DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AE59

Endangered and Threatened Wildlife and Plants; Final Rule To List the San Bernardino Kangaroo Rat as Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) determines the San Bernardino kangaroo rat (*Dipodomys merriami parvus*) to be an endangered species pursuant to the Endangered Species Act of 1973, as amended (Act). This subspecies now occurs primarily in alluvial scrub habitats with appropriate vegetative cover and substrate composition. The historical range of the San Bernardino kangaroo rat has been reduced by approximately 95 percent due to agricultural, urban, and industrial development. Threats to all of the remaining populations of the San Bernardino kangaroo rat include habitat loss, destruction, degradation, and fragmentation due to sand and gravel mining operations, flood control projects, urban development, off-highway vehicle (OHV) use, or some combination of these. In addition, the three largest remaining populations of this subspecies are endangered due to their small size, and habitat loss caused by changes in the natural stream flow regime, including seasonal flooding and associated modification of plant succession patterns. This action continues protection for the San Bernardino kangaroo rat, which was effective for a 240-day period beginning when this species was emergency listed on January 27, 1998.

DATES: This rule is effective on September 24, 1998.

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

FOR FURTHER INFORMATION CONTACT: Ken S. Berg, Field Supervisor, at the above address (telephone 760/431–9440).

SUPPLEMENTARY INFORMATION:

Background

The San Bernardino kangaroo rat (*Dipodomys merriami parvus*) is one of 19 recognized subspecies of Merriam's kangaroo rat (*D. merriami*), a widespread species distributed throughout arid regions of the western United States and northwestern Mexico (Hall 1981, Williams *et al.* 1993). In coastal southern California, *D. merriami* is the only species of kangaroo rat with four toes on both of its hind feet. The San Bernardino kangaroo rat has a body length of about 95 millimeters (mm) (3.7 inches (in)) and a total length of 230 to 235 mm (9 to 9.3 in). The hind foot measures less than 36 mm (1.4 in) in length. The body color is weakly ochraceous (yellow) with a heavy overwash of dusky brown. The tail stripes are medium to dark brown and the foot pads and tail hairs are dark brown. The flanks and cheeks of the subspecies are dusky (Lidicker 1960). The San Bernardino kangaroo rat is considerably darker and much smaller than either of the other two subspecies of Merriam's kangaroo rat in southern California, *D. merriami merriami* and *D. merriami collinus*. Lidicker (1960) noted that the San Bernardino kangaroo rat is one of the most highly differentiated subspecies of *D. merriami* and that ''it seems likely that it has achieved nearly species rank.'' This differentiation is likely due to its apparent isolation from other members of *D. merriami*.

The San Bernardino kangaroo rat, a member of the family Heteromyidae, was first described by Rhoades in 1894 under the name *Dipodomys parvus* from specimens collected by R.B. Herron in Reche Canyon, San Bernardino County, California (Hall 1981). Elliot reduced *D. parvus* to a subspecies of *D. merriami* (*D. merriami parvus*) in 1901. Hall (1981) and Williams *et al.* (1993) have confirmed this taxonomic treatment of the species.

The San Bernardino kangaroo rat appears to be separated from Merriam's kangaroo rat (*D. merriami merriami*) at the northernmost extent of its range near Cajon Pass by a 8 to 13 kilometer (km) (5 to 8 mile (mi)) gap of unsuitable habitat. The San Bernardino kangaroo rat may have in the distant past also intergraded with *D. merriami collinus* to the south in the vicinity of Menifee in Riverside County (Lidicker 1960, Hall 1981).

The historical range of this subspecies extends from the San Bernardino Valley in San Bernardino County to the Menifee Valley in Riverside County (Lidicker 1960, Hall 1981). Within this range, the San Bernardino kangaroo rat was known from over 25 localities (McKernan 1993). From the early 1880's to the early 1930's, the San Bernardino kangaroo rat was a common resident of the San Bernardino and San Jacinto valleys of southern California (Lidicker 1960).

In most heteromyids, soil texture is a primary factor in determining species' distributions (Brown and Harney 1993). San Bernardino kangaroo rats are found primarily on sandy loam substrates, characteristic of alluvial fans and flood plains, where they are able to dig simple, shallow burrows (McKernan 1997). Based on the distribution of suitable (i.e., sandy) soils and the historical collections of this subspecies, the historical range is thought to have encompassed an area of approximately 130,587 hectares (ha) (326,467 acres (ac)) (Service unpub. GIS maps, 1998). Although the entire area of the historical range would not have been occupied due to variability in vegetation and soils, the San Bernardino kangaroo rat was apparently widely distributed across this area. By the 1930's, the habitat had been reduced to approximately 11,200 ha (28,000 ac) (McKernan 1997).

In 1997, the San Bernardino kangaroo rat was known to occupy approximately 1,299 ha (3,247 ac) of suitable habitat divided unequally among seven locations, which are widely separated from one another (McKernan 1997). Four of these locations (City Creek (8 ha (20 ac)), Etiwanda (2 ha (5 ac)), Reche Canyon (2 ha (5 ac)), and South Bloomington (0.8 ha (2 ac))) support only small, remnant populations (McKernan 1997). The remaining three locations (the Santa Ana River (690 ha (1,725 ac)), Lytle and Cajon washes (456 ha (1,140 ac)), and San Jacinto River (140 ha (350 ac))) contain the largest extant concentrations of kangaroo rats and blocks of suitable habitat (McKernan 1997, Service unpub. GIS maps 1998).

Based on further review of available information, the Santa Ana River, Lytle and Cajon washes, and the San Jacinto River are estimated to have additional habitat that is likely occupied, at least in part, by the San Bernardino kangaroo rat (Service unpub. GIS maps, 1998). Based on this review, the Santa Ana River contains approximately 2,090 ha (5,224 ac) of which approximately 545 ha (1,363 ac) have too much cover or are otherwise degraded (e.g., percolation ponds). Lytle and Cajon washes have approximately 2,787 ha (6,967 ac) of which approximately 722 ha (1,806 ac) have too much cover or are otherwise degraded (e.g., shielded from flood events). The San Jacinto River has approximately 401 ha (1,002 ac) of which approximately 91 ha (227 ac) have too much cover or are otherwise degraded (e.g., too frequent of flows).

The three largest remaining blocks of suitable habitat (i.e., Santa Ana River, Lytle/Cajon creeks, and San Jacinto River) (Fish and Wildlife Service unpub. GIS maps, 1998; McKernan 1997) are distributed across a mosaic of approximately 5,277 ha (13,193 ac) of typically suitable, alluvial soils dominated by sage scrub and chaparral. Approximately 1,358 ha (3,396 ac) of this area has a vegetation that is more mature than the open, early successional habitat structure required by the San Bernardino kangaroo rat, or is otherwise degraded. Therefore, only about 3,919 ha (9,797 ac) of these areas appear to be suitable for this subspecies at this time. The Service considers this suitable habitat to be occupied given the San Bernardino kangaroo rat's affinity for sandy soils and low vegetative cover (McKernan 1997).

Existing and proposed hydrological modifications to the river systems eliminate habitat renewal and obstruct population recovery over these highly fragmented wash habitats (Hanes *et al.* 1989, McKernan 1997). Based on information concerning future flows in the Santa Ana River (U.S. Army Corps of Engineers (Corps) 1988), a minimum of 80 percent (i.e., 1,672 ha (4,179 ac)) of the alluvial scrub (2,090 ha (5224 ac)) is now shielded from fluvial renewal. Based on more recent information (Corps 1998), approximately 90 percent (1,881 ha (4,702 ac)) of this area is at risk due to projected changes in the hydrology of this area. Thus, of the remaining habitat, only about 3,396 ha (8,491) are ever likely to be subject to frequent (i.e., 50–100-year event) fluvial renewal. The balance of the residual habitat would require a catastrophic flood (i.e., greater than 100-year event), or intensive management, to maintain a possibility of persistence. Conversely, large-scale flooding also poses a threat to populations of San Bernardino kangaroo rats that are almost entirely confined to fluvial systems (e.g., San Jacinto River).

