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the State and requires that recovery actions be carried out for all listed species. 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, as amended, 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)(1) requires Federal agencies to use their authorities to further the purposes of the Act by carrying out programs for listed species. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Listing these four plants would provide for development of a recovery plan (or plans) for them. Such plans would bring together both State and Federal efforts for conservation of the plants. The plans would establish a framework for agencies, local government, and private interests to coordinate activities and cooperate with each other in conservation efforts. The plans would set recovery priorities and estimate costs of various tasks necessary to accomplish them. It also would describe site-specific management actions necessary to achieve conservation and survival of these four plants. Additionally, pursuant to section 6 of the Act, the Service would be able to grant funds to affected States for management actions promoting the protection and recovery of these species.

Federal activities potentially affecting one or more of the four plants include mining, grazing authorizations, and issuance of special use permits and rights-of-ways. Populations of three of

the four plants occur on Federal lands. Approximately half the occurrences of *Clarkia springvillensis* and one population of *Calyptidium pulchellum* occur on lands managed by the U.S. Forest Service. One population of *Clarkia springvillensis* occurs on lands managed by the BLM. Approximately two-thirds of the occurrences (representing 15 percent of the plants) of *Verbena californica* occur on lands managed by the BLM. These agencies would be required to consult with the Service if any activities authorized, funded, or carried out by these two agencies may affect these species. For example, consultations with the BLM and U.S. Forest Service may be required on road maintenance, livestock grazing authorizations, and right-of-way authorizations for projects that include adjacent or intermixed private land.

Other Federal agencies that may become involved as a result of this rule include the Federal Highways Administration and the Corps. Because at least two of these plants exist in or near seeps, springs, stream beds, perennial streams or drainages, the Corps may become involved through jurisdiction of section 404 of the Clean Water Act. In addition, when the Service issues permits for habitat conservation plans (HCPs) prepared by non-Federal parties, the Service must prepare an intra-Service section 7 biological opinion on the issuance of the 10(a) permit.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all threatened plants. All prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.71 for 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 any of the plants, transport them in interstate or foreign commerce in the course of a commercial activity; sell or offer them for sale in interstate or foreign commerce; or remove and reduce any of the plants to possession, or maliciously damage or destroy threatened plants from areas under Federal jurisdiction. Seeds from cultivated specimens of threatened plant taxa are exempt from these prohibitions provided that a statement "Of Cultivated Origin" appears on the shipping containers. Certain exceptions to the prohibitions apply to agents of the Service and State conservation agencies.

It is the policy of the Service (59 FR 34272) to identify to the maximum extent practicable at the time a species is listed those activities that would or would not constitute a violation of

section 9 of the Act. The intent of this policy is to increase public awareness of the effect of the listing on proposed and ongoing activities within a species' range. Two of the four species in this rule are known to occur on U.S. Forest Service lands, and two are known to occur on BLM lands. 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 line crossing suitable habitat.) when such activity is conducted in accordance with any reasonable and prudent measures given by the Service according to 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;

(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. Questions regarding whether specific activities will constitute a violation of section 9 should be directed to the Field Supervisor of the Service's Sacramento Fish and Wildlife Office (see ADDRESSES section).

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. For threatened plants, permits are also available for botanical or horticultural exhibition, educational purposes, or special purposes consistent with the purposes of the Act. The Service anticipates that few permits would ever be sought or issued for the four species because they are typically not sought for cultivation and are uncommon in the wild. Requests for copies of the regulations on listed plants and inquiries regarding them may be addressed to U.S. Fish and Wildlife Service, Ecological Services, Endangered Species Permits, 911 NE 11th Avenue, Portland, Oregon 97232-4181; telephone 503/231-2063 or FAX 503/231-6243).

National Environmental Policy Act

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

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 is available upon request from the Sacramento Fish and Wildlife Office (see ADDRESSES section).

Authors. The authors of this final rule are Maria Boroja, Diane Elam, Ken Fuller, and Dwight Harvey, Sacramento Fish and Wildlife Office (see ADDRESSES section); telephone (916) 979-2125.

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	Special rules
Scientific name	Common name					
* FLOWERING PLANTS	* FLOWERING PLANTS	* FLOWERING PLANTS	* FLOWERING PLANTS	* FLOWERING PLANTS	* FLOWERING PLANTS	* FLOWERING PLANTS
* <i>Brodiaea pallida</i>	* Chinese Camp brodiaea	* U.S.A. (CA)	* Liliaceae—Lily	* T	* 643	* NA

Species		Historic range	Family	Status	When listed	Special rules
Scientific name	Common name					
* <i>Clarkia springvillensis</i>	* Springville clarkia	* U.S.A. (CA)	* Onagraceae—Evening primrose.	* T	* 643	* NA
* <i>Calyptidium pulchellum</i>	* Mariposa pussypaws	* U.S.A. (CA)	* Portulacaceae-Purslane	* T	* 643	* NA
* <i>Verbena californica</i>	* Red Hills vervain	* U.S.A. (CA)	* Verbenaceae-Vervain ...	* T	* 643	* NA
*	*	*	*	*	*	*

Dated: September 1, 1998.

