

## DEPARTMENT OF THE INTERIOR

## Fish and Wildlife Service

## 50 CFR Part 17

RIN 1018-AB56

## Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Coastal California Gnatcatcher

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

**SUMMARY:** The Fish and Wildlife Service (Service) determines the coastal California gnatcatcher (*Poliophtila californica californica*) to be a threatened species throughout its historic range in southern California and northwestern Baja California, Mexico, pursuant to the Endangered Species Act of 1973, as amended (Act). Critical habitat is not being designated. This small, insectivorous songbird occurs almost exclusively in several distinctive subassociations of the coastal sage scrub plant community and is threatened by habitat loss and fragmentation occurring in conjunction with urban and agricultural development. This rule implements Federal protection provided by the Act for the coastal California gnatcatcher. A proposed special rule that defines the conditions associated with certain land-use activities under which the incidental take of gnatcatchers would not be a violation of section 9 of the Act is published in this same Federal Register separate part.

**EFFECTIVE DATE:** This rule is effective on March 25, 1993.

**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:** Mr. Jeffrey D. Opdycke, Field Supervisor, at the address listed above (telephone 619/431-9440).

**SUPPLEMENTARY INFORMATION:****Background**

The California gnatcatcher (*Poliophtila californica*) is a small, long-tailed member of the thrush family Muscicapidae. Its plumage color is dark blue-gray above and grayish-white below. The tail is mostly black above and below. The male has a distinctive black cap that is absent during the winter. Both sexes have a distinctive white eye-ring. Vocalizations of this

species include a call consisting of a rising and falling series of three, kitten-like, mew notes (National Geographic Society 1983).

The California gnatcatcher (*Poliophtila californica*) was originally described as a distinct species by Brewster (1881) based on specimens collected by F. Stephens in 1878. However, based on the analysis of Grinnell (1926), *P. californica* was classified in 1926 as three subspecies of the black-tailed gnatcatcher (*Poliophtila melanura*), which is widely distributed throughout the Sonoran and Chihuahuan deserts of the southwestern United States and Mexico (American Ornithologists' Union 1983, Atwood 1988). Subsequent scientific publications (American Ornithologists' Union 1931, Grinnell and Miller 1944, Friedmann 1957, American Ornithologists' Union 1957) adhered to the species limits as defined by Grinnell (1926). Atwood (1988) concluded that *P. californica* was specifically distinct from *P. melanura*, based on differences in ecology and behavior. This finding was subsequently adopted by the American Ornithologists' Union Committee on Classification and Nomenclature (American Ornithologists' Union 1989). A comprehensive overview of the nomenclatural history of the California gnatcatcher is provided by Atwood (1988, 1990, 1991).

*Poliophtila californica californica* (hereafter referred to as the coastal California gnatcatcher) is one of three subspecies of the California gnatcatcher and is restricted to coastal southern California and northwestern Baja California, Mexico, from Los Angeles County (formerly Ventura and San Bernardino Counties) south to El Rosario at about 30° north latitude (American Ornithologists' Union 1957, Atwood 1991, Phillips 1991, Banks and Gardner 1992). Two other subspecies of the California gnatcatcher (*P. c. pontilis* and *P. c. margaritae*) occur in the central and southern portions of the Baja peninsula, respectively (American Ornithologists' Union 1957, Atwood 1988). Atwood (1990, 1991) concluded that the subspecific nomenclature of California gnatcatchers south of 30° north latitude should " \* \* \* properly revert to that initially proposed by Grinnell (1926), with *P. c. margaritae* being distributed in central Baja California from 30° N. south to 24° N., and *P. c. abbreviata* occurring in the Cape Region of Baja California south of 24° N. latitude."

A general analysis of the historic range of the coastal California gnatcatcher indicates that about 41 percent of its latitudinal distribution is

within the United States and 59 percent within Baja California, Mexico (Atwood 1990). A more detailed analysis, based on elevational limits associated with gnatcatcher locality records, reveals that 65 to 70 percent of the coastal California gnatcatcher's historic range was located in southern California rather than Baja California (Atwood 1992a).

The coastal California gnatcatcher occurs almost exclusively in the coastal sage scrub plant community (occasionally, it is also found in chaparral). The southern limit of its range coincides with the distributional boundary of this distinctive vegetation type. Coastal sage scrub vegetation is composed of relatively low-growing, summer (dry-season) deciduous, and succulent plants. Characteristic plants of this community include coastal sagebrush (*Artemisia californica*), various species of sage (*Salvia* spp.), California buckwheat (*Eriogonum fasciculatum*), lemonadeberry (*Rhus integrifolia*), California encelia (*Encelia californica*), prickly pear and cholla cactus (*Opuntia* spp.), and various species of *Haplopappus* (Munz 1974, Kirkpatrick and Hutchinson 1977, Mooney 1988, O'Leary 1990). The coastal California gnatcatcher commonly occurs in coastal sage scrub vegetation dominated by coastal sagebrush (Atwood 1980, 1990; Mock and Jones 1990) although in some portions of its range (e.g., western Riverside County) other plant species may be more abundant.

A comprehensive overview of the life history and ecology of the coastal California gnatcatcher is provided by Atwood (1990) and is the basis for much of the discussion presented below. The coastal California gnatcatcher is non-migratory and defends breeding territories ranging in size from 2 to 14 acres (1 to 6 hectares (ha)). Home ranges vary in size from 13 to 39 acres (5 to 15 ha) (Mock and Jones 1990). The breeding season of the coastal California gnatcatcher extends from late February through July with the peak of nest initiations occurring from mid-March through mid-May. Nests are composed of grasses, bark strips, small leaves, spider webs, down, and other materials, and are often placed in coastal sagebrush about 3 feet (ft) (1 meter (m)) above the ground. Nests are constructed over a 2 to 10 day period. Clutch size averages four eggs. The incubation and nestling periods encompass about 14 and 16 days, respectively. Juveniles are dependent upon, or remain closely associated with, their parents for up to several months following departure from the nest, and may disperse up to 9 mi (14 km) from their natal territory.

Both sexes participate in all phases of the nesting cycle. Although the coastal California gnatcatcher may occasionally produce two broods in one nesting season, the frequency of this behavior is not known.

Coastal California gnatcatchers were considered locally common in the mid-1940's, although a decline in the extent of its habitat was noted (Grinnell and Miller 1944). By the 1960's, this species had apparently experienced a significant population decline in the United States that has been attributed to widespread destruction of its habitat. Pyle and Small (1961) reported that "the California subspecies is very rare, and lack of recent records of this race compared with older records may indicate a drastic reduction in population." McCaskie and Pugh (1964) commented that the coastal California gnatcatcher "had been driven from most of its former range along the coast of the region." Atwood (1980) estimated that no more than 1,000 to 1,500 pairs remain in the United States. He also noted that remnant portions of its habitat were highly fragmented, and that most remaining patches are bordered on at least one side by rapidly expanding urban centers. Subsequent reviews of coastal California gnatcatcher status by Garrett and Dunn (1981) and Unitt (1984) paralleled the findings of Atwood (1980).

Atwood (1990, 1992b) estimated that approximately 1,811 to 2,291 pairs of coastal California gnatcatchers remain in southern California. Of these, 24 to 30 pairs occur in Los Angeles County, 224 to 294 pairs in Orange County, 724 to 916 pairs in Riverside County, and 837 to 1,061 pairs in San Diego County. Michael Brandman Associates (1991) estimated that 1,645 to 1,880 pairs of California gnatcatchers occur in the United States (20 to 30 pairs in Los Angeles County, 325 to 350 pairs in Orange County, 300 to 400 pairs in Riverside County, and 1,000 to 1,100 pairs in San Diego County).

Based on information received after the proposed rule was published, the Service estimates that about 2,562 pairs of coastal California gnatcatchers remain in the United States. Of these, 30 pairs occur in Los Angeles County, 757 pairs in Orange County, 261 pairs in Riverside County, and 1,514 pairs in San Diego County. Approximately 2,800 pairs of *P. c. californica* occur in the Mexican portion of its range (J. Newman, Regional Environmental Consultants (RECON), pers. comm., 1992).

Most populations of the coastal California gnatcatcher in the United States occur on private lands. About 21

percent (81,992 of 393,655 acres) of coastal sage scrub in southern California (south of metropolitan Los Angeles) is publicly owned (California Department of Fish and Game 1992). Of that, about 52,500 acres or 64 percent occurs within military reservations. Major private landholdings containing known or suspected populations of the coastal California gnatcatcher include properties owned by: The Irvine Company, Rancho Santa Margarita Company, and Mission Viejo Company in Orange County; Baldwin Company, The Fieldstone Company, Home Capital, Los Montanas, McMillin Company, San Miguel Partners, and Southwest Diversified in San Diego County; and Domenigoni Brothers Ranch, Ranpac Engineering Corporation, and S.I.C. Corporation in Riverside County. Major public landowners or jurisdictions with gnatcatcher populations include the California Department of Parks and Recreation, Camp Pendleton Marine Corps Base, El Toro Marine Corps Air Station, Fallbrook Naval Annex, Miramar Naval Air Station, the cities of San Diego and Lake Elsinore, the Metropolitan Water District (MWD) of Southern California, and the counties of Orange, Riverside, and San Diego.

#### Previous Federal Action

In 1982, the Service designated the coastal black-tailed gnatcatcher (*Polioptila melanura californica*) as a category 2 candidate for addition to the List of Endangered and Threatened Wildlife and solicited status information (47 FR 58454). In subsequent Federal Register Notices of Review, the coastal black-tailed gnatcatcher was retained in category 2 (50 FR 37958, 54 FR 554). This taxon is now recognized as a subspecies of *Polioptila californica*.

Category 2 comprises taxa for which information in possession of the Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat are not currently available to support a proposed rule. Essentially, no data were submitted in response to Service solicitations (published in Federal Register Notices of Review in 1982 and 1985) for gnatcatcher status information. To resolve the issue of whether conclusive data on biological vulnerability and threat exist, the Service conducted a status review (Salata 1991) of the coastal California gnatcatcher.

On September 21, 1990, the Service received petitions from the Palomar Audubon Society and the San Diego Biodiversity Project to list the nominate subspecies of the California gnatcatcher

as an endangered species. A third petition for the same action was received on December 17, 1990. This petition, submitted by the Manomet Bird Observatory and the Natural Resources Defense Council, also requested the Service to emergency list the coastal California gnatcatcher. On January 24, 1991, the Service found that substantial information had been presented indicating that the petitioned action may be warranted (56 FR 12146). The Service's status review indicated that proposing the coastal California gnatcatcher for listing under the normal procedures of section 4 was warranted. A proposed rule to list the gnatcatcher as endangered was published in the Federal Register on September 17, 1991 (56 FR 47053). A notice of extension and reopening of the comment period for 30 days to obtain additional information on gnatcatcher taxonomy was published in the Federal Register on September 22, 1992 (57 FR 43688). A second petition to emergency list the coastal California gnatcatcher was submitted by the Natural Resources Defense Council on February 3, 1993, and received by the Service on February 4, 1993. This petition was regarded as a fourth request for the same action and a separate finding was not made. On February 11, 1993, the Service published a notice in the Federal Register announcing the reopening of the public comment period on the proposed rule for 20 days and the availability of a report prepared by Service taxonomists on the taxonomic validity of *P. c. californica* (58 FR 8032).