The San Bernardino kangaroo rat is now primarily associated with a variety of sage scrub vegetation, where the common elements are the presence of sandy soils and relatively open vegetation structure (McKernan 1997). Where the San Bernardino kangaroo rat occurs in alluvial scrub, the subspecies reaches its highest densities in early and intermediate seral stages (McKernan 1997). Alluvial scrub includes elements from chaparral, coastal sage, and desert communities. Three successional phases of alluvial scrub have been described: pioneer, intermediate, and mature alluvial scrub. The distribution of these phases is influenced by elevation, distance from the main channels, and the time since previous flooding (Smith 1980, Hanes *et al.* 1989). Vegetation cover generally increases with distance from the active stream channel. The pioneer, or youngest phase, is subject to frequent disturbance, and vegetation is usually renewed by annual floods (Smith 1980, Hanes *et al.* 1989). The intermediate phase, defined as the area between the active channel and mature terraces, is subject to periodic flooding at longer intervals. The vegetation on intermediate terraces is relatively open, and supports the highest densities of the San Bernardino kangaroo rat. The mature phase is rarely affected by flooding and supports the highest plant cover (Smith 1980). Flood events break out of the main river channel in a complex pattern, resulting in a braided appearance to the flood plain. This dynamic nature to the habitat leads to a situation where not all the alluvial scrub habitat is suitable for the kangaroo rat at any point in time. The San Bernardino kangaroo rat, like other subspecies of Merriam's kangaroo rat, prefers open habitats characterized by low shrub canopy cover (mostly 7 to 22 percent) and rarely occurs in dense vegetation (McKernan 1997). The older seral stages of the flood plain vegetation are generally less suitable for this subspecies.

The range of the San Bernardino kangaroo rat partially overlaps the distribution of the Stephens' kangaroo rat (*Dipodomys stephensi*) and its range is entirely overlapped by the Pacific kangaroo rat (*D. simulans*). Where these species occur in proximity, they are usually concentrated in different areas. The Stephens' kangaroo rat typically is associated with open, arid, grassland associations (Lackey 1967, O'Farrell *et al.* 1986, O'Farrell and Uptain 1987, O'Farrell 1990), and occurs on a variety of soil types. In contrast, the Pacific kangaroo rat typically inhabits areas possessing greater shrub cover. All three of these subspecies can be distinguished from one another based on morphological characters.

Home ranges for the Merriam's kangaroo rat average 0.33 ha (0.8 ac) for males and 0.31 ha (0.8 ac) for females (Behrends *et al.* 1986). Long sallies (bursting movements) of 100 meters (m) (328 feet (ft)) or more beyond these ranges are not uncommon. Although outlying areas of their home ranges may overlap, adults actively defend small core areas near their burrows (Jones 1993). Home range overlap between males and between males and females is extensive, but female-female overlap is slight (Jones 1993). McKernan (1993) found pregnant San Bernardino kangaroo rats from February through October, and immature individuals from April through September. Some females may produce more than one litter per year. Litter size averages between two and three young (Eisenberg 1993).

Similar to other kangaroo rats, the San Bernardino kangaroo rat is primarily granivorous and often stores large quantities of seeds in surface caches (Reichman and Price 1993). Green vegetation and insects are also important seasonal food sources. Insects, when available, have been documented to constitute as much as 50 percent of a kangaroo rat's diet (Reichman and Price 1993). Females are known to increase ingestion of foods with higher water content during lactation, presumably to compensate for the increased water loss associated with milk production (Reichman and Price 1993). *Dipodomys merriami* are known for their ability to live indefinitely without water on a diet consisting entirely of dry seeds (Reichman and Price 1993).

Previous Federal Action

The San Bernardino kangaroo rat was designated by the Service as a category 2 candidate species for Federal listing as endangered or threatened in 1991 (56 FR 58804). Category 2 comprised taxa for which information in the possession of the Service indicated that proposing to list as endangered or threatened was possibly appropriate, but for which data on biological vulnerability and threat(s) were not available to support a proposed rule. Based on a review of status and distribution of the San Bernardino kangaroo rat, the subspecies was upgraded to a category 1 candidate for listing in 1994 (59 FR 58982). Category 1 candidate species were those species for which the Service had sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species. Upon publication of the February 28, 1996, Notice of Review (61 FR 7596), the Service ceased using category designations and included the San Bernardino kangaroo rat as a candidate species. The San Bernardino kangaroo rat was retained as a candidate species in the September 19, 1997, Notice of Review (62 FR 49401). The San Bernardino kangaroo rat was emergency listed as endangered on January 27, 1998; concurrently, a proposal to make provisions of the emergency listing permanent also was published (63 FR 3837 and 63 FR 3877).

The processing of this final rule conforms with the Service's final listing priority guidance published in the **Federal Register** on May 8, 1998 (63 FR

25502). The guidance clarifies the order in which the Service will process rulemakings. The guidance calls for giving highest priority to handling emergency situations (Tier 1). Second priority (Tier 2) is given to processing final determinations on proposed additions to the lists of endangered and threatened wildlife and plants; the processing of new proposals to add species to the lists; the processing of administrative petition findings to add species to the lists, delist species, or reclassification of listed species (per petitions filed under section 4 of the Act); and a limited number of delisting and reclassifying actions. Processing of proposed or final designations of critical habitat are accorded the lowest priority (Tier 3). This final rule constitutes a Tier 2 action.

Summary of Comments and Recommendations

In the proposed rule (63 FR 3877), all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule for the San Bernardino kangaroo rat. Appropriate State agencies, County governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. Legal notices were published in the *Riverside Press Enterprise* and the *San Bernardino Sun* on February 5, 1998, and invited general public comment on the proposal. In anticipation of public interest, the Service conducted a public hearing consisting of two sessions on March 3, 1998 in San Bernardino, California.

During the 3-month comment period, including the public hearing, the Service received a total of 56 comments (multiple comments from the same party on the same date were regarded as one comment). Of these comments, 29 (51 percent) supported the listing, 14 (24.5 percent) opposed the listing, and 14 (24.5 percent) were noncommittal.

The Service reviewed all of the comments (i.e., written and oral testimony) referenced above. The comments were grouped and are discussed under the following issue headings. In addition, all biological and commercial information obtained through the public comment period has been considered and incorporated, as appropriate, into the final rule.

Issue 1: Several commenters requested that the population of San Bernardino kangaroo rats on the Santa Ana River not be listed as an endangered species. One of these commenters recommended that the animal be listed as threatened with a special rule pursuant to section 4(d) of the Act.

Service Response: Threatened status would not accurately reflect the current threats to or status of the subspecies as a whole or of the subpopulation remaining along the Santa Ana River (See ''Status and Distribution'' and ''Summary of Factors Affecting the Species'' sections of this rule and the summary conclusion below for further discussion of this issue). In addition, sections 10 and 7 of the Act provide flexibility for project approval and the incidental take of endangered species under certain conditions (e.g., when the proposed action is not likely to jeopardize the species' continued existence).

Issue 2: Several of the commenters contended that the San Bernardino kangaroo rat should not be listed as an endangered species because the threats facing the kangaroo rat were overstated in the proposed rule.

Service Response: The San Bernardino kangaroo rat's historic range has been reduced by approximately 95 percent due to agriculture, urban, and industrial development. In addition, all of the remaining populations are at risk due to either habitat loss, degradation, and fragmentation from sand and gravel mining operations; flood control projects; urban development; OHV activity; or a combination of these factors. Moreover, the three largest remaining populations are threatened by their small size and habitat changes caused by human modification of the fluvial system.

Issue 3: Several commenters stated that the threat posed by vandalism or grading of habitat, which was cited in the emergency rule as justification for the immediate listing of the San Bernardino kangaroo rat, was overstated.