Jamie Rappaport Clark,

Director, Fish and Wildlife Service.

[FR Doc. 98-24500 Filed 9-11-98; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 227

[Docket No. 980811214-8214-01; I.D. 052493B]

Endangered and Threatened Species; Threatened Status for Johnson's Seagrass

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: NMFS is issuing a final rule determining Johnson's seagrass (*Halophila johnsonii*) to be a threatened species pursuant to the Endangered Species Act (ESA) of 1973, as amended, which means it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Johnson's seagrass is rare and exhibits one of the most limited geographic distributions of any seagrass. Within its limited range (lagoons on the east coast of Florida from Sebastian Inlet to central Biscayne Bay), it is one of the least abundant species. Because of its limited reproductive capacity (apparently only asexual) and limited energy storage capacity (small root-rhizome structure and high biomass turnover), it is less likely to be able to repopulate an area when lost due to anthropogenic or natural disturbances. NMFS will soon issue protective regulations under section 4(d) of the ESA for this species.

DATES: Effective October 14, 1998.

ADDRESSES: Colleen Coogan, NMFS, Southeast Region, Protected Resources Division, 9721 Executive Center Drive, St. Petersburg, FL 33702-2432; Angela Somma, NMFS, Office of Protected Resources, 1315 East-West Highway, Silver Spring, MD 20910.

FOR FURTHER INFORMATION CONTACT: Colleen Coogan, Southeast Region, NMFS, (727) 570-5312, or Angela Somma, Office of Protected Resources, NMFS, (301) 713-1401.

SUPPLEMENTARY INFORMATION:

Background

NMFS published a proposed rule to list Johnson's seagrass as a threatened species on September 15, 1993 (58 FR 48326). Designation of critical habitat was proposed on August 4, 1994 (59 FR 39716). A public hearing on both the proposed listing and critical habitat designation was held in Vero Beach, Florida, on September 20, 1994. NMFS reopened the comment period for the proposed listing on April 20, 1998 (63 FR 19468).

The information forming the basis for NMFS' 1993 proposal has been peer reviewed, and new information confirms NMFS' conclusions regarding the threatened status of Johnson's seagrass. As stated in the notice reopening the comment period, the additional information supplements available data on the status and distribution of Johnson's seagrass. In order to update the original status report (Kenworthy, 1993) and to include information from new field and laboratory research on species distribution, ecology, genetics and phylogeny, NMFS convened a workshop on the biology, distribution, and abundance of *H. johnsonii*. The results of this workshop, held in St. Petersburg, Florida, in November 1996, were summarized in the workshop proceedings (Kenworthy, 1997) submitted to NMFS on October 15, 1997. The notice reopening the comment period contains a summary of

the workshop proceedings (63 FR 19468). This final rule contains a brief description of those workshop proceedings, and updates the research findings and analysis since NMFS' 1993 proposal.

Updated Status Report

The biology of Johnson's seagrass is discussed in the proposed rule to list the species as threatened (58 FR 48326, September 15, 1993). The proposed rule includes information on the status of the species, its life history characteristics, and habitat requirements. Johnson's seagrass is one of twelve species of the genus *Halophila*. *Halophila* species are distinguished morphologically from other seagrasses in their possession of either a pair of stalked leaves without scales or a pseudo whorl of leaves. Identifying characteristics of *H. johnsonii* include smooth foliage leaves in pairs 10-20 mm long, a creeping rhizome stem, sessile (attached to their bases) flowers, and longnecked fruits. Most *Halophila* species are reduced in size, more shallow rooted, and have two to three orders of magnitude less biomass per unit area compared to all other seagrasses. The most outstanding difference between *H. johnsonii* and other species is its distinct differences in sexual reproductive characteristics. While *H. decipiens* is monoecious (has both female and male flowers on the same plant) and successfully reproduces and propagates by seed, *H. johnsonii* is dioecious (has flowers of a single sex on the same plant). However, the male flower has never been described either in the field or in laboratory culture. The absence of male flowers supports the hypothesis that sexual reproduction is absent in this species, and propagation must be exclusively vegetative. After periods of unfavorable environmental conditions of growth and vegetative branching, the regrowth and reestablishment of surviving populations of Johnson's seagrass would be significantly more difficult than for species with a sexual life history.