#### Summary of Comments and Recommendations

In the proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. On September 5, 1991, the Service announced its decision to propose the coastal California gnatcatcher for listing as an endangered species and held congressional briefings in Washington, DC, and Carlsbad, California. Twenty-eight members of Congress or their staff were invited to attend. Press notices describing this proposed action were also released on this date by the Service's Public Affairs Office in Washington, DC, and Portland, Oregon. Appropriate elected officials (including the Governor of California and 28 congressional representatives), 3 State agencies, 4 county and 50 city governments, 7 Federal agencies, and 50 landowners and other potentially affected or interested parties were contacted and requested to comment. A

letter of notification and a copy of the proposed rule were also sent to the government of Mexico.

The Service held two public hearings on the proposed rule. Notification of the hearings was published in the *Federal Register* on February 7, 1992 (57 FR 4747). A legal notice announcing the hearings and inviting general public comment on the proposal was also published on February 7, 1992, in the *Los Angeles Daily News*, *Los Angeles Times*, *Riverside Press-Enterprise*, and *San Diego Union-Tribune*. Public hearings were conducted in Anaheim, California, on February 25, 1992, and in San Diego, California, on February 27, 1992. About 400 people attended the hearings. An additional notification reopening the public comment period for 30 days and extending, by not more than 6 months, the deadline for a final decision on the proposal was published in the *Federal Register* on September 22, 1992 (57 FR 43686). A legal notice announcing these actions and inviting general public comment on the proposal was published in the *Riverside Press-Enterprise* and the *San Diego Union-Tribune* on October 6, 1992. The Service published a notice in the *Federal Register* announcing the reopening of the public comment period on the proposed rule for 20 days on February 11, 1993 (58 FR 8032).

A total of 770 comments were received during the three comment periods, which encompassed almost 8 months. (Multiple comments, whether written or oral from the same party on the same date, are regarded as one comment.) That total includes 99 comments received between March 17 and September 22, 1992, when the public comment period was extended for an additional 30 days. Of these, 309 (40 percent) supported listing, 366 (48 percent) opposed listing; and 95 comments (12 percent) neither supported nor opposed listing.

In addition, a petition containing 9,000 signatures supported listing on an emergency basis. A petition containing 6,000 signatures opposed the listing. A total of 312 comments were received prior to the September 17, 1991, publication of the proposed rule in the *Federal Register*. Of these, 229 (73 percent) supported listing and 71 (23 percent) did not; 12 comments (4 percent) neither supported nor opposed listing.

One congressional representative, two elected local officials, over 30 conservation groups, 3 scientific organizations, and the government of Mexico supported listing. Several labor and building industry organizations,

one congressional representative, and a number of landowners opposed listing.

The Service has reviewed all of the written and oral comments described above including those that were received outside of the formal comment periods. Based on this review, 20 relevant issues have been identified and are discussed below. These issues are representative of the comments questioning or opposing the proposed listing action.

**Issue 1:** The Service should not carry out this listing action because the California gnatcatcher and its northern, nominate subspecies are not valid taxa. Many commenters questioned the legitimacy of the recent change in the taxonomy of the black-tailed gnatcatcher (*Polioptila melanura*) and the existence of a distinct subspecies in southwestern California and northwestern Baja California, Mexico, north of 30° north latitude.

**Service Response:** The Service and the American Ornithologists' Union (AOU) have concluded that *Polioptila californica californica* is a valid taxon. Atwood (1988) re-examined the issue of species limits within the black-tailed gnatcatcher and concluded, based on differences in ecology and behavior (vocalizations), that the coastal southwestern, central, and southern Baja California, Mexico, populations constitute a separate species which he referred to as the California gnatcatcher, *Polioptila californica*, returning to Brewster's 1881 treatment. Atwood (1988) reported that in those few areas where California and black-tailed gnatcatchers co-occur, they do not interbreed, which is a fundamental isolating mechanism that separates species.

The conclusion that California and black-tailed gnatcatchers are separate species was formally accepted by the AOU Committee on Classification and Nomenclature in 1989 (American Ornithologists' Union 1989). This committee and its publication, *Checklist of North American Birds*, are recognized as authorities on avian taxonomy in North America.

No additional data or published information on this issue were submitted or otherwise available to the Service since publication of the proposed rule. Four letters from representatives of the AOU Committee on Classification and Nomenclature (including its chairman) were submitted during the public comment period that reiterated the AOU's formal acceptance of Atwood's conclusion that the California gnatcatcher is specifically distinct.

The existence of a distinct subspecies of gnatcatcher in coastal southern California and northwestern Baja California, Mexico, has been recognized by Grinnell (1926, 1928), van Rossem (1931), American Ornithologists' Union (1931), Friedmann (1957), American Ornithologists' Union (1957), Paynter (1964), Atwood (1991), and Phillips (1991). Although Atwood (1988) initially recommended merging *P. c. californica* and *P. c. pontilis* of central Baja California into one subspecies, he later retracted this position after re-examining intraspecific variation within the California gnatcatcher using a more appropriate statistical treatment as suggested by two members of the AOU Committee on Classification and Nomenclature (Banks 1989, Johnson 1989). This revised analysis (Atwood 1991) has been peer-reviewed by several recognized taxonomists (including one member of the AOU Committee on Classification and Nomenclature) and published. It supports the long-accepted distribution of *Polioptila melanura (=californica) californica* that was first described by Grinnell (1926) over 60 years ago.

In response to comments that questioned the taxonomic validity of the subspecies, Service taxonomists were directed to independently evaluate this issue and to prepare a report summarizing their findings. Their review concluded that the coastal California gnatcatcher is a valid subspecies whose range extends to about 30° north latitude in Baja California, Mexico (Banks and Gardner 1992).

**Issue 2:** Several commenters questioned the validity of the statistical analysis used by Atwood (1991) to evaluate intraspecific morphological variation within the California gnatcatcher. They concluded that he pooled data into three broad groups along a latitudinal gradient prior to performing statistical tests that were used to define subspecies limits. One commenter also submitted that the method used by Atwood (1991) of initially pooling data into 9 sample areas may have biased the results of his statistical analysis and subsequent subspecies determinations.

**Service Response:** Atwood's methods have been peer-reviewed and there has been no indication that he used inappropriate statistical methods. The 31 morphological characters examined by Atwood (1991) were initially segregated into 7 groups or clusters of characters that showed similar patterns of geographic variation. At this stage of the analysis, sample area data were not grouped or pooled. Next, univariate

multiple comparison tests were done on the non-pooled data from nine sample areas to identify where significant differences between groups may occur.

The results of the two analyses described above indicated that an abrupt change or "step" occurs at 30° north latitude with respect to several morphological characters, "especially those related to darkness of body plumage and the amount of white on rectrices 5 and 6" (Atwood 1991).

Two multivariate cluster analyses were then made based on different combinations of morphological variables. The first used nine variables that were selected based on a stepwise discriminant function analysis that identified those characters most effective in separating the nine sample areas. The second involved the same 22 morphological characters used by Atwood (1988) to analyze interspecific variation within the "black-tailed" gnatcatcher group. These cluster analyses did not involve grouping or pooling of data among the nine sample areas. The results of these two independent analyses were virtually identical and distinguished three geographic groups of California gnatcatchers. Atwood (1991) based his conclusions regarding subspecies limits on the abrupt changes in morphological variation revealed by these analyses.

Finally, data from the nine sample areas were pooled into three groups based on the results of the cluster analyses described above and statistically analyzed by analysis of variance for differences between geographically adjacent groups. A number of statistically significant differences were found but these were not used to make determinations regarding subspecies limits.

The method used by Atwood (1991) of initially defining nine sample areas is not considered unconventional with respect to ornithological taxonomy. Banks and Gardner (1992), who independently reviewed this issue, reported that "Atwood's (1991) procedures and methods are well within the norm for systematic/taxonomic reviews of geographic variation in birds. It appears that all readily available pertinent specimen material was used, population samples were assembled properly, all important variable morphological characters were examined, and statistical treatments were appropriate."

**Issue 3:** Several commenters submitted that the taxonomic conclusions reported by Atwood (1991) are not valid because they are based largely on variations in plumage color

that may be environmental and not genetic in origin.

**Service Response:** Whether or not the abrupt changes in morphological variation reported by Atwood (1991) for the California gnatcatcher are genetically-based is not known at this time. The traditional scientific approach to defining avian subspecies has been based almost exclusively on the identification of morphological differences in body measurements and plumage characters between geographically distinct populations of a species irrespective of whether these differences have a demonstrated genetic origin, although environmental and dietary factors can affect plumage coloration in birds to varying degrees. The distributional limits of subspecies have been traditionally determined largely by the correlation between diagnostic morphological characters (including those associated with color) and the environment (May 1971).

Atwood's conclusions are strengthened by congruent patterns in geographic variation among several species at 30° north latitude, which represents the southern range limit of the coastal sage scrub community and an important transition zone for various birds, plants, terrestrial insects, land mammals, reptiles, and scorpions (Atwood 1991 and references cited therein).

**Issue 4:** Many commenters expressed the position that the report entitled "A Rangewide Assessment of the California Gnatcatcher (*Polioptila californica*)" by Michael Brandman Associates (MBA), dated July 23, 1991, rebuts the Service's finding that listing of the coastal California gnatcatcher is warranted.

**Service Response:** The Service has considered the findings of the MBA report in determining to list the coastal California gnatcatcher. MBA (1991) reported that fewer than 2,000 pairs of coastal California gnatcatchers occur in the United States, two-thirds of coastal sage scrub vegetation in California has been destroyed, a 140-km (87 mi) gap exists between the United States and Mexican populations due to urban and agricultural development, and only 1 percent of the Mexican population of *Polioptila californica* occurs north of 30° north latitude, which represents the southern range limit of *P. c. californica*. These findings are consistent with published and unpublished reports on coastal California gnatcatcher status that were used by the Service in determining to propose and list this subspecies.

MBA (1991) also reported that "at least 100 square miles of coastal sage scrub habitat, much of which is suitable for the California gnatcatcher, is

protected or currently committed to be preserved in public and private open space in Orange and San Diego Counties alone." However, the MBA report does not contain a discussion of the methods used to derive the 100 square mile value, and insufficient or incorrect data are presented to support this conclusion. No data are presented with respect to gnatcatcher distribution within "protected open space areas." No distinction is made between "dedicated" and "designated" open space. The latter is subject to zoning changes for urban development, which is one of the reasons why the Service found that existing regulatory mechanisms do not adequately protect the gnatcatcher or its habitat. In some cases, even dedicated open space does not confer sufficient protection; two examples are discussed under factor "D" in the "Summary of Factors Affecting the Species" section of this rule.