Service Response: At the time the Service published the emergency and proposed rules, the Service believed that publication of a proposed listing alone likely would ''elicit preemptive grading.'' The Service's reason for this conclusion was detailed in the emergency rule in the Reason for Emergency Determination section (63 FR 3840). Since publication of the emergency rule, habitat destruction has been prevented, and lands inhabited by the San Bernardino kangaroo rat are protected under the emergency listing provision of the Act. The area once threatened by vandalism or grading has not been damaged. However, the San Bernardino kangaroo rat remains vulnerable to vandalism should negative public perceptions and attitudes reappear because of the final listing action. (see the ''Summary of Factors Affecting the Species'' and ''Critical Habitat'' sections of this rule for a more thorough discussion of threats). The Service must consider even verbal threats of habitat destruction and/or vandalism when conserving critically imperilled species, and must act on such threats.

Issue 4: Several of the commenters stated that inadequate information was used to propose the animal as an endangered species. In addition, they felt the Service relied too heavily on the report prepared by McKernan (1997) in drafting the proposed rule.

Service Response: The Service is required to base listing decisions on the best available scientific and commercial information. In this regard, the Service reviewed information from the scientific literature, and commercial information (e.g., California Environmental Quality Act (CEQA) documents), as well as McKernan (1997). Based on this information, the Service concludes that the San Bernardino kangaroo rat is in danger of extinction throughout a significant portion of its range. In addition, no new information was submitted during the public comment period, or at the public hearing, that indicated other viable populations of this animal existed or that the remaining populations were not at risk. The Service is unaware of any data that would lead to a conclusion that the San Bernardino kangaroo rat does not warrant listing under the Act.

Issue 5: Several of the commenters stated that due to errors in the technical descriptions of San Bernardino kangaroo rat locations (e.g., township and range) contained in McKernan (1997), the report could not be relied upon in assessing threats to the San Bernardino kangaroo rat. In addition, these commenters recommended that the technical errors be corrected prior to the Service making a final determination on whether or not to list the San Bernardino kangaroo rat as endangered.

Service Response: Although some errors exist in the technical descriptions regarding the locations of the San Bernardino kangaroo rat under the ''Results and Discussion'' section of McKernan (1997), the Service did not rely on the township and range information contained in this report for determining the distribution of the San Bernardino kangaroo rat. In addition, the Service disregarded township and range information in assessing threats to the animal's continued existence. The distribution of this species, at a landscape scale, has been reduced significantly and the remaining

populations are at risk due to a variety of factors (see sections on ''Status and Distribution'' and ''Summary of Factors Affecting the Species'' for further discussion of this issue). Therefore, it is inappropriate to delay listing of this subspecies as endangered to correct transcription errors in McKernan (1997).

Issue 6: One commenter stated that the Service had misrepresented the decline of the San Bernardino kangaroo rat by assuming that all habitat within the historic range of the species was occupied.

Service Response: As stated in the proposed rule, only portions of the historic range would have been occupied at any one time due to variability in the distribution of vegetation and soils. In fact, an effort was made to more accurately portray the decline by not mapping, or excluding from the analysis, some areas which could have been occupied, but were unavailable because of soil unsuitability or lack of connectivity to known occupied locales.

Issue 7: Several commenters contended that the continuing presence of the San Bernardino kangaroo rat within channelized portions of the San Jacinto River contradicts the Service's conclusion that channelization of these areas is harmful to the persistence of the animal.

Service Response: The presence of the San Bernardino kangaroo rat in channelized areas does not necessarily indicate that channelization does not have detrimental effects on the kangaroo rat's habitat. Channelization has opened flood plain habitats to agricultural, urban, and industrial development. In addition, channelization of flood plains into narrow, monotypic channels has removed the physical structure (i.e., terracing) of the active flood plain and areas of refugia. Based on the current distribution, the San Bernardino kangaroo rat occupied flood plain habitats as well as adjacent upland habitats containing appropriate physical and vegetative characteristics. Therefore, animals would have been available from upper tiers of the flood plain as well as adjacent uplands to recolonize habitat that was flooded and scoured during storm event(s). These refugia are no longer available, or have been severely reduced because these areas have been converted into agricultural fields, residential sites, and industrial developments. Therefore, the remaining population of San Bernardino kangaroo rats within the channelized portions of the San Jacinto River is at risk due to flooding because of the subspecies' confinement to the active flood plain.

Issue 8: Several commenters stated concern for maintaining the ability to protect life and property if the San Bernardino kangaroo rat was listed. In addition, these commenters were concerned that the listing of the animal would prevent or seriously impare abilities to operate and maintain current facilities and would hamper future development.

Service Response: Listing of the San Bernardino kangaroo rat as an endangered species will not prevent the protection of human life or property. In the event of an emergency, the implementing regulations of section 9 of the Act provide that, ''any person may take endangered wildlife in defense of his own life or the lives of others.'' In addition, the operation and maintenance of current facilities, and the construction of future facilities, where there are conflicts with the conservation of endangered species, can be addressed pursuant to section 7 or 10 of the Act, as appropriate. For example, the construction of Seven Oaks Dam, which was likely to adversely affect the Santa Ana River wooly-star, a Federal endangered species, was allowed to proceed in compliance with section 7 of the Act.

Issue 9: One commenter disagreed with the Service's estimation concerning the area shielded from scouring events due to the operation of Seven Oaks Dam, and stated that the Service had overstated the threat.

Service Response: The Service based its estimation of the future extent of scouring on information generated by the Corps. According to this information, 100-year flows from the Santa Ana River would be reduced to approximately 5,000 cubic feet per second (cfs) (approximately equivalent to a 4-year rain event) below the dam and through the habitat of the San Bernardino kangaroo rat. Therefore, the majority of alluvial scrub, once subject to flood flows during 11-year events from the Santa Ana River, will be shielded. On this basis, the estimate of the flood plain at risk (80 percent) was considered conservative. However, based on more recent information (Corps 1998), approximately 90 percent of the flood plain is at risk due to projected changes in the hydrology of the Santa Ana River.

Issue 10: One commenter asserted that the listing of the San Bernardino kangaroo rat was unnecessary due to the overlap in its distribution with Santa Ana River wooly-star (*Eriastrum densifolium* ssp. *sanctorum*) and slender-horned spineflower (*Dodecahema leptoceras*).

Service Response: The partial overlap in distribution of the San Bernardino kangaroo rat with Santa Ana River wooly-star and slender-horned spineflower inadequately protects this animal because of differences in spatial and temporal distributions of these species. The prohibition for ''take'' under section 9 of the Act applies to wildlife and does not protect plants from ''take'' on non-Federal lands. In addition, due to changes in hydrology and the anthropogenic confinement of the San Bernardino kangaroo rat to the active flood plain, the concurrent distribution of the kangaroo rat with the two listed plant species does not alleviate the threat facing this species due to flooding and inundation of occupied habitat.

Issue 11: Several commenters suggested it was unlikely that Federal listing of this population would result in protection beyond that already provided by the California Environmental Quality Act (CEQA). One of these commenters stated that CEQA already provided adequate protection.

Service Response: Urban development and associated direct and indirect effects, pose the most significant threat to threatened and endangered species in California. Though such development is subject to review under CEQA, CEQA alone does not adequately protect and conserve species because the impacts of proposed projects are often not recognized, overridden, or inadequately mitigated in the process (for a more thorough discussion of this issue, see factors A and D). Federal listing of the San Bernardino kangaroo rat will complement the protection options available under State law through measures discussed in the ''Available Conservation Measures'' section. The Service will use established procedures to evaluate management actions necessary to achieve recovery of the species and thereby avoid any undue implementation delays. In addition, Federal listing would provide additional resources for the conservation of the species through sections 6 and 8 of the Act.

Issue 12: Several commenters stated that listing of the San Bernardino kangaroo rat was unnecessary because effective voluntary efforts exist for safeguarding this subspecies at no public cost.

Service Response: Voluntary efforts are important to conservation of the San Bernardino kangaroo rat. To date however, these efforts have not stabilized or reversed the destruction and degradation of habitat essential to this subspecies' survival throughout its range. The effects of activities, such as

sand and gravel mining, flood control activities, agricultural activities, and urban and commercial development, continue to represent imminent and tangible threats to this animal. The inadequacy of existing regulatory mechanisms to stabilize or reverse the decline is discussed under Factor D of the ''Summary of Factors Affecting the Species'' section.

