

suggests that vegetation in southern California has undergone substantial shifts in composition and distribution through time (Axelrod 1978; *see* discussion under Factor E).

Past morphometric studies (studies examining morphological or physical characters) have shown that populations of California gnatcatchers north of 30° N latitude have browner backs and flanks, have white in the retrices, and are longer tailed than birds in the rest of the range (Grinnell 1926, van Rossem 1931, Philips 1991, Atwood 1991, Mellink and Rea 1994). Though recent genetic work (Zink *et al.* 2000) failed to show significant genetic structuring consistent with evolutionarily discrete units, these morphological differences may reveal different selective regimes operating in the northern portion of the species' range. As the coastal sage scrub community inhabited by the California gnatcatchers within the United States is relatively young (less than 4,000 to 8,000 years old; Axelrod 1978), the different selective regimes may not have had sufficient time to reveal distinctiveness evident in mitochondrial DNA studies.

As discussed above, the U.S. population segment of the California gnatcatcher is significant in that it exists in a unique ecological setting, and that the loss of this segment would result in a significant gap in the range of the species.

Conservation Status: Based on our determination that the California population of the California gnatcatcher meets the first two criteria, discreteness and significance, for a distinct vertebrate population segment in accordance with our policy, we are required to evaluate its conservation status and make a determination relative to the Act's standard for listing as endangered or threatened. The proposed rule to list the coastal California gnatcatcher published on September 17, 1991 (56 FR 47053) and final rule published on March 30, 1993 (58 FR 16741) discuss the status of the coastal California gnatcatcher in relation to the Act's standards for listing as threatened. The following discussion summarizes those analyses and adds new information that has become available.

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

As stated in the previous proposed and final listing rules, the habitat and range of the California gnatcatcher in the United States has been significantly reduced. The majority of historical locations in Los Angeles, Ventura, and San Bernardino counties have been

completely developed and no longer support known populations (*e.g.*, San Fernando Valley, Pasadena, Santa Anita Wash, Rubio Wash, Eaton Canyon Wash, San Gabriel Wash, Ballona Creek, Redondo Beach, Monrovia, Arcadia, Fairmont Reservoir, Colton, Saticoy; Los Angeles County Museum of Natural History and Field Museum collections). Within the remainder of the range, Orange, Riverside, and San Diego counties have experienced a 50, 59, and 60 to 65 percent reduction in coastal sage scrub, respectively, between 1945 and 1990 (based on comparison of Wieslander and Jensen 1946 vegetation maps, and 1990 county estimates; *see* 58 FR 16741). Much of the remaining coastal sage scrub is at higher elevations and away from the coast, where California gnatcatcher populations are at lower densities (Atwood and Bolsinger 1992, MBA 1991). Atwood and Bolsinger (1992) and MBA (1991) both reported that greater than 90 percent of gnatcatcher records occur at or below 250 m (820 ft). This relationship may reflect energetic constraints in the California gnatcatcher associated with winter precipitation levels and January mean minimum temperature (Mock 1998). Adult mortality rates above these elevations may be insufficient to support populations through time (Mock 1998).

Much of the remnant coastal sage scrub below 250 m (820 ft) is now fragmented, isolating populations of gnatcatchers (*e.g.*, Palos Verdes peninsula, San Joaquin Hills, Carlsbad-San Marcos, Poway-Santee, and Sweetwater River-Otay Lake populations). Given that this species exhibits extreme fluctuations in abundance (Erickson and Miner 1998, Atwood *et al.* 1998), isolated populations may be more susceptible to extirpation.

For further discussion of the destruction and curtailment of the species habitat and range, *see* 58 FR 16741.

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

These factors are not currently known to affect the species.

C. Disease or Predation

Disease is not currently known to be a factor affecting the species, however, the effects of disease may need to be reassessed after the pending arrival of West Nile Virus to California. Also, the entire U.S. range of the California gnatcatcher is under federal quarantine due to an outbreak of Exotic Newcastle Disease. This disease affects a wide

range of wild and domestic bird species, but it is not known how California gnatcatchers may be affected.

Predation is the most common cause of nest failure, accounting for as many as 30 to 60 percent of nest failures in some areas (Braden *et al.* 1997, Grishaver *et al.* 1998). Most of this predation occurs during egg laying and incubation. Several species have been reported as potential predators of coastal California gnatcatcher eggs or nestlings (Atwood 1990). These 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*). Brood parasitism by the brown-headed cowbird (*Molothrus ater*) has significantly decreased gnatcatcher productivity (Braden *et al.* 1997). Thirty-one percent of gnatcatcher nests monitored in Riverside County during the 1992–1995 breeding seasons were parasitized by cowbirds (Braden *et al.* 1997).

D. The Inadequacy of Existing Regulatory Mechanisms

In 1991, the state of California initiated the Natural Communities Conservation Program (NCCP) to protect coastal sage scrub habitats and rare species in southern California. To date, two regional NCCP/Habitat Conservation Plans (HCP) have been approved for portions of southern San Diego County (Multiple Species Conservation Program) and central Orange County (Central/Coastal NCCP/HCP). Within the range of the California gnatcatcher, several other regional plans are still being developed for northern San Diego County, western Riverside County, southern Orange County, and the Palos Verdes peninsula. Whether these regional plans will be finally approved for these areas, which represent the majority of gnatcatcher populations in southern California, is unknown. Furthermore, at this point, no regional conservation planning effort is underway in the remainder of Los Angeles County or in San Bernardino or Ventura counties. Essential populations are found in each of these counties and