Atwood (1992a) reported that 94 percent of all gnatcatcher locality records (n=306) for Orange and San Diego Counties occur below 250 m (820 ft) in elevation (Atwood 1992a). Based on a much larger sample size (n=781) for the same geographic area, MBA (1991) reported that 91 percent of all gnatcatcher records occur at or below 250 m (820 ft) and 99 percent occur at or below 300 m (98 ft) in elevation. These data have important implications for gnatcatcher conservation. Although protection of coastal sage scrub above 250 m to 300 m (800 to 1000 ft) in Orange and San Diego Counties is important for other biological reasons, it may contribute little to the long-term maintenance of viable gnatcatcher populations (Atwood 1992a). Of approximately 19,000 acres of coastal sage scrub in Orange County found below 300 m in elevation, 36 percent (6,800 acres) is preserved, 21 percent (4,000 acres) is approved or proposed for development, and 43 percent (8,300 acres) is of uncertain status (Roberts 1992).

Only 9 of 148 pairs of gnatcatchers, or 6 percent, presently occur in "open space dedication areas" in the Rancho Mission Viejo area of Orange County based on a map submitted to the Service by the Coalition for Habitat Conservation (1992). Of the 7,000 acres "preserved in the Lomas Ridge/Limestone/Whiting Ranch greenbelt" (MBA 1991), only 1,400 acres are currently protected; the balance of the set-aside is contingent upon construction of housing and transportation facilities. Only 6 pairs of coastal California gnatcatchers occur in 2,800 acres of coastal sage scrub found

within the Whiting Ranch and Limestone Canyon areas of Orange County (unpublished data on file at the Carlsbad Field Office of the Fish and Wildlife Service). These data do not support the finding of MBA (1991) for Orange County that "in all, coastal sage scrub in existing or committed open space encompasses most existing populations of California gnatcatcher in the county."

In addition, MBA (1991) reported that 168 acres of coastal sage scrub are preserved in Upper Newport Bay in Orange County. However, this area contains only about 35 acres of coastal sage scrub (F. Roberts, Fish and Wildlife Service, pers. comm.).

Furthermore, the discussion of habitat fragmentation in the MBA report is entirely qualitative and fails to consider the effects of fragmentation on rates of nest predation and brown-headed cowbird (*Molothrus ater*) nest parasitism. Methods and data are not presented to support or allow independent verification of the stated conclusions.

**Issue 5:** An assessment of the degree of coastal sage scrub loss and fragmentation should not be based on a comparison between older and recent vegetation maps because of differences in scale and mapping techniques. Several commenters questioned the validity of assessing the extent of coastal sage scrub loss and fragmentation based on a comparison of vegetation maps by Kuchler (in Barbour and Major 1977), Oberbauer (1979), Kirkpatrick and Hutchinson (1980), San Diego Association of Governments (1986), RECON (1990a,b), Roberts (1990), and County of Orange (1991a).

**Service Response:** The Service has attempted to use all available information in assessing the threats to the coastal California gnatcatcher and the ecosystem upon which it depends. The intent in citing the references listed above in the proposed rule was to provide supporting documentation for the finding that a widespread pattern exists with respect to the progressive loss and fragmentation of habitat in which this species occurs. The Service agrees that differences in scale and mapping techniques preclude a rigorous quantitative analysis of this issue and that Kuchler's published map is hypothetical, in part, since no comprehensive empirical data are available from which to completely reconstruct the original extent of coastal sage scrub in southern California. However, based on the sources listed above, as well as maps presented by the U.S. Forest Service (1934), Minnich (1990), MBA (1991), and the County of

Orange (1992), the Service finds that although the historic distribution of coastal sage scrub and gnatcatcher habitat were undoubtedly patchy to some degree, this condition has been exacerbated by urban and agricultural development. The most conservative estimate of coastal sage scrub loss (relative to the pristine condition) within the existing range of the gnatcatcher in the United States, has been reported as 66 percent by MBA (1991).

Additional supporting documentation is provided by Wieslander and Jensen (1946). They reported that in 1945 there were 95,000 acres of "coastal sagebrush" in Orange County, 279,000 acres in Riverside County, and 381,000 acres in San Diego County. As of 1990, the Service estimates there were about 48,000 acres of "coastal sagebrush" in Orange County (Roberts 1990), 114,000 acres in Riverside County (based on maps by Minnich 1990 and RECON 1990a), and 135,000 to 152,000 acres in San Diego County (Oberbauer and Vanderwier 1991, San Diego Association of Governments 1992). These data represent coastal sage scrub losses of 50, 59, and 60 to 65 percent for Orange, Riverside, and San Diego Counties, respectively, since 1945. Overall, 58 to 61 percent of the coastal sage scrub present within this geographic area in 1945 had been lost by 1990.

**Issue 6:** A listing action is unnecessary because the Coastal Sage Scrub Natural Community Conservation Planning Program (NCCP), established by the California Resources Agency under the Natural Community Conservation Planning Act of 1991, adequately protects and provides for the conservation of the coastal California gnatcatcher.

**Service Response:** The Coastal Sage Scrub NCCP is a voluntary, collaborative effort between landowners, local jurisdictions, and the State of California. The Service is cooperating with the California Department of Fish and Game (Department) in the development of this program and has entered into a Memorandum of Understanding with the Department that formalizes this commitment.

Based on the findings presented below under Factor D in the section entitled, "Summary of Factors Affecting the Species," the Service concludes that the NCCP Program does not currently provide adequate conservation of the coastal California gnatcatcher to the degree that a listing action is not warranted. However, the Service recognizes the potential benefits to the

gnatcatcher that may occur from this program, and finds that the overall participation in the program has contributed to reducing some of the short-term threats to this species in portions of its range in the United States.

**Issue 7:** Listing of the coastal California gnatcatcher as endangered is not warranted because there are 1.5 million pairs of this species in Baja California, Mexico.

**Service Response:** Many commenters raised this issue, which is based entirely on an unpublished, draft report entitled, "Distribution and Population Estimates of the California gnatcatcher (*Polioptila californica*) in Baja California, Mexico" prepared for the Building Industry Association of Southern California by RECON (1991a). This draft report, dated June 26, 1991, was not formally submitted to the Service until October 20, 1992, by the Coalition for Habitat Conservation during the second public comment period on the proposed rule.

The technique used by RECON to census gnatcatchers was the variable-strip transect method (Emlen 1971), as modified by Franzreb (1981). Two hundred transects located at about 5-mile intervals adjacent to roads between Tijuana and Ciudad Insurgentes were censused for gnatcatchers using playback of taped gnatcatcher vocalizations and sampled for selective floristic data. Gnatcatcher densities were calculated for each of 13 vegetation types by multiplying observed densities by a coefficient of detectability (Emlen 1971) based on the total sample. Gnatcatcher population estimates for each vegetation type were calculated by multiplying the adjusted gnatcatcher densities by the extent of each vegetation type derived from a 1:1,000,000 scale vegetation map.

A total of 396 California gnatcatchers were detected in the RECON study; 99 percent of which were found south of 30° north latitude, which represents the southern range limit of *Polioptila californica californica*. No gnatcatchers were observed north of Santo Tomas, which is about 140 km (87 mi) south of the international border, and 87 percent of all gnatcatcher detections occurred below 300 m (984 ft) in elevation. A total of 26 gnatcatchers were detected north of 30° north latitude (J. Newman, pers. comm., 1992). California gnatcatchers occurred in coastal sage scrub habitat which " \* \* \* closely resembles that found in the United States in terms of structure and species composition \* \* \*" north of 30° north latitude (RECON 1991a). South of 30° north latitude, RECON reported that California gnatcatchers occur in open

desert habitats but " \* \* \* were more often detected in the relatively densely vegetated areas along washes and drainages \* \* \*", although south of the Magdalena Plain and Vizcaino Desert they reported California gnatcatchers as " \* \* \* widely distributed within suitable habitat, not being restricted to the vegetation found in drainages." The low number of California gnatcatchers found north of 30° north latitude is attributed by RECON to habitat loss, degradation, and fragmentation. RECON also reported that the habitat connection between the United States and Mexico populations of the California gnatcatcher is "tenuous."

The accuracy of the variable-strip transect method is dependent on the degree to which a variety of assumptions are satisfied (Franzreb 1981). These assumptions include: (1) Birds are uniformly and randomly distributed; (2) birds do not move in response to the observer's presence prior to being detected; and (3) there are no measurement errors. The competence of the observer is also a major factor influencing the accuracy of transect censusing methods (Franzreb 1981).

In the RECON study, assumption 1 was violated by the finding that: (1) Gnatcatcher presence " \* \* \* is strongly correlated with large shrub cover, tree cover, and shrub height" and (2) south of 30° north latitude, California gnatcatchers occurred in open desert habitats but " \* \* \* were more often detected in the relatively densely vegetated areas along washes and drainages \* \* \*". Extrapolation of gnatcatcher density values based on these findings to all potential gnatcatcher habitat on the peninsula would result in highly inflated population estimates. Other field biologists who have surveyed sites repeatedly for California gnatcatchers, using taped vocalizations to increase their detectability, have found their distribution within coastal sage scrub habitats in northwestern Baja California, Mexico, to be patchy (D. Grout, Fish and Wildlife Service, pers. comm.). Similar results have been reported for the gnatcatcher in the United States (Atwood 1980, 1990).

The use of tapes to increase gnatcatcher detectability significantly increases the probability that assumption 2 was violated. California gnatcatchers have been observed moving long distances toward an observer in response to taped vocalizations or "pishing" calls. Thus, taped vocalizations, or "pishing" calls may briefly result in increased local densities of California gnatcatchers. Extrapolating these densities to broader

areas would result in excessively high population estimates.

With respect to assumption 3, the draft report by RECON acknowledges that measurement errors were made. Moreover, only one of six biologists affiliated with the RECON study had any previous experience with the variable-strip transect method and only one brief "training" session (in the Anza Borrego desert) was held prior to initiation of the study (J. Newman, pers. comm., 1992). The effects of this potential source of bias on the density and population estimates are unknown.

Contrary to the recommendation of Emlen (1971), no replicate censuses and no comparative surveys using other census techniques were done in the RECON study to calibrate the accuracy of the results because of funding constraints. This factor also influenced the decision to use taped vocalizations of gnatcatchers to increase their detectability and the decision against censusing gnatcatchers south of 25° north latitude (P. Fromer and J. Newman, RECON, pers. comm.).

The extremely small scale (1:1,000,000) vegetation map used by RECON to derive estimates of available gnatcatcher habitat, coupled with the faulty assumption that California gnatcatchers are uniformly distributed within a given vegetation type and the acknowledgement by RECON (1991a) that "The inability to clearly identify the extent of coastal sage scrub versus chaparral, and therefore, California gnatcatcher habitat, is problematic," further reduces the reliability of the results of the RECON study.

The population estimates presented in the draft report by RECON are based on a coefficient of detectability (CD) value of 0.25, even though the CD values for the three arbitrarily defined regions of study (north, central, and south) varied by an order of magnitude (0.06, 0.15, and 0.56, respectively) (J. Newman, pers. comm., 1992). Artificially low CD values would result in inflated density and population estimates. CD values are not necessary in order to calculate avian density (Franzreb 1981). Based on observed densities, RECON estimates that about 2,800 pairs of *P. c. californica* occur in Baja California, Mexico (J. Newman, pers. comm., 1992).