Issue 13: Several commenters stated that the Service has ignored existing efforts to conserve the San Bernardino kangaroo rat and had, in fact, undermined the conservation of the animal by publishing the proposed rule.

Service Response: The Service strongly supports the establishment of the multispecies planning process in San Bernardino and Riverside counties, and the progress, to date, in the latter County. However, these ongoing planning efforts are in the early stages and have yet to address the conservation of habitat essential for the recovery of listed species, including the San Bernardino kangaroo rat. Federal listing will complement these conservation planning efforts (see, in particular, the Service response to Issue 10).

Issue 14: Several commenters criticized the Service for failing to address the economic impacts of listing the San Bernardino kangaroo rat. One of these commenters stated that the San Bernardino kangaroo rat should not be listed if it would stifle economic development.

Service Response: In accordance with 16 U.S.C. 1533(b)(1)(A) and 50 CFR 424.11(b), listing decisions are made solely on the basis of the best scientific and commercial data available. In adding the word ''solely'' to the statutory criteria for listing a species, Congress specifically addressed this issue in the 1982 amendments to the Act. The legislative history of the 1982 amendments states: ''The addition of the word ''solely'' is intended to remove from the process of the listing or delisting of species any factor not related to the biological status of the species. The Committee strongly believes that economic considerations have no relevance to determinations regarding the status of species and intends that the economic analysis requirements of Executive Order 12291, and such statutes as the Regulatory Flexibility Act and the Paperwork Reduction Act, not apply. Applying economic criteria to the analysis of these alternatives and 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 this legislation.'' H.R. Rep. No.567, Part I, 97th Cong., 2d Sess. 20 (1982).

Issue 15: One commenter recommended that the Service designate critical habitat.

Service Response: The Service has determined that designation of critical habitat is unlikely to provide a net benefit to the conservation of the San Bernardino kangaroo rat. For the San Bernardino kangaroo rat, protection of habitat and other conservation actions are better addressed through recovery planning and the section 7 consultation processes (see section on Critical Habitat for a more thorough discussion of this issue).

Issue 16: Several of the commenters stated that estimated acreage of the San Bernardino kangaroo rat's range found in Table 2 (McKernan 1997) did not agree with the estimated decline of the species' occupied habitat identified in the proposed rule.

Service Response: The reason there is a difference in the estimated acreage is the basic difference among the concepts of ''range,'' ''potential occupied habitat,'' and ''occupied habitat.'' Occupied habitat, in the case of many rodents, typically represents a subset of a species' range because not all areas within the ''range'' are suitable or occupied by the animal. In addition, occupied habitat indicates that the animals were confirmed to be present and are expected to still occur on site. The amount cited in the proposed rule (i.e., 1,299 ha (3,247 ac)) refers to the estimated amount of known ''occupied habitat'' whereas the information from Table 2 in McKernan (1997) represents coarser ''potential occupied habitat.'' It is important to stress that even the acreage of ''occupied habitat'' is imprecise because of—(1) issues of scale; (2) differences in individual or populations' perception and use of habitat; and (3) population dynamics influenced by a large number of ecological and biological parameters.

Issue 17: One commenter argued that the Service lacked authority to list the San Bernardino kangaroo rat under the Act because there is no interstate commerce involving this animal.

Service Response: In accordance with 16 U.S.C. 1533(b)(1)(A) and 50 CFR 424.11(b), listing decisions are made solely on the basis of the best scientific and commercial data available. In a recent court ruling (December 1997), the U.S. Court of Appeals for the District of Columbia upheld the listing of the Delhi sands flower-loving fly under the Act. The court stated that the loss of species has a substantial effect on interstate commerce by diminishing a natural resource that could otherwise be used for present and future commercial purposes. Following this court decision, the Supreme Court refused the plaintiffs' request that they hear the case. Importantly, the distribution of the Delhi sands flower-loving fly, like the San Bernardino kangaroo rat, is endemic only to California and does not occur in adjacent states.

Peer Review

In compliance with the July 1, 1994, Service Peer Review Policy (59 FR 34270), the Service solicited the expert opinions of independent specialists regarding pertinent scientific or commercial data and issues relating to the supportive biological and ecological information for the San Bernardino kangaroo rat. The responses received from the reviewers supported the proposed listing action. Information and suggestions provided by the reviewers were considered in developing this final rule, and incorporated where applicable.

Summary of 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 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) of the Act. These factors and their application to the San Bernardino kangaroo rat (*Dipodomys merriami parvus*) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The majority of all remaining suitable habitat, and the long-term persistence of the subspecies, is threatened by the direct and indirect effects of either, or some combination of, sand and gravel mining, flood control structures and operations, agricultural activities, urban and industrial development, water conservation activities, and off-road activity.

Loss and fragmentation of San Bernardino kangaroo rat habitat is expected to continue as southern California's human population expands. In the 1950's, the population of Riverside and San Bernardino counties combined was about 400,000. Over 2.5 million people currently reside in this region, and by the year 2000, the human population of San Bernardino and Riverside counties is expected to increase to nearly 4 million (California Department of Finance 1993). Further habitat losses resulting from development or alteration of the

landscape will likely have a significant adverse effect on the viability of remaining San Bernardino kangaroo rat populations. Threats to the largest of these extant populations are individually addressed below.

Santa Ana River

The largest documented remaining population of the San Bernardino kangaroo rat occurs along the Santa Ana River (McKernan 1997). Based on a review of aerial imagery (Service unpub. GIS maps, 1998), the amount of estimated occupied habitat in this area, including degraded habitat, encompasses about 2,090 ha (5,224 ac), of which approximately 690 ha (1,725 ac) are known to be occupied by the San Bernardino kangaroo rat (McKernan 1997). The occupied habitat extends more or less continuously from the vicinity of Norton Air Force Base to the Greenspot Road Bridge north of Mentone (Service unpub. GIS maps 1998, McKernan 1997). Approximately 47 percent of the alluvial scrub habitat within this area is directly at risk due to the combined activities of the Corps, U. S. Bureau of Land Management (BLM), San Bernardino Valley Water Conservation District, San Bernardino County Flood Control District, two private sand mining operations, and Metropolitan Water District's Inland Feeder Project.

Based on a review of projected flows in the Santa Ana River following completion of Seven Oaks Dam (Corps 1988, 1998) and the approximate distribution of the San Bernardino kangaroo rat (Service unpub. GIS maps 1997, McKernan 1997), at least 80 percent of the remaining occupied habitat along the Santa Ana River is indirectly at risk because of the projected changes in hydrology of this system resulting from severe reductions in peak flows during flood events. Based on more recent information (Corps 1998), approximately 90 percent of the flood plain is at risk for the same reason. That is, an indirect effect of construction and operation of the Seven Oaks Dam will be the long-term succession of various stages of alluvial scrub, including much of a 310-ha (775-ac) mitigation area established for this project, into even-aged stands of habitat scrub persisting through time due to a reduction in scouring and deposition of fresh sands by floods. Curtailed hydrologic disturbance, where soil moisture is adequate, will allow shrub densities to develop that exceed the low to moderate densities tolerated by the subspecies (Hanes *et al.* 1989, McKernan 1997).

Activities of the San Bernardino County Flood Control District pose a threat to approximately 310 ha (775 ac) of alluvial scrub habitat in this area. Based on the distribution of soils and vegetative cover, approximately 310 ha (775 ac) of this area is estimated to be occupied by the San Bernardino kangaroo rat (Service unpub. GIS maps 1998). Activities that impact this subspecies and its habitat, both directly and indirectly, include the construction of levees and sediment removal. The general area at risk due to these potential activities supports approximately 15 percent of the projected population along the Santa Ana River (Service unpub. GIS maps 1998).