RECON has emphasized in discussions with the Service that the population estimates presented in the draft report were meant to be interpreted in a relative manner, e.g., 99 percent of all California gnatcatchers in Baja California, Mexico, are south of 30° north latitude, and not as exact numbers (P. Fromer and J. Newman, pers. comm.). This interpretation is consistent

with that of Verner (1985), who concluded that bird census techniques such as the variable-strip transect method, can provide useful information on the relative abundance of bird species but that density estimates based on such methods are not as reliable as those derived from other techniques.

In summary, no scientific basis exists for concluding that 1.5 million pairs of California gnatcatchers occur in Baja California, Mexico. Furthermore, the Service's conclusion that a listing action is warranted is supported, in part, by the findings of RECON that: (1) 99 percent of California gnatcatchers in Mexico occur south of 30° north latitude; (2) the low number of *Poliophtila californica californica* in Mexico is attributable to habitat loss, degradation, and fragmentation; and (3) the habitat connection between United States and Mexico gnatcatcher populations is tenuous. The government of Mexico also formally supports a listing action (Garcia 1992).

*Issue 8:* The results of Audubon Christmas Bird Counts in southern California indicate that the California gnatcatcher population is increasing. One commenter submitted a summary of Audubon Christmas Bird Count results from 1960 through 1989 for 20 localities in southern California. The data were presented in a tabular format as 10-year averages of annual count totals (with standard deviations and ranges) for the California gnatcatcher. These results are based on 9,814 observer-hours expended in the 1960-69 period, 17,575 observer-hours expended in the 1970-79 period, and 21,723 observer-hours expended in the 1980-89 period. The commenter concluded, based, in part, on this analysis, that the California gnatcatcher population in the United States is increasing and should not be listed under the Endangered Species Act.

*Service Response:* Although the Audubon Christmas Bird Count is considered to be the "single, most popular, voluntary, early winter bird continental inventory in the world" (Drennan 1981), its methods are "weakly standardized" (Bock and Root 1981) and of limited use in analyzing changes in bird population sizes. The results are subject to much bias associated with variation in observer experience, sampling effort, weather, and an emphasis on particular species. Christmas bird counts must be "normalized" to be meaningful indicators of winter bird population sizes (Bock and Root 1981 and papers cited therein).

The analysis submitted as public comment that discusses gnatcatcher

population changes within Christmas Bird Count areas did not involve normalized data or include inferential statistics that provide the degree of confidence in the accuracy of the measurements. For these reasons, the Service finds that the analysis of Christmas Bird Count results does not support the conclusion that the California gnatcatcher population increased between 1960 and 1989. The greater sampling effort in the 1980-89 period (2.2 times the effort expended in the 1960-69 period) coupled with a relatively greater emphasis on gnatcatcher status during this time (especially in the latter half of the 1980's; which probably resulted in more effort being directed at locating gnatcatchers) probably accounts for the perceived population increases noted at 6 of the 20 sites examined.

*Issue 9:* The estimate of an 81 percent loss of coastal sage scrub for Riverside County between 1930 and 1990 is incorrect. One commenter submitted (without supporting documentation) that 304,000 acres of coastal sage scrub were present in Riverside County in 1930, rather than the 410,000 acres reported by the Service in the proposed rule. This commenter also pointed out that 74,000 acres of mixed European annual grassland/coastal sage scrub identified by Minnich (1990) was not taken into consideration in calculating the loss estimate stated above. The commenter concluded that using the correct figures, only a 50 percent loss has occurred since 1930. Other commenters questioned the estimate of coastal sage scrub loss for San Diego County. One commenter considered the 70 percent loss estimate for coastal sage scrub in San Diego County to be excessive and recommended that it be reexamined.

*Service Response:* Mr. Paul Fromer of RECON provided the Service with unpublished data on coastal sage scrub status in Riverside County for the years 1930 and 1990. The 1930 figure was based on a geographic information system analysis of digitized data from a variety of sources (RECON 1990c). The 1990 estimate of the extent of coastal sage scrub in Riverside County was based on a composite vegetation map of Riverside County prepared by RECON (1990a) from a large number of sources in conjunction with the Riverside County Multispecies Habitat Conservation Plan.

The most recent information on the extent of coastal sage scrub in Riverside County was reported by RECON (1991b) based on Minnich (1990) after the proposed rule was published. RECON (1991b) reported that 74,988 acres of

coastal sage scrub and 77,669 acres of mixed European annual grassland/coastal sage scrub existed in Riverside County as of 1990. Although gnatcatchers occupy some annual grassland/coastal sage scrub areas, it is incorrect to assume that the entire grassland component should be considered coastal sage scrub. For example, at two sites encompassing about 1,200 and 2,000 acres, respectively, that were mapped by Minnich (1990) as mixed European annual grassland/coastal sage scrub, only 12 and 34 percent, respectively, of the plant cover at these sites consisted of coastal sage scrub as determined by planimetry of 1:21,000 scale color aerial photographs. A more refined vegetation map is needed to quantify the full extent of coastal sage scrub in this cover type.

Assuming that as much as 50 percent of the area associated with mixed European annual grassland/coastal sage scrub is considered to be coastal sage scrub, then about 114,000 acres existed in Riverside County as of 1990. Assuming that 304,000 to 410,000 acres of coastal sage scrub existed in 1930, then a 63 to 71 percent loss had occurred by 1990. Wieslander and Jensen (1946) reported that 279,000 acres of "coastal sagebrush" existed in Riverside County in 1945. Assuming that 114,000 acres existed in 1990, this represents a loss of 59 percent since 1945. The Service considers this magnitude of loss over the last 45 to 60 years to be significant and consistent with its finding that habitat loss is a significant threat to the continued existence of the coastal California gnatcatcher. It should also be noted that Wieslander and Jensen (1946) defined coastal sagebrush as " \* \* \* such shrubs as California sagebrush, coyote brush, and wild buckwheats covering over 50 percent of the ground." The degree to which their estimate of coastal sagebrush acreage for Riverside County would increase, based on inclusion of mixed European annual grassland/coastal sage scrub, is unknown, but may have increased it substantially.

The Service estimate of coastal sage scrub loss for San Diego County is based on an analysis by Oberbauer (1979). A more recent loss estimate of 72 percent was reported by Oberbauer and Vanderwier (1991) after the proposed rule was published. Considering that an estimated 64 percent of the coastal sage scrub present in San Diego County in 1930 had been lost by 1991 (MBA 1991), and that " \* \* \* by 1930 many areas of the coastal lowlands had already been converted to farmland and pastureland \* \* \*" (MBA 1991), the Service believes the 70 percent loss estimate for

coastal sage scrub in San Diego County, relative to the pristine condition, to be reasonably accurate based on available information.

There were 381,000 acres of "coastal sagebrush" in San Diego County in 1945 (Wieslander and Jensen 1946). Approximately 135,000 to 152,000 acres of coastal sage scrub currently exist in San Diego County (Oberbauer and Vandewier 1991, San Diego Association of Governments 1992). This represents a 60 to 65 percent loss of coastal sage scrub in San Diego County since 1945 alone. The Service considers this magnitude of loss to be significant and consistent with its finding that habitat loss is a significant threat to the continued existence of the coastal California gnatcatcher.

*Issue 10:* The Service's finding that the California gnatcatcher once had an extensive range in Los Angeles County is speculative.

*Service Response:* Relatively little information is available to reconstruct the distribution of the California gnatcatcher in Los Angeles County prior to the urbanization of this area. However, Atwood (1990) reported historic locality records for this species " \* \* \* from the San Fernando Valley east along the base of the San Gabriel Mountains to Clairemont, and at the lower elevations of the San Jose, Los Coyotes, and Palos Verdes Hills." The extremely isolated nature of the Palos Verdes Hills population and the low dispersal capability of gnatcatchers (to date, the maximum known dispersal distance is about 9 miles) strongly suggest that this population was historically contiguous with, or in close proximity to, other gnatcatcher populations in southern Los Angeles County. In addition, Atwood (1990) reported that "over 96 percent of the total low elevation (less than 250 m) acreage in Los Angeles County that might historically have supported *P. c. californica* has been largely or entirely developed." Therefore, the Service concludes that the coastal California gnatcatcher once had an extensive range in Los Angeles County.

*Issue 11:* The Service should explain how the estimate of 54,000 acres of coastal sage scrub currently occupied by the coastal California gnatcatcher within its range in the United States was derived.

*Service Response:* This estimate was calculated by multiplying a gnatcatcher population size of 2,262 pairs (Atwood 1990) by a mean home range size of 23.8 acres/pair (Mock and Jones 1990). The actual estimate of 53,835 acres was rounded off to 54,000 acres.

Based on new information on gnatcatcher population size that was not available at the time the proposed rule was published (e.g., Coalition for Habitat Conservation 1992) the Service estimates that about 2,562 pairs of California gnatcatchers remain in the United States. Assuming these pairs occupy, on average, home ranges of 34.6 acres (the largest mean home range reported to date) then as much as 89,000 acres of coastal sage scrub may be occupied by the coastal California gnatcatcher within the United States.

The intent in calculating this estimate is to demonstrate that although the coastal California gnatcatcher is endemic to coastal sage scrub, it does not occur throughout this floristically and structurally variable community.

Additional supporting documentation for this finding is provided by Ogden Environmental and Energy Services (1992), which has prepared a preliminary estimate of the California gnatcatcher population within the city of San Diego's Multiple Species Conservation Plan (MSCP) study area. Based on Ogden's analysis, about 21,500 acres (18 percent) of coastal sage scrub occurring within the MSCP study area is known to be occupied by the California gnatcatcher. Recent surveys have also confirmed the non-uniform distribution of this species. Only three California gnatcatchers (one pair and one individual) were found in a 2,400-acre patch of coastal sage scrub in the Marron Valley area of San Diego County based on multiple visits to this site during 1992 (P. Mock, Ogden Environmental and Energy Services, Pers. Comm.). No gnatcatchers were detected during multiple visits in 1992 to a 1,000-acre patch of coastal sage scrub near Dehesa, north of the Sweetwater River in San Diego County (P. Mock, pers. comm.).

**Issue 12:** The Service should not list the gnatcatcher because the results of recent censuses show a significant increase in the population of California gnatcatchers within Orange and San Diego Counties relative to estimates by Atwood (1990).

**Service Response:** The Service has made a concerted effort to obtain the best available scientific information on which to base a listing decision, especially with respect to data on gnatcatcher distribution and abundance. Based on recent census information, the Service has revised the estimate for the United States gnatcatcher population from 2,262 pairs in the proposed rule to 2,562 pairs in the final rule. About 2,800 pairs of coastal California gnatcatchers are estimated to occur in Baja California,

Mexico (J. Newman, RECON, pers. comm., 1992).

Although it is reasonable to assume that gnatcatcher populations may have been depressed during the recent drought conditions and are now increasing in response to normal or above normal rainfall that may have improved habitat conditions, there is no scientific basis for concluding that the population, as a whole, is increasing based on a comparison between the results of recent censuses and the estimate by Atwood (1990). The population estimate by Atwood (1990) is an extrapolation based on gnatcatcher densities at two locations and the amount of undeveloped land below 500 m (1,640 ft), which was calculated from base maps prepared in 1983 (Atwood 1990). The recent censuses represent actual counts, although the results were not obtained using the same census methods.

Scientifically credible data on which to base an analysis of population trends must be collected in a standardized manner over the entire range of the population under consideration and, ideally, over a long period of time. To date, a rangewide census of the California gnatcatcher using a standardized methodology has not occurred. Recent censuses of the California gnatcatcher in portions of Orange, Riverside, and San Diego Counties have used different methods especially with respect to sampling effort. An adequate population baseline established using a standardized census methodology is lacking for the coastal California gnatcatcher's range. The Service does not concur that a significant increase has occurred in the population of California gnatcatchers within Orange and San Diego Counties. It should also be recognized that the Service's decision to propose the gnatcatcher for listing was based on significant threats associated with habitat loss and fragmentation rather than low population size. This issue is discussed in the "Summary of Factors Affecting the Species" section of this rule.

**Issue 13:** A number of commenters questioned the accuracy of the Service estimate that 250,000 to 375,000 acres of coastal sage scrub remain in California. One commenter submitted that about 576,000 acres of coastal sage scrub occur in southern California.

**Service Response:** The estimate cited above is based on two sources of information. Barbour and Major (1977) estimate that about 2.5 million acres of coastal sage scrub occurred historically in California. Westman (1981a,b) estimates that 85 to 90 percent has been

lost as a result of urban and agricultural development. The estimate of 250,000 to 375,000 acres represents 10 to 15 percent of 2.5 million acres.

Based on new information, the Service estimates that about 48,000 acres of coastal sage scrub exist in Orange County (Roberts 1990), 75,000 to 114,000 acres in Riverside County (see discussion under Issue 9 above), and 135,000 to 152,000 acres in San Diego County (Oberbauer and Vanderwier 1991, San Diego Association of Governments 1992). The Santa Monica Mountains Conservancy (1992) estimates that 85,000 to 130,000 acres of coastal sage scrub occur in northwestern Los Angeles County. The California Department of Fish and Game (1992) estimates that 393,655 acres of coastal sage scrub occur within the Natural Community Conservation Planning Program study area, which encompasses the same geographic area discussed above as well as southwestern San Bernardino County. The Service is not aware of any other recent estimates for the extent of coastal sage scrub elsewhere within the historic range of this plant community in California as defined by Barbour and Major (1977).

Assuming the estimate for northwestern Los Angeles County cited above is accurate, then about 343,000 to 444,000 acres of coastal sage scrub remain in California within an area encompassing the majority of the historic range of this plant community. This revised estimate represents 14 to 18 percent of the estimated original extent of coastal sage scrub in California as reported by Barbour and Major (1977).

**Issue 14:** Coastal sage scrub is plentiful in Baja California, Mexico. One commenter estimated that 1.3 million acres (520,000 ha) of coastal sage scrub and coastal succulent scrub exist in Baja California, based on satellite imagery analysis. The Service should take this factor into consideration in the listing decision-making process.

**Service Response:** The Service did consider the availability of coastal sage scrub and the status of the coastal California gnatcatcher in Baja California, Mexico, in determining to list the gnatcatcher. Substantially more potential habitat for the coastal California gnatcatcher may remain in Baja California than in the United States. Using 1:20,000 and 1:40,000 scale aerial photographs, Minnich (unpublished manuscript 1993) estimates that about 1.4 million acres of coastal sage scrub and 765,250 acres of maritime desert scrub remain between the international border and 30° north latitude.

Notwithstanding the limitations of mapping vegetation accurately from satellite imagery (Lillesand and Keifer 1987, Franklin and Stow 1991), neither of the acreage estimates cited above consider gnatcatcher habitat.

Furthermore, it is incorrect to assume that all coastal sage scrub or maritime desert scrub is coastal California gnatcatcher habitat. The gnatcatcher is not uniformly distributed within this structurally and floristically diverse community. Recent intensive surveys for California gnatcatchers in northwestern Baja California failed to detect any gnatcatchers at various localities containing potential habitat. Repeated visits and entire days were spent at some localities without detecting any gnatcatchers (D. Grout, Fish and Wildlife Service, pers. comm.).

In addition, the acreage estimates cited above do not quantify the degree to which the areas mapped as coastal sage scrub are threatened by urban and agricultural development or the degree to which they have been degraded by grazing and fire. Widespread habitat degradation has occurred in Baja California (RECON 1991a, J. Newman, pers. comm.). The habitat connection at the international border consists of very degraded coastal sage scrub that is being encroached upon by urban development. In the United States, the State of California has partially funded an approved off-road vehicle park development at the border that would directly affect about 21 pairs of gnatcatchers and 500 acres of coastal sage scrub. Lease negotiations between the landowner and the California Department of Parks and Recreation have recently been suspended for this park because of potential conflicts with the Natural Community Conservation Planning Act of 1991 and with the conservation of the gnatcatcher.

Sufficient threats to the continued existence of the coastal California gnatcatcher exist in Mexico to warrant the listing of this subspecies throughout its range in Baja California. The government of Mexico has formally endorsed this conclusion and supports this listing action (Garcia 1992).

*Issue 15:* Periodic fires in gnatcatcher habitat will benefit the species. One commenter questioned the conclusion by the Service in the proposed rule that high fire frequencies and the lag period associated with recovery of the vegetation may significantly reduce the viability of affected gnatcatcher populations and may contribute to the loss, degradation, and fragmentation of coastal sage scrub. The commenter cited several instances where gnatcatcher populations increased following fires,

although no data were submitted which would allow independent corroboration of this conclusion.

*Service Response:* Fire is a natural component of some shrubland ecosystems, although the fire ecology of coastal sage scrub is not well understood. The timing, frequency, intensity, and magnitude of fire events, as well as surrounding land uses and weather patterns, influence the effects of fire on the gnatcatcher. In some cases, the outcome may benefit the gnatcatcher by ultimately causing more suitable habitat to develop and, in others, it may cause local extirpations and/or habitat degradation that reduces the number of gnatcatchers that can be supported on the affected site. Increased fire frequency is probably detrimental to coastal sage scrub and California gnatcatcher populations. For example, increased fire frequencies at Camp Pendleton Marine Corps Base in San Diego County are contributing to the type conversion of shrubland vegetation types, including coastal sage scrub, to grasslands (D. Lawson, U.S. Marine Corps, pers. comm.). Fire frequencies increase in wildland areas bordered by urban and agricultural development (Radtko 1983).

*Issue 16:* The Service misrepresented the magnitude of threat to the gnatcatcher from urban development. Several commenters questioned the validity of the Service's analysis of the threat to the gnatcatcher posed by urban development and submitted that it was overstated.

*Service Response:* The Service's assessment of this issue is based on: (1) A review of environmental impact reports for proposed and approved developments within the gnatcatcher's current range in the United States; (2) the results of aerial reconnaissance within Orange, Riverside, and San Diego Counties; (3) the finding that 91 to 94 percent of gnatcatcher locality records for Orange and San Diego Counties occur below 250 m (820 ft) in elevation and 99 percent occur below 300 m (984 ft) in elevation (MBA 1991, Atwood 1992a); and (4) other available information such as an estimated 58 to 61 percent loss of coastal sage scrub in Orange, Riverside, and San Diego Counties since 1945 (see discussion under Issue 5 above) and an estimated 66 to 90 percent reduction in the original extent of coastal sage scrub in California, both reductions due primarily to urbanization (Westman 1981a,b; MBA 1991). A more detailed analysis of the loss of coastal sage scrub habitat due to urbanization is presented under Factor A in the section entitled, "Summary of Factors Affecting the

Species," and in the discussion of the NCCP program under Factor D.

*Issue 17:* The Service violated the Federal Advisory Committee Act when it requested comments from the American Ornithologists' Union (AOU) regarding the subspecies taxonomy of the California gnatcatcher.

*Service Response:* The Service has made a concerted effort to obtain the best available scientific information regarding the coastal California gnatcatcher. Based on numerous comments regarding gnatcatcher taxonomy, the Service solicited the AOU Committee on Classification and Nomenclature, a recognized authority on the taxonomy of North American birds, for its position on this issue. The Service solicited comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, and any other interested party on all aspects of the proposed rule. The Service's request for comments from the AOU is consistent with its legal obligations under the Endangered Species Act to obtain the best available scientific information, and does not constitute a violation of the Federal Advisory Committee Act.

*Issue 18:* Insufficient public notice was given by the Service regarding this proposed action.

*Service Response:* The Service's efforts to notify the public about the proposal to list the coastal California gnatcatcher were extensive, and are described at the beginning of this section entitled, "Summary of Comments and Recommendations."

In addition, this issue has received considerable media attention. Between September of 1991 and October of 1992, over 60 articles concerning the California gnatcatcher appeared in newspapers such as the *Los Angeles Times*, *Oceanside Blade-Citizen*, *Orange County Register*, *Riverside Press-Enterprise*, *San Diego Business Journal*, *San Diego Union-Tribune*, *Wall Street Journal*, and the *Washington Post*. This issue and a petition to state-list the California gnatcatcher as endangered received considerable media attention during the spring and summer of 1991, as well. Over 50 articles about the gnatcatcher appeared in the *Los Angeles Times*, *Orange County Register*, *Riverside Press-Enterprise*, and the *San Diego Union-Tribune*.

On the basis of the information presented above, the Service concludes that the public was adequately notified with respect to the proposed action.

*Issue 19:* The Service should consider economic effects in determining whether to list the coastal California

gnatcatcher under the Endangered Species Act (Act).

**Service Response:** In accordance with 16 U.S.C., paragraph 1533(b)(1)(A), 50 CFR 424.11(b), and section 4(b)(1)(A) of the Act, 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 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 20:** The Service should prepare an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) for this proposed action.

**Service Response:** For the reasons cited in the NEPA section of this rule, the Service has determined that rules issued pursuant to section 4(a) of the Endangered Species Act do not require the preparation of an EIS.

#### Summary of Factors Affecting the Species

After a thorough review and consideration of all available information, the Service has determined that the coastal California gnatcatcher should be classified as a threatened species. Procedures found at section 4 of the Endangered Species Act (16 U.S.C. 1533) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to the coastal California gnatcatcher (*Poliioptila californica californica*) are as follows:

A. The present or threatened destruction, modification, or

curtailment of its habitat or range. The habitat and range of the coastal California gnatcatcher have been significantly reduced. This coastal sage scrub endemic species historically occurred in six counties in southern California. It has been extirpated from two counties (Ventura and San Bernardino) and is on the brink of extirpation from a third (Los Angeles). Atwood (1990, 1992b) reported that California gnatcatchers have been extirpated from at least 42 sites that were occupied prior to 1960. He also reported that of 56 sites that supported coastal sage scrub and California gnatcatchers in 1980, 18 (32 percent) had been destroyed and 15 (27 percent) were partially impacted by development in 1990. About 99 percent of the population in the United States presently occurs within Orange, Riverside, and San Diego Counties.