The BLM and San Bernardino Valley Water Conservation District lands are managed, in part, for the development or operation of water spreading basins for groundwater recharge. Although the San Bernardino kangaroo rat can occupy portions of areas modified by spreading basins, flooded areas are essentially lost to this animal due to the periodic presence of standing water and the degradation of habitat. Based on the distribution of soils and vegetative cover, approximately 388 ha (970 ac) are at risk due to these potential activities (Service unpub. GIS maps 1998). The area potentially affected by spreading basins represents approximately 18 percent of the habitat along the Santa Ana River (Service unpub. GIS maps 1998). The San Bernardino Valley Water Conservation District and BLM are coordinating with the Service and others to develop a regional conservation plan that attempts to reconcile conflicts among competing land uses, including the conservation of the San Bernardino kangaroo rat. However, this conservation plan has not been finalized and is not currently in effect. Although 322 ha (806 ac) of BLM land are potentially available for water-spreading basins (or water percolation ponds), no ponds have been constructed recently.

Proposed and approved sand and gravel mining poses a significant and imminent threat to the San Bernardino kangaroo rat. Two sand mining operations collectively threaten approximately 410 ha (1,025 ac) of alluvial scrub habitat in the Santa Ana River (Lilburn 1997a and 1997b, P&D Technologies 1988, Service unpub. GIS maps 1998). Based on the distribution of soils and vegetative cover, all of the approved and proposed project areas are estimated to be occupied by the San Bernardino kangaroo rat (Service unpub. GIS maps 1998). The area potentially affected by sand mining activities represents approximately 20 percent of the population along the Santa Ana River (Service unpub. GIS maps 1998).

Additional impacts will occur due to a large pipeline project (Metropolitan Water District Inland Feeder) (P&D Technologies 1992). Approximately 60 ha (150 ac) of alluvial scrub in the Santa Ana River are likely to be impacted by this project. Based on the distribution of soils and vegetative cover, a minimum of 24 ha (60 ac) of this project area are estimated to be occupied by the San Bernardino kangaroo rat (Service unpub. GIS maps 1997). This project has been reviewed and certified under the CEQA and, therefore, poses an imminent threat. The area that will be directly impacted by this pipeline project represents approximately 1 percent of the Santa Ana River population.

Other activities that threaten the San Bernardino kangaroo rat in this region include the closure of Norton Air Force Base (San Bernardino County) and the proposed development of this site into the San Bernardino International Airport (U.S. Air Force 1993). Approximately 132 ha (331 ac) are estimated to be occupied by the San Bernardino kangaroo rat on Norton Air Force Base (Service unpub. GIS maps, 1998). The area at risk represents approximately 6 percent of the estimated Santa Ana River population. The area estimated to be occupied by the San Bernardino kangaroo rat on Norton Air Force Base would be reduced by approximately 2 to 5 percent (U.S. Air Force Conservation Management Plan, 1997).

Lytle and Cajon Creeks

The second largest documented population of the San Bernardino kangaroo rat occurs along Lytle and Cajon creeks, from near Interstate 15 downstream on both drainages for approximately 8 km (5 mi) (McKernan 1997, Service unpub. GIS maps, 1998). The amount of estimated occupied habitat in this area encompasses about 2,787 ha (6,967 ac) (Service unpub. GIS maps, 1998), of which approximately 456 ha (1,140 ac) are known to be occupied by the San Bernardino kangaroo rat (McKernan 1997). Approximately 10 percent of the estimated occupied habitat is directly at risk due to the combined activities of the San Bernardino County Flood Control District, San Bernardino County Parks and Recreation, and sand and gravel mining. In addition to areas directly at risk, a minimum of 560 ha (1,400 ac) (20 percent) of habitat has been degraded because of the location of flood control berms and the resultant shielding of habitat from fluvial events

(Service unpub. GIS maps, 1998). Therefore, based on an evaluation of soils and vegetative cover, a minimum of 30 percent of the estimated occupied habitat in this area is at risk (Service unpub. GIS maps 1997).

Sand and gravel mining poses a significant threat to the San Bernardino kangaroo rat. Based on information provided by Sunwest Materials, they own approximately 373 ha (932 ac) and are planning expansion of their operations. Expansion of their operations is anticipated to directly impact approximately 168 ha (420 ac) of estimated occupied habitat. In addition to potential direct impacts, continuation of this sand mining operation in its current location will continue to indirectly impact a minimum of 60 ha (150 ac) of estimated occupied habitat through disruption of fluvial processes needed to maintain habitat quality. Therefore, based on an evaluation of soils and vegetative cover, a minimum of 8 percent of the estimated occupied habitat in this area is at risk (Service unpub. GIS maps 1997).

The construction of a levee and parking lot for Glen Helen Regional Park by San Bernardino County Flood Control District (District) continues to impact approximately 22 ha (55 ac) of habitat by precluding scouring events and the reestablishment of alluvial scrub vegetation. Given the attributes of the area, the entire site was likely occupied by the San Bernardino kangaroo rat prior to construction of the levee and parking lot. The levee also threatens habitat occupied by the San Bernardino kangaroo rat on the opposite side of Cajon Creek due to the alteration of the local hydrological system. The levee likely will divert flood flows into the opposite bank and cause erosion of the Calmat conservation bank, which was established to help conserve listed and sensitive species in the area. The total amount of occupied habitat anticipated to be lost is, at a minimum, 44 ha (110 ac) (Service unpub. info. 1998). The combined impacts of the parking lot and associated levee amounts to approximately 2 percent of the estimated occupied habitat in this area.

San Jacinto River

The third largest remaining population of San Bernardino kangaroo rat occurs in Riverside County. Here, the vast majority of alluvial flood plain has been impacted by flood control activities, agricultural and urban development, and sand and gravel mining. The amount of estimated occupied habitat in this area encompasses approximately 310 ha (775 ac) (Service unpub. GIS maps, 1998), of which approximately 140 ha (350 ac) are known to be occupied by the San Bernardino kangaroo rat (McKernan 1997). A minimum of 41 percent of estimated occupied habitat is at risk due to the combined activities of the Corps, Riverside County Flood Control, sand mining operations, Eastern Municipal Water District, and OHV use.

Flood control activities that impact this species include grading of occupied habitat. Evidence of past, extensive grading that appears to have been related to flood control activities exists throughout the remaining alluvial scrub vegetation within the flood control berms along the San Jacinto River in the vicinity of the City of San Jacinto (Arthur Davenport, Service pers. obs. 1995). Flood control structures that impact this species include concrete channels and flood confining berms. The construction of a concrete channel appears to have isolated a small population of San Bernardino kangaroo rats located along Bautista Creek from the rest of the population along the San Jacinto River. The construction of berms into the flood plain is detrimental to the San Bernardino kangaroo rat in that the berms cause a loss of habitat by increasing the frequency and severity of scouring and land erosion. Based on an examination of this area (Service unpub. GIS maps, 1998), a minimum of 80 ha (200 ac) (20 percent) is at risk due to this factor.

Continuing, intermittent, agricultural activities, such as dry-land farming along the edges of the San Jacinto River in the vicinity of Hemet and the City of San Jacinto also impact the San Bernardino kangaroo rat. Patches of suitable or occupied habitat occurring outside the flood control berms are occasionally disced due to agricultural activities (Arthur Davenport, Service pers. obs. 1995). Discing adversely affects the subspecies by destroying the animals' burrows and degrading habitat.

Urban and commercial development into the flood plain of the San Jacinto River also continue to threaten the San Bernardino kangaroo rat. Although flood control berms are currently in place, suitable or occupied habitat occurs outside the berms. Although degraded due to agricultural activities, conservation and enhancement of suitable or occupied habitat outside the berms are critical to the maintenance of the species along the San Jacinto River because the habitat provides a source population for recolonization of habitat within the berms following flood events. Urban development is proceeding adjacent to the San Jacinto River as indicated by the processing of three related Tract Maps (Nos. 28770, 28771, and 28772) (43 ha (107 ac)) by the Riverside County Planning Department (Riverside County Planning Department 1998). Thus, the opportunity for conserving this subspecies along the San Jacinto River appears to be diminishing.

The San Bernardino kangaroo rat is also impacted by the maintenance and expansion of spreading basins within its habitat. Maintenance of spreading basins results in the degradation of habitat and mortality of San Bernardino kangaroo rats that occur along the margins (Arthur Davenport, Service pers. obs. 1995). Similarly, the expansion of spreading basins results in a direct loss of suitable or occupied habitat. Eastern Municipal Water District has proposed reconstructing previously authorized experimental groundwater recharge facilities in the San Jacinto River (Corps 1997). This project would likely directly impact approximately 2.6 ha (6.5 ac) of early successional alluvial scrub, and approximately 2 percent of the estimated occupied habitat in this area.