MBA (1991) and Westman (1981 a,b) have reported an estimated 66 and 85 to 90 percent reduction, respectively, in the original extent of coastal sage scrub in California. In 1945, 95,000 acres of "coastal sagebrush" remained in Orange County, 279,000 acres were in Riverside County, and 381,000 acres existed in San Diego County (Wieslander and Jensen 1946). As of 1990, about 48,000 acres of "coastal sagebrush" remained in Orange County (Roberts 1990), 114,000 acres in Riverside County (based on Minnich 1990 and RECON 1990a), and 135,000 to 152,000 acres in San Diego County (Oberbauer and Vanderwier 1991, San Diego Association of Governments 1992). These data represent coastal sage scrub losses of 50, 59, and 60 to 65 percent for Orange, Riverside, and San Diego Counties, respectively, since 1945. Overall, 58 to 61 percent of the coastal sage scrub within these three counties in 1945 had been lost by 1990. All of the published literature on the status of coastal sage scrub vegetation in California supports the conclusion that this plant community is one of the most depleted habitat types in the United States (Kirkpatrick and Hutchinson 1977; Axelrod 1978; Klopatek *et al.* 1979; Westman 1981 a,b, 1987; Mooney 1988; O'Leary 1990).

The coastal California gnatcatcher is not uniformly distributed within the structurally and floristically variable coastal sage scrub community (Kirkpatrick and Hutchinson 1977, Westman 1981b, Desimone and Burk 1992) which extends up to 600 m (1969 ft) in elevation (O'Leary 1990). It tends to occur most frequently within *Artemisia californica*-dominated stands of coastal sage scrub on mesas and lower slopes of the coast ranges that

have been extensively converted to urban and agricultural habitats throughout Los Angeles, Orange, western Riverside, and western San Diego Counties.

Atwood (1992a) reported that 94 percent of all gnatcatcher locality records (n=306) for Orange and San Diego Counties occur below 250 m (820 ft) in elevation. Based on a much larger sample size (n=781) for the same geographic area, MBA (1991) reported that 91 percent of all gnatcatcher records occur at or below 250 m and 99 percent occur at or below 300 m (984 ft) in elevation.

Of about 19,000 acres of coastal sage scrub found below 300 m in elevation in Orange County, 36 percent (6,800 acres) is preserved, 21 percent (4,000 acres) is approved or proposed for development, and 43 percent (8,300 acres) is of uncertain status (Roberts 1992). Since 1989, over 3,600 acres of coastal sage scrub, located mostly below 300 m in elevation in Orange County, have been destroyed by urban and agricultural development.

Between 1980 and 1990, the human population in San Diego County increased by more than 600,000. Most of this increase occurred on or near the coast at sites historically occupied, in part, by coastal sage scrub vegetation. In southwestern San Diego County, 8,461 acres of coastal sage scrub were lost between 1984 and 1991 (Keeler-Wolf 1991); overall, one-third of the coastal sage scrub present in 1984 within the study area was destroyed by urban development over the 7-year period. Almost 9,000 acres of coastal sage scrub (mostly below 300 m in elevation) in San Diego County have been permanently destroyed by development (about 2,400 acres) or temporarily destroyed and degraded by fire (over 6,500 acres) since September of 1990. Approved and proposed projects could destroy an additional 8,000 acres of coastal sage scrub within areas occupied by gnatcatchers primarily below 300 m in elevation. Several of these projects are located within core populations of the California gnatcatcher.

In Riverside County, over 3,900 acres of coastal sage scrub have been destroyed by urban development and fire since 1989. Of 13 multiple species reserves proposed for acquisition within Riverside County, five contain the majority of California gnatcatchers known to occur in Riverside County. Four of these five proposed reserves are considered to be subject to an imminent development threat and are given a top priority for acquisition (Dangermond and Associates and RECON 1991). Moreover, the human population in all

areas supporting the gnatcatcher are rapidly expanding. The western one-third of Riverside County currently contains 800,000 people. By 2010, this area will support 1.4 million. Housing and employment will increase proportionally, with 275,000 additional housing units projected to be constructed in western Riverside County by 2010 (Monroe *et al.* 1992).

RECON (1991a) reported that relatively few coastal California gnatcatchers occur in northern Baja, California, Mexico, and attributed its status there to habitat loss, degradation, and fragmentation. The habitat connection between the United States and Mexican gnatcatcher populations is "tenuous" (RECON 1991a).

Stands of coastal sage scrub vegetation in northern Baja, California are being grazed, burned to increase grass production, converted to agriculture, and graded for urban development (Bowler 1990, Rea and Weaver 1990). Extensive tracts of coastal sage scrub vegetation on the marine terraces between Colonet and San Quintin have been converted to tomato fields (R. Minnich, Univ. of California, Riverside, Dept. of Earth Sciences, pers. comm.). The San Quintin kangaroo rat (*Dipodomys gravipes*), a coastal lowland-associated species endemic to Baja California from San Telmo to El Rosario, is nearly extinct as a result of this change in land use (Best 1983). Apparently (as of 1992), this species is now extinct (E. Mellinck, Centro de Investigacion Cientifica y Educacion Superior de Ensenada, pers. comm.).

The loss of coastal sage scrub vegetation has been associated with an increasing degree of habitat fragmentation, which reduces habitat quality and promotes increased levels of nest predation and brood parasitism, and ultimately, increased rates of local extinction (Wilcove 1985, Rolstad 1991, Saunders *et al.* 1991, Soule *et al.* 1988, 1992). Although the published literature on this subject is based on studies in forested landscapes, the ecological implications of these studies are applicable to other landscape types such as coastal sage scrub.

The Service is currently participating in a study of gnatcatcher ecology in western Riverside County that was initiated in the spring of 1992. This study involves intensive monitoring of three color-banded gnatcatcher subpopulations occupying three different landscape settings: (1) a relatively small, fragmented coastal sage scrub patch adjacent to urban and agricultural development; (2) a relatively large coastal sage scrub patch grazed by cattle; and (3) a relatively

large coastal sage scrub patch contiguous with other native plant communities in an area distant from urban and agricultural development. Preliminary results of nest monitoring activities in 1992 indicate that gnatcatchers occupying the small, fragmented patch experienced high levels of nest parasitism by cowbirds (7 of 15 nests or 47 percent) and only 1 of 15 nests (7 percent) fledged a total of 2 young. Gnatcatcher nests on the grazed patch were also heavily parasitized (15 of 25 nests or 60 percent), and only 2 of 25 nests (8 percent) fledged a total of 4 young. The gnatcatchers occupying the coastal sage scrub patch in a "natural" setting had only one case of cowbird parasitism (1 of 26 nests or 4 percent) and good reproductive success (11 of 26 nests or 42 percent fledged a total of 40 young) (Braden 1992). These findings strongly suggest that the adverse edge effects noted in fragmented forest habitats occur in shrubland communities as well.

Although the historic distribution of coastal sage scrub was undoubtedly patchy to some degree, this condition has been greatly exacerbated by urban and agricultural development. Based on maps presented by MBA (1991), the Service has calculated the magnitude of change in the degree of fragmentation of coastal sage scrub between 1931 and 1990 for Orange, Riverside, and San Diego Counties. In 1931, there were 27 distinct coastal sage scrub patches in Orange County. By 1990, there were 145 patches. Similar increases in fragmentation have also occurred in Riverside County, from 87 to 374 patches; and San Diego County, from 72 to 217 patches. Using different scale maps, Keeler-Wolf (1991) analyzed recent changes in the extent of coastal sage scrub in southwestern San Diego County. The number of coastal sage scrub patches within his study area increased from 286 in 1984 to 510 in 1991. The mean size of these patches decreased from 99 acres in 1984 to 53 acres in 1991.

This pattern of increasing habitat fragmentation has isolated many populations of the coastal California gnatcatcher from each other, including those on the Palos Verdes Peninsula (Los Angeles County), in the San Joaquin Hills (Orange County), in four general areas of western San Diego County (Camp Pendleton Marine Corps Base-Fallbrook Naval Weapons Station; Carlsbad-San Marcos-Rancho Penasquitos; Poway-Tierrasanta-Santee; Sweetwater River-Otay Mesa), and three general areas of western Riverside County (Lake Mathews-Gavilan Plateau; Domenigoni Valley-Vail Lake; the

Badlands). The severing of interpopulation connections diminishes the viability of the subspecies overall. Brussard and Murphy (1992), representing the Coastal Sage Scrub Scientific Review Panel (Panel) for the State of California's Natural Community Conservation Planning Program, cite the conclusion of Wilcox and Murphy (1985) in recognizing that "habitat fragmentation is the most serious threat to biological diversity and is the primary cause of the present extinction crisis." O'Leary *et al.* (1992), also representing the Panel, characterized the status of the coastal sage scrub community as depleted, degraded, and fragmented. They concluded that, "Clearly, coastal sage scrub vegetation and the animal species it supports are now seriously imperiled in southern California."

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Not known to be applicable.

C. *Disease or predation.* Disease is not known to be a factor affecting this species at this time. However, several species have been reported as potential predators of coastal California gnatcatcher eggs or nestlings (Atwood 1990). Those include the scrub jay (*Aphelocoma coerulescens*), common crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), opossum (*Didelphis marsupialis*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), coachwhip (*Masticophis flagellum*), striped racer (*Masticophis lateralis*), gopher snake (*Pituophis melanoleucus*), rosy boa (*Lichanura trivirgata*), common kingsnake (*Lampropeltis getulus*), southern alligator lizard (*Gerrhonotus multicarinatus*), domestic or feral cat (*Felis domestica*), wood rat (*Neotoma spp.*), deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), and black rat (*Rattus rattus*).

Soule *et al.* (1988, 1992) speculated that as coyotes (*Canis latrans*) disappear from small, isolated patches of chaparral (including coastal sage scrub) in urbanized areas, the absence of this large predator allows greater population levels of smaller "bird predators" such as foxes, opossums, or domestic cats. These authors suggested that increased predation pressures resulting from the absence of coyotes may significantly contribute to local extinctions of bird species, like the coastal California gnatcatcher, from small, fragmented patches of vegetation.

D. *The inadequacy of existing regulatory mechanisms.* No regulatory mechanisms are currently in effect that adequately protect the coastal California gnatcatcher and its habitat. The coastal

California gnatcatcher is not listed under the California Endangered Species Act and most populations occur on private lands. Local and county zoning designations are subject to change and do not incorporate the principles of conservation biology in the establishment and configuration of open space areas. What few resource protection ordinances exist are subject to different interpretations, and in cases where findings of overriding social and economic considerations are made, compliance is not required. In many cases, land-use planning decisions are made on the basis of environmental review documents, prepared in accordance with the California Environmental Quality Act or the National Environmental Policy Act, that do not adequately address potential impacts to the coastal California gnatcatcher and its habitat, if considered at all.

In some cases, even dedicated open space does not confer sufficient protection. For example, the County of Orange recently proposed a zoning change to allow construction of a business park on a 70-acre parcel containing about 40 acres of gnatcatcher-occupied habitat that was dedicated as open space in conjunction with an approved housing development. In another case in Orange County, a landowner has agreed to place about 2,300 acres of coastal sage scrub occupied, in part, by coastal California gnatcatchers into conserved open space. However, the landowner has indicated that this designation could not be guaranteed for longer than 20 years (F. Roberts, pers. comm.). In addition, this open space designation is contingent upon construction of major housing and commercial developments that will adversely affect the gnatcatcher. This designation will also not preclude the construction of transportation or utility facilities that will remove as much as 85 acres of coastal sage scrub within designated open space and fragment what remains (F. Roberts, pers. comm.).

Another indication of the lack of existing regulatory mechanisms to protect the gnatcatcher and its habitat is provided by a recent study in San Diego County. The city of San Diego (1990) evaluated the magnitude of impact associated with development to native plant communities within its jurisdiction for the period 1985 to 1990. This study revealed a 97 percent loss of coastal sage scrub (384 of 395 acres) in conjunction with 15 projects. This study also evaluated eight cases where no distinction was made between chaparral and coastal sage scrub vegetation. A 95 percent loss of chaparral/coastal sage

scrub (1,308 of 1,371 acres) was documented for these projects. Keeler-Wolf (1991) reported a net loss of 8,461 acres of coastal sage scrub within the city of San Diego between 1984 and 1991.

Since August 1991, over 4,600 acres of coastal sage scrub have been destroyed within the gnatcatcher's range in Orange, Riverside, and San Diego Counties. No mitigation to offset impacts to the gnatcatcher was associated with 33 of 39 projects known to affect this species. Approved (but not yet constructed) and proposed developments within these three counties could destroy over 10,000 acres of coastal sage scrub. Several of these projects will directly affect and further fragment regionally significant core populations of the coastal California gnatcatcher and may sever the tenuous habitat connection between the United States and Mexico.

Another indication of the ineffectiveness of existing regulatory mechanisms to protect the coastal California gnatcatcher is provided by 11 cases involving the destruction of about 1,050 acres of coastal sage scrub vegetation occupied, in part, by gnatcatchers in Orange, Riverside, and San Diego Counties. These actions occurred prior to regulatory agency review or issuance of grading permits. In two of these cases, gnatcatcher habitat was destroyed shortly after the Service contacted or submitted a letter to a local regulatory agency advising the agency that a draft environmental review document for a proposed housing development failed to disclose the presence of gnatcatchers onsite. Overall, about 1,900 acres of land was cleared in conjunction with agricultural, weed abatement, and fire protection activities or to preclude nesting activities by migratory birds.

Although existing grading ordinances regulate some or all of these activities, they have not proven to be effective deterrents to destruction of gnatcatcher habitat. In a related matter, about 450 acres of high quality coastal sage scrub vegetation occupied by the coastal California gnatcatcher were destroyed in February 1991 near Lake Elsinore in Riverside County (L. Hays, Fish and Wildlife Service, and S. Myers, Tierra Madre Consultants, pers. comm.). This activity was authorized under a grading permit issued by the city of Lake Elsinore in conjunction with an approved reclamation plan for a previously mined site bordering the stand of coastal sage scrub. The entire area lies within an approved but not yet constructed golf course-residential community. Some jurisdictions (e.g., the

cities of Chula Vista and Poway in San Diego County) do not regulate grubbing of vegetation. Individuals or entities who grade property for agricultural purposes within the counties of Orange and Riverside are not required to obtain a grading permit or any other approval in order to grade.

In adopting an ordinance imposing interim regulations for grading and clearing, the County of San Diego Board of Supervisors (1988) noted several characteristics associated with these types of activities that appear to apply throughout the range of the coastal California gnatcatcher in the United States:

\* \* \* Clearing and illegal grading have been used to destroy environmental resources prior to application for a land development permit, during the permit process, after project approval but prior to the application of protecting open space easements, and after dedication of open space \* \* \* Grading violations, when reported, result in relatively minimal fines and, because of the difficulty in obtaining convictions, are not a serious deterrent to illegal grading. A fine often will not prevent a violation of this ordinance because a fine may be considered simply as an additional development cost \* \* \* Clearing for legitimate reasons (geotechnical exploration and access for percolation tests and wells, and clearing for fire protection) is frequently done well in excess of the minimum necessary to accomplish the purpose.

In some recent cases, habitat restoration requirements have been imposed as a penalty for violation of grading ordinances. However, that may not resolve the problem in a biologically-meaningful way. The feasibility of artificially creating a viable coastal sage scrub plant community suitable for the coastal California gnatcatcher has yet to be demonstrated, especially on a large scale. Although the results of a recent effort by the California Department of Parks and Recreation to restore a small area of coastal sage scrub in Crystal Cove State Park (Orange County) are encouraging, they are not conclusive.

The Service is not aware of any existing regulatory mechanisms in Baja, California, Mexico, that protect the gnatcatcher and its habitat. The government of Mexico has formally acknowledged the rapid loss of habitat in northwestern Baja, California and supports this listing action (Garcia 1992).

Several land-use planning efforts have been initiated that are attempting to address the issue of conserving the coastal California gnatcatcher and the coastal sage scrub ecosystem upon which it depends. Foremost among these efforts is the Natural Community

Conservation Planning Program (NCCP) sponsored by the California Resources Agency. This program represents an important opportunity to conserve the coastal California gnatcatcher.

The Service has provided funds and technical assistance for the development of the Coastal Sage Scrub NCCP. The Coastal Sage Scrub NCCP may result in the development and implementation of specific plans and management programs for the long-term protection of the coastal sage scrub community in portions of five southern California counties by addressing the conservation needs of three "target" species including the coastal California gnatcatcher. The planning area for the Coastal Sage Scrub NCCP encompasses the current range of the gnatcatcher in the United States.

Participation in this planning effort involves a formal enrollment process whereby voluntary agreements are established between the Department and two categories of participants: Landowners or land management agencies, and cities or counties. By enrolling, the landowners or land management agencies agree to not disturb the coastal sage scrub community during the planning period (May 1, 1992, to October 31, 1993). The cities or counties agree to monitor impacts to the coastal sage scrub community, impose additional information disclosure requirements during the environmental review process, strongly consider the mitigation recommendations of the Service and the Department for projects affecting the coastal sage scrub community, and be sensitive to the potential impacts of proposed activities on the coastal sage scrub community during the planning process. As of October 22, 1992, a total of 15 cities, 1 county, 35 landowners, and 3 land management agencies within the current range of the gnatcatcher in the United States had enrolled in the NCCP Program based on information provided by the Department.

Several components of the Coastal Sage Scrub NCCP have been established. An advisory committee, consisting of representatives from the Service, the Department, local jurisdictions, environmental organizations, landowners, and developers regularly meets to provide planning for the NCCP. A Scientific Review Panel (Panel), comprised of five members with expertise in conservation biology or coastal sage scrub plant ecology, has defined the planning area, developed a standardized methodology for collection of biological information on the coastal sage scrub community, and has been analyzing available information with the

intent of formulating planning guidelines for the conservation and management of the coastal sage scrub community. The Panel is scheduled to release draft conservation planning guidelines in the spring of 1993. The Department has prepared process guidelines that explain the roles of NCCP participants. A committee has been established to monitor and quantify the loss of coastal sage scrub vegetation during the planning period.

The California State Senate defeated a \$1.1 million funding bill for the NCCP program on August 17, 1992. Also during August, the Riverside County Board of Supervisors voted against enrolling county lands within the NCCP Program.

The Service fully supports the goals of the NCCP Program. However, no substantive protection of the coastal California gnatcatcher is currently provided by city/county enrollments because habitat loss and fragmentation can occur prior to the development and implementation of adequate conservation plans. Therefore, the degree to which the NCCP Program removes threats to this species is based primarily on an analysis of landowner/land management agency enrollments. However, jurisdictional enrollments contribute to recognition of the need for conserving the gnatcatcher and the coastal sage scrub ecosystem upon which it depends. At such time that city/county enrollments provide at least interim habitat protection or have resulted in the implementation of approved conservation plans for the gnatcatcher, the Service will reconsider the effects of these enrollments on the status of this species.

Landowner and land management agency enrollments encompass about 22,577 of 48,000 acres (47 percent) of coastal sage scrub vegetation in Orange County; about 15,176 of 135,000 to 152,000 acres (10 to 11 percent) of coastal sage scrub vegetation in San Diego County; and about 7,191 of 114,000 acres (6 percent) of coastal sage scrub vegetation in Riverside County. Overall, about 44,944 of 297,000 to 314,000 acres (14 to 15 percent) of coastal sage scrub vegetation within these 3 counties are subject to interim protection under the NCCP Program. The degree to which these lands will be permanently protected is not known at this time.

From the perspective of the gnatcatcher, landowner/land management agency enrollments encompass about 447 of 757 pairs (59 percent) of California gnatcatchers in Orange County; 264 of 1,514 pairs (17 percent) in San Diego County; and 61 of

261 pairs (23 percent) in Riverside County. Overall, 772 of 2,562 pairs (30 percent) of California gnatcatchers known to occur in the United States are subject to interim protection under the NCCP Program. The degree to which these pairs will be permanently protected is not known at this time.

The County of Riverside has funded the preparation of a draft multi-species habitat conservation plan that includes consideration of the gnatcatcher (Dangermond and Associates and RECON 1991). About 60 pairs of gnatcatchers are known to occur within 8 study areas under consideration for permanent preserve status for the Stephens' kangaroo rat (*Dipodomys stephensi*), a species federally listed as endangered.

Orange County, San Diego County, and the San Diego Association of Governments (SANDAG) are using geographic information system computer technology to define, in part, the status of sensitive resources (including coastal sage scrub and the coastal California gnatcatcher) within their respective areas of jurisdiction in the context of regional open space planning. SANDAG has also established a technical advisory committee to guide the development of a regional (San Diego County) open space plan. In a related matter, the city of San Diego is funding the preparation of a multi-species conservation plan (MSCP) in conjunction with the Clean Water Program. The study area for this plan includes about 120,000 acres of coastal sage scrub and the majority of coastal California gnatcatchers known to occur in San Diego County. A draft of the plan is scheduled to be completed in December 1993. The progressive and innovative efforts of the MSCP program have identified the known and potential habitat of the gnatcatcher within the entire study area. This program has made significant progress toward defining regional conservation priorities that may ultimately lead to habitat protection for the gnatcatcher and a variety of other sensitive species within the study area.

The city of Carlsbad (San Diego County) is funding the preparation of a habitat management plan. The study area for this planning effort includes about 3,700 acres of coastal sage scrub and about 85 to 90 pairs of gnatcatchers. The biological resources and habitat analysis components of this plan were prepared in August 1992 (MBA 1992).

In September 1991, a "Focused California Gnatcatcher Resource Study for the City of Poway" in San Diego County was completed by ERCE (1991). The objectives of this study were to (1)

conduct a detailed inventory and assessment of potential California gnatcatcher habitat within Poway and its adopted sphere of influence; (2) estimate the size of the gnatcatcher population within the study area; and (3) identify potential gnatcatcher preserve areas and evaluate the connectivity of these potential biological open space areas within and outside of the study area. ERCE (1991) reported that 8,397 acres of coastal sage scrub and an estimated 125 to 336 pairs of California gnatcatchers occur within Poway and its adopted sphere of influence.