Sand and gravel mining threaten the San Bernardino kangaroo rat in the San Jacinto River area. The operations of sand mining continue to impact occupied habitat. One mine site consists of 94 ha (235 ac) of leased land and occurs entirely in the flood plain of the San Jacinto River (Corps 1996, Pre-discharge Notification 96–00397–RRS; KCT Consultants, Inc. 1998). Mining activities have impacted approximately 32 ha (80 ac) and are proposed to expand into an additional 34 ha (86 ac) (KCT Consultants, Inc. 1998). Based on the distribution of soils and vegetative cover, a minimum of 40 ha (100 ac) of the project site will be degraded. Therefore, this project would likely directly impact approximately 10 percent of the estimated occupied habitat in the San Jacinto River area.

OHV use in the San Jacinto River degrades habitat occupied by the San Bernardino kangaroo rat (Arthur Davenport, Service pers. obs. 1997, 1998). Significant areas of potential and occupied habitat are degraded due to extensive OHV use in this area. In addition, areas that would revegetate following flood events, and therefore provide temporary use for the San Bernardino kangaroo rat, are essentially devegetated due to vehicle activity. A minimum of 40 ha (100 ac)(10 percent of the estimated occupied habitat) is at risk due to this activity.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* This factor is not known to be applicable.

C. *Disease or predation.* Disease is not known to be affecting the San Bernardino kangaroo rat at this time. However, fragmentation of habitat is likely to promote higher levels of predation by urban-associated animals (e.g., domestic cats) as the interface between natural habitat and urban areas is increased (Church and Lawton 1987). Domestic cats are known to be predators of native rodents (Hubbs 1951, George 1974), and predation by cats has been documented for the San Bernardino kangaroo rat (McKernan, pers. comm., 1994).

D. *The inadequacy of existing regulatory mechanisms.* The decline of the San Bernardino kangaroo rat has occurred despite existing laws and regulations that could contribute to the protection of the animal and its habitat. Existing regulatory mechanisms that may provide some protection for the San Bernardino kangaroo rat include: (1) CEQA and National Environmental Policy Act (NEPA); (2) the California Natural Community Conservation Planning Program; (3) the Surface Mining Control and Reclamation Act (SMCARA); (4) the Act in those cases where the San Bernardino kangaroo rat occurs in habitat occupied by other listed species; (5) the California Endangered Species Act (CESA); (6) conservation provisions under the Federal Clean Water Act; (7) land acquisition and management by Federal, State, or local agencies or by private groups and organizations; and (8) local laws and regulations.

The majority of the known populations of the San Bernardino kangaroo rat occur on privately owned land. Local lead agencies responsible under CEQA and NEPA have made determinations that have, or would, adversely affect this taxon and its habitat. Examples of projects that have been completed or are currently undergoing the review process under CEQA and/or NEPA that could impact this species include Seven Oaks Dam, State Route 30 Improvement Project, Metropolitan Water District Inland Feeder Pipeline, Calmat Company, Sunwest Materials, Robertson's Ready Mix, and San Jacinto Aggregates. Past, present, and proposed mitigation for impacts to this species and its habitat have been inadequate to stop or reverse its decline at the regional level. CEQA decisions are also subject to over-riding social and economic considerations.

In 1991, the State of California established a Natural Community Conservation Planning Program (NCCP) to address conservation needs throughout the State. The initial focus of the program is the coastal sage scrub community. Within this program, the California Department of Fish and Game (CDFG) included the long-term conservation of alluvial scrub, which is in part occupied by the San Bernardino kangaroo rat. However, participation in NCCP is voluntary. San Bernardino and Riverside counties have signed planning agreements (Memoranda of Understanding (MOUs)) to develop multispecies plans that meet NCCP criteria, but have not enrolled in the NCCP program in the interim. The MOU's do not provide protection to candidate species during the planning process.

Reclamation of mined areas in the State of California is required under SCMARA. The County of San Bernardino also requires that mining companies submit a reclamation plan for County approval. The primary purpose of these ordinances is to provide for erosion control measures and to restore slopes to a moderate slope. However, reclamation is not likely to resolve the problem of maintaining or mitigating for the loss of species or ecosystem functions in a biologically meaningful way because of project (and mitigation) related changes in topography and altered hydrology. In this regard, Calmat has utilized the red-line mining method, which attempts to maintain streambed equilibrium and associated fluvial geomorphology. The feasibility of artificially creating and maintaining a viable alluvial scrub plant and animal community suitable for the long-term conservation of the San Bernardino kangaroo rat and associated species has yet to be demonstrated.

The BLM designated an Area of Critical Environmental Concern (ACEC) in the Santa Ana River in 1994. The ACEC is composed of three parcels of land that total 304 ha (760 ac). The purpose of the ACEC is to protect and enhance the habitat of federally listed plant species occurring in the area, such as Santa Ana River wooly-star (*Eriastrum densifolium* ssp. *sanctorum*), and sensitive species such as the San Bernardino kangaroo rat, while providing for the administration of valid existing rights (BLM 1996). Although the establishment of the ACEC is important in regards to conservation of sensitive habitats and species in this area, the administration of valid existing rights conflicts with BLM's conservation abilities in this area. Existing rights include a withdrawal of Federal lands in this area for water conservation through an act of Congress, February 20, 1909 (Pub. L. 248). The entire ACEC is included in this withdrawn land and may be available for water conservation measures such as the construction of percolation basins, subject to compliance with the Act.

The San Bernardino kangaroo rat is not protected under the CESA. The Federal and State Acts together can afford some measure of protection to the San Bernardino kangaroo rat in those areas where the species coexists with other species already listed as threatened or endangered. Santa Ana River wooly-star and slender-horned spineflower are listed as endangered under the Act and the CESA, and the coastal California gnatcatcher (*Polioptila californica californica*) is listed as threatened under the Act. All three species can occur in habitats similar to those preferred by the San Bernardino kangaroo rat. However, the distribution of *D. leptoceras* and *E. densifolium* ssp. *sanctorum* is spotty and discontinuous, and only overlaps with a small portion of the habitat occupied by the San Bernardino kangaroo rat. The coastal California gnatcatcher, although known to occur within alluvial scrub habitat, has largely been extirpated from San Bernardino County within the range of the San Bernardino kangaroo rat and, therefore, occurrence with the listed species provides little ancillary protection. In Riverside County, coastal California gnatcatchers are not currently known to occur at any sites occupied by the San Bernardino kangaroo rat.

The San Bernardino kangaroo rat could potentially be affected by projects requiring a permit from the Corps under section 404 of the Clean Water Act. Although the objective of the Clean Water Act is to ''restore and maintain the chemical, physical, and biological integrity of the Nation's waters'' (Pub. L. 92–500), no specific provisions exist that adequately address the need to conserve unlisted species. A majority of the remaining populations of kangaroo rats occur outside areas delineated as waters of the United States and, therefore, are not regulated. Moreover, numerous activities for which the Corps potentially has jurisdiction, including sand and gravel mining and flood control projects, have proceeded without their overview (see Factor A of the ''Summary of Factors Affecting the Species'' section of this rule).

As a result of Fish and Wildlife Coordination Act activities, the Corps, in 1988, initiated a section 7 consultation on *Eriastrum densifolium* ssp. *sanctorum* for the proposed Seven Oaks Dam project on the Santa Ana River. About 310 ha (775 ac) of alluvial scrub habitat has been designated for preservation as mitigation for impacts to *Eriastrum densifolium* ssp. *sanctorum* resulting from the construction of the dam. Approximately 176 ha (440 ac) of

this area appears to be currently suitable for the San Bernardino kangaroo rat (Service unpub. GIS maps 1997). However, the preserved area represents only approximately 4 percent of the alluvial scrub found in this area. In addition, based on recent information provided by the Corps, the majority of this conserved habitat will not, in contrast to previous determinations, receive scouring events (Corps 1998). Thus, the mitigation preserve, while providing some benefit, is likely not adequate to conserve the subspecies.