The Metropolitan Water District of Southern California is funding the preparation of a multi-species habitat conservation plan for southwestern Riverside County in cooperation with the Riverside County Habitat Conservation Agency. A revised draft of this plan, which includes the preservation of about 5,600 acres of coastal sage scrub and an estimated 150 pairs of gnatcatchers in the Domenigoni Valley-Lake Skinner area, was completed in October 1992 (Monroe *et al.* 1992). Almost \$14 million in funding will be provided under this plan for initial research and management of preserve areas.

A coalition of nine cities, the County of San Diego, the San Diego County Water Authority, SANDAG, the California Department of Fish and Game, the U.S. Marine Corps (Camp Pendleton), and the Service are coordinating habitat conservation planning activities in northern San Diego County. A Memorandum of Agreement formalizing this voluntary, cooperative effort was drafted in November 1991.

Conservation plans that involve the California gnatcatcher have been completed or are under preparation for nine urban development or transportation project areas in Los Angeles County (1 project), Orange County (5), Riverside County (1), and San Diego County (2). Participants in these planning efforts include Centex Homes, The Fieldstone Company, Home Capitol, Palos Verdes Land Holdings Company, Pardee Construction Company, Shell Western E and P Incorporated, San Joaquin Hills Transportation Corridor Agency, and Zuckerman Building Company.

Based on coordination with the Service, the J.M. Peters Company revised the Forrestal project on the Palos Verdes Peninsula (Los Angeles County) to avoid potential impacts to gnatcatcher-occupied habitat and has agreed to dedicate this habitat as natural

open space although a nature trail will traverse the area.

A Memorandum of Understanding (MOU) was executed on April 16, 1992, between the Service and The Irvine Company. This MOU establishes the guidelines and procedures that will be followed by both parties in the preparation of an Advance Habitat Conservation Plan for the California gnatcatcher and other coastal sage scrub-associated species that are candidates for Federal listing.

On August 7, 1992, The Irvine Company and The Nature Conservancy announced an agreement for The Nature Conservancy management of 17,000 acres of undeveloped property owned by The Irvine Company that includes large tracts of coastal sage scrub occupied, in part, by the coastal California gnatcatcher. The Irvine Company intends to dedicate these lands to the public over the next 20 to 25 years in conjunction with future development of commercial and residential projects elsewhere on the Irvine Ranch.

Although planning agencies are giving greater consideration to the gnatcatcher and its habitat, none of these efforts are currently providing an adequate level of protection to the gnatcatcher.

*E. Other natural or man-made factors affecting its continued existence.* Grazing and air pollution are also adversely affecting the coastal sage scrub plant community upon which the gnatcatcher depends (Westman 1987, O'Leary and Westman 1988).

One of the effects of urbanization that is contributing to the loss, degradation, and fragmentation of coastal sage scrub vegetation is an increase in wildfires due to anthropogenic ignitions. For example, one of the largest areas of coastal sage scrub vegetation remaining within San Diego County occurs on Camp Pendleton Marine Corps Base. During the last 3 years, over 15,000 acres of native vegetation, much of it coastal sage scrub, have burned in fires started incidental to military training activities. Two of these fires consumed over 6,500 acres of coastal sage scrub vegetation occupied, in part, by the coastal California gnatcatcher (D. Lawson, pers. comm.). High fire frequencies and the lag period associated with recovery of the vegetation may significantly reduce the viability of affected populations.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the Service finds that the coastal California

gnatcatcher warrants protection under the Act on the basis of past habitat loss and fragmentation alone. Although the preferred action in the proposed rule was to list this species as endangered, the Service concludes (based on information received or developed after the proposed rule was published) that the imminent threat of extinction is not as great as previously considered for the reasons outlined below. Therefore, the preferred action is to list the coastal California gnatcatcher as threatened, which is defined under the Act as a species likely to become in danger of extinction within the foreseeable future throughout all or a significant portion of its range.

The Service considers this change in listing status to be warranted based on the following factors. Since the proposed rule was published, enrollment in the State of California's Coastal Sage Scrub Natural Community Conservation Planning Program (NCCP) now includes 15 cities, 1 county, 35 landowners, and 3 land management agencies within the current range of the gnatcatcher in the United States, who have formally committed to develop or to assist in the development of conservation plans that (based on process guidelines finalized by the California Resources Agency on September 1, 1992) meet the standards for allowing incidental take of a federally listed species under section 10 of the Act. The planning period for this program ends on November 1, 1993. Landowner/land management agency enrollments (which preclude any habitat destruction before adequate plans are prepared and implementation agreements are executed) encompass about 45,000 acres of coastal sage scrub occupied, in part, by about 772 pairs of gnatcatchers mostly in Orange County. Overall, according to the California Department of Fish and Game (1992), about 210,000 acres or 53 percent of the coastal sage scrub known to occur within the NCCP planning area (which encompasses the current range of the gnatcatcher in the United States) are subject to enrollment agreements.

In two related matters, The Irvine Company and the Service entered into a Memorandum of Understanding for preparing an "Advance Habitat Conservation Plan" for the California gnatcatcher in April of 1992 (about 193 pairs of gnatcatchers occur on property owned by The Irvine Company), and the Metropolitan Water District of Southern California (MWD) has committed to preserve about 5,600 acres of coastal sage scrub occupied, in part, by the coastal California gnatcatcher in southwestern Riverside County. The

MWD has also committed to provide almost \$14 million in funding for research and management of this preserve.

In August 1992, The Nature Conservancy and The Irvine Company announced an agreement for The Nature Conservancy management of 17,000 acres of undeveloped property owned by The Irvine Company in Orange County that includes large tracts of coastal sage scrub occupied, in part, by the coastal California gnatcatcher. This management program will focus, in part, on the gnatcatcher and its habitat.

Taking these actions into consideration, as well as the other recently initiated conservation planning efforts discussed under factor "D" in the "Summary of Factors Affecting the Species" section of this rule and the present and future threats faced by this species, the Service finds that the coastal California gnatcatcher is not in imminent danger of extinction but is likely to become so in the foreseeable future throughout all or a significant portion of its range in the absence of protection afforded under the Act.

Pursuant to the latitude afforded threatened species by section 4(d) of the Act and 50 CFR 17.31(c), the Service is proposing a special rule for the gnatcatcher in this same Federal Register part. Special rules are authorized under the Act to adjust the general protective measures available for threatened species and experimental populations. The proposed special rule defines the conditions under which "take" of gnatcatchers may be authorized for certain land-use activities associated with the State of California's NCCP Program.

As provided by 5 U.S.C. 553(d), the Service has determined that good cause exists to make the effective date of this rule immediate. Delay in implementation of the effective date would place the habitat of the species at risk.

Critical habitat is not being designated at this time for the reasons discussed below.

#### Critical Habitat

Section 4(a)(3) of the Act, as amended, requires critical habitat to be designated to the maximum extent prudent and determinable at the time a species is listed as endangered or threatened. The Service has concluded that designation of critical habitat is not prudent for the coastal California gnatcatcher at this time. The Service's 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 such threat to the species; or

(2) Such designation of critical habitat would not be beneficial to the species.

In the case of the California gnatcatcher, both criteria are met. As discussed under factor "D" in the "Summary of Factors Affecting the Species," some landowners or project developers have brushed or graded sites occupied by gnatcatchers prior to regulatory agency review or the issuance of a grading permit. In some instances, gnatcatcher habitat was destroyed shortly after the Service notified a local regulatory agency that a draft environmental review document for a proposed housing development failed to disclose the presence of gnatcatchers on-site. On the basis of these kinds of activities, the Service finds that publication of critical habitat descriptions and maps would likely make the species more vulnerable to activities prohibited under section 9 of the Act.

Most populations of the coastal California gnatcatcher in the United States are found on private lands where Federal involvement in land-use activities does not generally occur. Additional protection resulting from critical habitat designation is achieved through the section 7 consultation process. Since section 7 would not apply to the majority of land-use activities occurring within critical habitat, its designation would not appreciably benefit the species.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species 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 Endangered Species 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 taking and harm 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 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 insure 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 that may be involved through activities they authorize, fund, or carry out that may affect the coastal California gnatcatcher or its habitat include the Federal Highway Administration, Federal Housing Administration, and Department of the Navy (including Camp Pendleton Marine Corps Base, Fallbrook Naval Annex, and Miramar Naval Air Station).

Section 4(d) of the Act provides that whenever a species is listed as a threatened species, such regulations deemed necessary and advisable to provide for the conservation of the species may be issued. The Secretary may, by regulation, prohibit any act prohibited for endangered species under section 9(a). 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, or 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. The term "harm" as it applies to the take prohibition is defined in 50 CFR 17.3 to include "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." The implementing regulations for threatened wildlife (50 CFR 17.31) incorporate, for the most part, by reference the prohibitions for endangered wildlife (50 CFR 17.21) except when a special rule applies (50

CFR 17.31(c)). The Service finds that the prohibitions for endangered species generally are necessary and advisable for conservation of the coastal California gnatcatcher. However, pursuant to the latitude for threatened species afforded by section 4(d) of the Act and 50 CFR 17.31(c), the Service is proposing to issue a special rule (published in this same Federal Register) defining the conditions under which incidental take of the coastal California gnatcatcher resulting from certain state and local government-regulated activities would not violate the general prohibition against take of the species.

The land-use activities covered by the proposed special rule would be associated with an approved Natural Community Conservation Plan prepared in consultation with the Service under the State of California Natural Community Conservation Planning Act of 1991. The approval process for a NCCP plan would involve review and formal concurrence by the Service that the standards set under section 10 of the Endangered Species Act have been met. For these reasons, the Service finds that the proposed special rule would provide for habitat conservation and management essential to recovery of the gnatcatcher in a manner consistent with the purposes of the Act.

Permits may be issued to carry out otherwise prohibited activities involving endangered and threatened wildlife species under certain

circumstances. Regulations governing permits are codified 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, and/or for incidental take in connection with otherwise lawful activities. For threatened species, permits may also be available for zoological exhibition, educational or other special purposes consistent with the provisions and intent of the Act. Individuals wishing further information on permits for research should contact the U.S. Fish and Wildlife Service, Office of Management Authority, Permits Branch, 4401 N. Fairfax Drive, Room 432, Arlington, Virginia 22203-3507 (703-358-2104).

**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 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).

**References Cited**

A complete list of all references cited herein is available upon request from the U.S. Fish and Wildlife Service,

Carlsbad Field Office (see ADDRESSES above).

**Author**

The primary author of this final rule is Larry Salata (see ADDRESSES section).

**List of Subjects in 50 CFR Part 17**

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

**Regulation Promulgation**

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

**PART 17—[AMENDED]**

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

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

2. Amend § 17.11(h) by adding the following in alphabetical order under "Birds," to the List of Endangered and Threatened Wildlife:

**§ 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						
BIRDS							
Gnatcatcher, coastal California	<i>Polioptila californica californica</i>	U.S.A. (CA), Mexico	Entire .....	T	496	NA	NA

Dated: March 19, 1993.  
**John F. Turner,**  
 Director, U.S. Fish and Wildlife Service.  
 [FR Doc. 93-7146 Filed 3-25-93; 11:25 am]  
 BILLING CODE 4310-55-P