Local and County zoning designations are subject to change and do not specifically address the conservation and management needs of the San Bernardino kangaroo rat. However, numerous jurisdictions in western Riverside and San Bernardino counties are beginning a multi-species habitat conservation planning process, including coastal sage scrub-associated species, and benefit to the kangaroo rat may result. However, commitments for funding, implementation of the plan, and resultant, appropriate changes in land-use regulations to protect potential preserves during the planning process have not been made.

The Riverside County Habitat Conservation Agency is implementing an approved habitat conservation plan for the federally endangered Stephens' kangaroo rat that involves the establishment of permanent preserves in western Riverside County (Riverside County Habitat Conservation Agency 1996). Because the San Bernardino kangaroo rat occupies a largely different habitat type than that of the Stephens' kangaroo rat, the conservation plan for the Stephens' kangaroo rat will not benefit the San Bernardino kangaroo rat. Despite extensive surveys, no current records of San Bernardino kangaroo rats occur within any of the reserves established for the Stephens' kangaroo rat (Arthur Davenport, Service pers. comm. 1997).

E. *Other natural or manmade factors affecting its continued existence.* Habitat for the San Bernardino kangaroo rat has been severely reduced and fragmented by development and related activities in the San Bernardino and San Jacinto Valleys. Habitat fragmentation results in loss of habitat, reduced habitat patch size, and an increasing distance between patches of habitat. As noted by Andren (1994) in a discussion of highly fragmented landscapes, reduced habitat patch size and isolation will exacerbate the effect of habitat loss on a species' persistence. That is, the loss of species, or decline in population size, will be greater than expected from habitat loss alone. The loss of native vertebrates, including rodents, due to habitat fragmentation is well documented (Soulé *et al.* 1992, Andren 1994, Bolger *et al.* 1997).

Isolated populations are subject to extirpation by manmade or natural events, such as floods and drought. Furthermore, small populations may experience a loss of genetic variability and experience inbreeding depression (Lacy 1997). Contributing to the fragmentation of San Bernardino kangaroo rat habitat are railroad tracks, roads, and flood control channels. These structures appear to function as movement barriers to the San Bernardino kangaroo rat, preventing movement between areas of suitable habitat.

All remaining population segments are at risk due to their small size and isolation. This is especially true for the four smallest populations (i.e., City Creek, Reche Canyon, Etiwanda, and South Bloomington). Urbanization occurs throughout most of the San Bernardino kangaroo rat's range and the remaining larger blocks of occupied habitat (i.e., Santa Ana River, Lytle/Cajon, and San Jacinto River) now function independently of each other. This isolation of occupied patches places the entire population of San Bernardino kangaroo rat at risk because recolonization of suitable habitat following local extirpation has been precluded. The extirpation of populations from local catastrophes, such as flooding, is becoming more probable as urban development further constricts the remaining populations to the active portion of the flood plain. The largest remaining populations are now essentially restricted entirely to flood plain habitats and vulnerable to extirpation by naturally occurring events.

Flood control structures alter both the magnitude and distribution of flooding. In the absence of flood scouring, sediments and organic matter accumulate over time, contributing to senescence of the alluvial scrub community and its conversion to coastal sage scrub or chaparral (Smith 1980, Wheeler 1991, Jigour and McKernan 1992). The dense canopy of these communities does not provide the open environment required by the San Bernardino kangaroo rat, thereby reducing the habitat suitability for the species (Beatley 1976, McKernan 1997). Within the active channels, the confined flood events scour too frequently to maintain suitable San Bernardino kangaroo rat habitat.

The intentional destruction of areas occupied by declining species continues to be an issue of serious concern and is a potential threat to the San Bernardino kangaroo rat. The propensity of some individuals to destroy habitat occupied by declining species, in an apparent effort to remove environmental concerns, is underscored by the illegal destruction of areas occupied by federally listed species. Based on information available to the Service, such activities frequently occur within the range of the San Bernardino kangaroo rat (Service unpub. info. 1998). The illegal destruction of habitat occupied by the Stephens' kangaroo rat (*Dipodomys stephensi*), a similar animal that occurs within the range of the San Bernardino kangaroo rat, is representative of the threats facing this subspecies.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this subspecies in developing this final rule. The remaining populations at City Creek (8 ha (20 ac)), Etiwanda (2 ha (5 ac)), Reche Canyon (2 ha (5 ac)), and South Bloomington (0.8 ha (2 ac)) are extremely small, isolated, subject to the indirect effects of urban development (e.g., predation due to house cats), likely prone to inbreeding depression, and therefore have little chance of long-term survival without intensive management. The three largest remaining populations (i.e., Santa Ana River (2,090 ha (5,224 ac)), Lytle and Cajon washes (2,787 ha (6,967 ac)), and the San Jacinto River (401 ha (1,002 ac))), are also endangered. The Santa Ana River population is endangered due to the disruption of the hydrological system, and activities such as sand and gravel mining and water development projects. The Lytle and Cajon wash population is endangered due to disruption of the hydrological system and activities such as encroaching urban development, sand and gravel mining, and flood control. The San Jacinto River population is endangered due to its near total anthropogenic restriction to the active flood plain, and activities such as urban development, sand and gravel mining, water development, and OHV activity. In addition, all of these populations are at risk due to future development projects because there is no conservation plan in place that ensures their preservation in the wild. Therefore, the Service finds that the action to list the San Bernardino kangaroo rat as endangered is warranted. Because of these factors, even in the absence of additional future impacts, the San Bernardino kangaroo rat is now in danger of extinction throughout all or a significant portion of

its range. Threatened status is not appropriate considering the extent of loss and degradation of the animal's habitat and the vulnerability of the remaining populations.

Critical Habitat

Critical habitat is defined in section 3(5)(A) of the Act as: (i) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management consideration or protection and; (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. ''Conservation'' means the use of all methods and procedures 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 a species is designated to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for the San Bernardino kangaroo rat. According to the Service's regulations (50 CFR 424.12(a)(1)), 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.

Critical habitat designation for the San Bernardino kangaroo rat is not prudent because an increase in the degree of threat could result. This subspecies is found in fragmented habitat composed of various sage scrub shrub vegetation in the presence of sandy soils. As stated under Factor E of the ''Summary of Factors Affecting the Species'' section, intentional destruction of areas occupied by listed species occurs frequently within the range of the San Bernardino kangaroo rat. In addition, as detailed in the emergency rule listing the San Bernardino kangaroo rat (63 FR 3840), threats of intentional grading directed specifically at habitat for the San Bernardino kangaroo rat have been documented. The designation of critical habitat, including the publication of maps providing precise locations, would bring unnecessary attention to those areas of the range that are occupied by this species and would encourage acts of vandalism or intentional destruction of habitat. This action also could lead to an increase in activities (such as discing or blading) by landowners who do not want listed species on their property. The possible misperception that critical habitat designation on private lands necessarily imposes restrictions on private landowners would be counterproductive and would render cooperative efforts with landowners to recover species more difficult.

Moreover, the designation of critical habitat for the San Bernardino kangaroo rat is not prudent due to the lack of benefit to the species. Section 7 of the Act requires that Federal agencies ensure that any action authorized, funded, or carried out not result in the destruction or adverse modification of critical habitat. Although this requirement is in addition to the section 7 prohibition against jeopardizing the continued existence of a listed species, it is the only mandatory legal consequence of a critical habitat designation. The Act's section 7 implementing regulations define ''jeopardizing the continued existence of'' and ''destruction or adverse modification of'' in virtually identical terms. ''Jeopardize the continued existence of'' means engage in an action ''that reasonably would be expected * * * to reduce appreciably the likelihood of both the survival and recovery of a listed species.'' ''Destruction or adverse modification'' means an ''alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.'' Common to both definitions is an appreciable detrimental effect on both survival and recovery of a listed species, in the case of critical habitat by reducing the value of the habitat so designated. Thus actions satisfying the standard for adverse modification are nearly always found to also jeopardize the species' continued existence.

The Service considers all suitable habitat associated with Lytle and Cajon washes and the Santa Ana River to be essential for the conservation of the San Bernardino kangaroo rat. Without these areas, recovery of the San Bernardino kangaroo rat would not be possible. Given that the suitable habitat is considered occupied, all Federal activities that would impact habitat at these locales would require consultation under section 7 of the Act. Accordingly, any activity that would be determined to cause an adverse modification to critical habitat also likely would jeopardize the continued existence of this subspecies given its restricted distribution and imperiled status. Therefore, the designation of critical habitat would have no net benefit to the conservation of the species in these areas.

The same argument applies to the population of San Bernardino kangaroo rats associated with the San Jacinto River, except for a large area of unoccupied habitat that may be needed for conservation of this animal. However, the area of unoccupied habitat is in private ownership. Designation of critical habitat provides no limitations or constraints on private landowners if there is no Federal involvement and, as such, provides this species with no additional conservation benefit beyond listing. This area is characterized as a broad, relatively flat, valley that is essentially bisected by the channelized San Jacinto River. Therefore, urban and industrial development can likely proceed and encroach upon the area needed for conservation of the San Bernardino kangaroo rat without the need of Federal permits (e.g., per section 404 of the Clean Water Act). Because the designation of critical habitat in this area would also have minimal or no net benefit to the conservation of the San Bernardino kangaroo rat given the potential intentional destruction threat, conservation of the animal would be better served through the recovery planning and implementation process.

The Service acknowledges that critical habitat designation, in some situations, may provide limited value to a species by identifying areas important for the conservation of the species and calling attention to those areas in special need of protection. Critical habitat designation of unoccupied habitat may also benefit a species by alerting Federal action agencies to potential issues and allowing them to evaluate proposals that may affect these areas. However, in this case, given the familiarity of the distribution of the San Bernardino kangaroo rat to local planning agencies and regulatory agencies such as the Corps, and its close relationship to areas identified as waters of the United States, deriving any benefit from designation of critical habitat is unlikely. Additionally the increased risk of adverse public reaction from designation of critical habitat exceeds any potential benefits to the species from such designation. Conservation of the San Bernardino kangaroo rat would be accomplished more efficiently through the recovery

process and the jeopardy prohibition of section 7.

As for all the known remaining populations (City Creek (8 ha (20 ac)), Etiwanda (2 ha (5 ac)), Reche Canyon (2 ha (5 ac)), and South Bloomington (0.8 ha (2 ac), designation of critical habitat would not assist in conservation of these groups because of their critically small size and complete isolation from the three remaining, relatively large groups (i.e., Lytle and Cajon washes, Santa Ana, and San Jacinto) due to urban development. These fragmented and isolated portions of the overall population will need continual high intensity management to sustain them.

Accordingly, the Service concludes that any benefit from designation of critical habitat is far outweighed by the increase in the degree of threat to the subspecies. Therefore, designation of critical habitat for the San Bernardino kangaroo rat is not prudent.

The Service will continue in its efforts to obtain more information on the San Bernardino kangaroo rat biology and ecology, including essential habitat characteristics particularly in regard to stream flow regimes, current and historical distribution, and existing and potential sites that can contribute to conservation of the species. The information resulting from this effort will be used to identify measures needed to achieve conservation of the species, as defined under the Act. Such measures could include, but are not limited to, development of conservation agreements with the State, other Federal agencies, local governments, private landowners, and organizations.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants and animals 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)(4) of the Act requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is subsequently listed, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Federal agencies expected to have involvement with the San Bernardino kangaroo rat or its habitat include the Corps and the Environmental Protection Agency due to their permit authority under section 404 of the Clean Water Act. The Federal Aviation Administration has jurisdiction over areas with potentially suitable San Bernardino kangaroo rat habitat in the vicinity of Redlands Municipal Airport and Norton Air Force Base in San Bernardino County. The Federal Highway Administration will likely be involved through potential funding of highway construction projects near Devore, Rancho Cucamonga, Rialto, and San Bernardino (San Bernardino County). Because the San Bernardino kangaroo rat occurs on Norton Air Force Base (San Bernardino County), the U.S. Air Force will likely be involved through the transfer of Federal lands to a non-Federal entity and the conversion of this area to a civilian airport. The BLM has jurisdiction over a portion of the habitat occupied by the San Bernardino kangaroo rat along the Santa Ana River. The Forest Service will likely be involved because populations of the San Bernardino kangaroo rat occur within or near the boundaries of the Cleveland National Forest and San Bernardino National Forest. The Bureau of Reclamation may be involved through the potential funding of water reclamation and flood control projects. The Bureau of Indian Affairs may be involved with this taxon at Soboba Indian Reservation (Riverside County). The Federal Housing Administration could potentially be involved through loans for housing projects in the region. The Federal Energy Regulatory Commission could be involved in projects affecting existing or proposed transmission lines in the Santa Ana River or Etiwanda Creek areas.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general trade prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered and threatened wildlife under certain circumstances. Regulations governing permits are at 50 CFR 17.22, 17.23, and 17.32. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, or for incidental take in connection with otherwise lawful activities.

It is the policy of the Service (59 FR 34272) to identify to the maximum extent practical 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 listing on proposed and ongoing activities within a species' range, and to assist the public in identifying measures needed to protect the species. The Service believes that, based upon the best available information, the following actions will not result in a violation of section 9, provided these activities are carried out in accordance with existing regulations and permit requirements:

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

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

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

(4) Road kills or injuries to the San Bernardino kangaroo rat by vehicles on designated public roads.

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) Take of San Bernardino kangaroo rat, which includes harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting any of these actions, except in accordance with applicable Federal and State fish and wildlife conservation laws and regulations;

(2) Possess, sell, deliver, carry, transport, or ship illegally taken San Bernardino kangaroo rats;

(3) Unlawful destruction or alteration of San Bernardino kangaroo rat habitat by discing, grading, sand or gravel mining, flooding, vehicle operation, or other activities that result in the destruction of vegetative composition, substrate composition, or other intentional activity that impacts breeding, feeding, or availability of cover;

(4) Application of pesticides/herbicides in violation of label restrictions;

(5) 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 or to obtain approved guidelines for actions within the kangaroo rat habitat should be directed to the Service's Carlsbad Field Office (see **ADDRESSES** section). Requests for copies of the regulations concerning listed animals and inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Endangered Species Permits, 911 NE. 11th Avenue, Portland, Oregon 97232–4181 (telephone 503/231–6241; facsimile 503/231–6243).

Reasons for Effective Date

The Service is concerned that the issuance of the final rule for the San Bernardino kangaroo rat will result in the destruction of habitat essential for maintaining the remaining populations of this animal if not made effective upon publication. There are a number of projects poised for development that would both directly and indirectly impact this animal. Because of the immediate threat posed by these activities, the Service finds that good cause exists for this rule to take effect immediately upon publication in accordance with 5 U.S.C. 553(d)(3), so that the protections implemented under the emergency rule will not lapse.

National Environmental Policy Act

The Service has determined that an Environmental Assessment or Environmental Impact Statement, 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 Endangered Species Act of 1973, as amended. 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 endangered species, see 50 CFR 17.22.

References Cited

A complete list of references cited in this rule is available upon request from the Carlsbad Field Office of the U.S. Fish and Wildlife Service (see **ADDRESSES** section).

Author

The primary author of this final rule is Arthur Davenport of the Carlsbad Field Office (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and record keeping requirements, Transportation.

Regulation Promulgation

Accordingly, the Service amends part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as follows:

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 § 17.11(h) by adding the following, in alphabetical order under MAMMALS, to the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
MAMMALS							
*	*	*	*	*	*		*
Kangaroo rat, San Bernardino.	*Dipodomys merriami parvus.*	U.S.A. (CA)	NA	E	645	NA	NA
*	*	*	*	*	*		*

Dated: September 15, 1998.

Jamie Rappaport Clark,

Director, Fish and Wildlife Service.

[FR Doc. 98–25545 Filed 9–23–98; 8:45 am]

BILLING CODE 4310–55–P