

Consequently, pursuant to CERCLA Section 105, and 40 CFR 300.425(e), the Site is hereby deleted from the NPL.

**EFFECTIVE DATE:** January 3, 2000.

**FOR FURTHER INFORMATION CONTACT:**

Caroline A. Ziegler, Remedial Project Manager, (214) 665-2178, United States Environmental Protection Agency, Region 6, Mail Code: 6SF-LP, 1445 Ross Avenue, Dallas, Texas 75202-2733.

Information on the Site is available at the local information repository located at: Vermilion Parish Public Library, 200 N. Magdalen Square, Abbeville, Louisiana 70511, (318) 893-2674.

Requests for comprehensive copies of documents should be directed formally to the Regional Superfund Management Branch, c/o Steve Wyman, (214) 665-2792, United States Environmental Protection Agency, Region 6, Mail Code: 6SF-PO, 1445 Ross Avenue, Dallas, Texas 75202-2733.

**SUPPLEMENTARY INFORMATION:** The site to be deleted from the NPL is the PAB Oil and Chemical Services, Inc. Superfund Site located near Abbeville in Vermilion Parish, Louisiana. A Notice of Intent to Delete for the Site was published August 31, 1999. The closing date for comments on the Notice of Intent to Delete was September 30, 1999. EPA received no comments and therefore no Responsiveness Summary was prepared.

The EPA identifies sites which present a significant risk to public health, welfare, or the environment and maintains the NPL as the list of those sites. Deletion of a site from the NPL does not affect responsible party liability or impede EPA efforts to recover costs associated with response efforts. Furthermore, § 300.425(e)(3) of the NCP, 40 CFR 300.425(e)(3), states that Fund-financed actions may be taken at sites deleted from the NPL in the unlikely event that conditions at the site warrant such action.

**Lists of Subjects in 40 CFR Part 300**

Environmental protection, Air pollution control, Chemicals, Hazardous substances, Hazardous waste, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Superfund, Water pollution control, Water supply.

Dated: December 21, 1999.

**Lynda F. Carroll,**

Acting Regional Administrator, U.S. EPA Region 6.

For reasons set out in the preamble, 40 CFR part 300 is amended as follows:

**PART 300—[AMENDED]**

1. The authority citation for part 300 continues to read as follows:

**Authority:** 33 U.S.C. 1321(c)(2); 42 U.S.C. 9601-9657; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p.351; E.O. 12580, 52 R 2923, 3 CFR, 1987 Comp., p.193.

**Appendix B—[Amended]**

2. Table 1 of Appendix B to Part 300 is amended by removing the site for PAB Oil & Chemical Service, Inc., Abbeville, Louisiana.

[FR Doc. 99-33952 Filed 12-30-99; 8:45 am]

**BILLING CODE 6560-50-P**

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**RIN 1018-AF59**

**Endangered and Threatened Wildlife and Plants; Final Rule To List the Sierra Nevada Distinct Population Segment of the California Bighorn Sheep as Endangered**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), determine endangered status pursuant to the Endangered Species Act of 1973, as amended (Act) for the Sierra Nevada distinct population segment of California bighorn sheep (*Ovis canadensis californiana*). This species occupies the Sierra Nevada of California, where it is known from five disjunct subpopulations along the eastern escarpment of the Sierra Nevada, and thought to total no more than 125 animals. All five subpopulations are estimated to be very small and are threatened by mountain lion (*Felis concolor*) predation, disease, naturally occurring environmental events, and genetic problems associated with small population size. We emergency listed this population segment of California bighorn sheep on April 20, 1999. The emergency listing was effective for 240 days. Immediately upon publication, this action continues the protection provided by the temporary emergency listing.

**DATES:** This final rule is effective on January 3, 2000.

**FOR FURTHER INFORMATION CONTACT:** Carl Benz, at the U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Rd. Suite B, Ventura, California 93003, (telephone 805/644-1766; facsimile 805/644-3958).

**SUPPLEMENTARY INFORMATION:**

**Background**

The bighorn sheep (*Ovis canadensis*) is a large mammal (family Bovidae) originally described by Shaw in 1804 (Wilson and Reeder 1993). Several subspecies of bighorn sheep have been recognized on the basis of geography and differences in skull measurements (Cowan 1940; Buechner 1960). These subspecies of bighorn sheep, as described in these early works, include *O. c. cremonabates* (Peninsular bighorn sheep), *O. c. nelsoni* (Nelson bighorn sheep), *O. c. mexicana* (Mexican bighorn sheep), *O. c. weemsi* (Weems bighorn sheep), *O. c. californiana* (California bighorn sheep), and *O. c. canadensis* (Rocky Mountain bighorn sheep). However, recent genetic studies question the validity of some of these subspecies and suggest a need to re-evaluate overall bighorn sheep taxonomy. For example, Sierra Nevada bighorn sheep appear to be more closely related to desert bighorn sheep than the *O. c. californiana* found in British Columbia (Ramey 1991, 1993). Regardless, the Sierra Nevada bighorn sheep meets our criteria for consideration as a distinct vertebrate population segment (as discussed below) and is treated as such in this final rule.

The historical range of the Sierra Nevada bighorn sheep (*Ovis canadensis californiana*) includes the eastern slope of the Sierra Nevada, and, for at least one subpopulation, a portion of the western slope, from Sonora Pass in Mono County south to Walker Pass in Kern County, a total distance of about 346 kilometers (km) (215 miles (mi)) (Jones 1950; Wehauser 1979, 1980). By the turn of the century, about 10 out of 20 subpopulations survived. The number dropped to five subpopulations at mid-century, and down to two subpopulations in the 1970s, near Mount Baxter and Mount Williamson in Inyo County (Wehauser 1979). Currently, five subpopulations of Sierra Nevada bighorn sheep occur, respectively, at Lee Vining Canyon, Wheeler Crest, Mount Baxter, Mount Williamson, and Mount Langley in Mono and Inyo Counties, three of which have been reintroduced using sheep obtained from the Mount Baxter subpopulation from 1979 to 1986 (Wehausen *et al.* 1987).

The Sierra Nevada bighorn sheep is similar in appearance to other desert associated bighorn sheep. The species' pelage shows a great deal of color variation, ranging from almost white to fairly dark brown, with a white rump. Males and females have permanent horns; the horns are massive and coiled

in males, and are smaller and not coiled in females (Jones 1950; Buechner 1960). As the animals age, their horns become rough and scarred, and will vary in color from yellowish-brown to dark brown. In comparison to many other desert bighorn sheep, the horns of the Sierra Nevada bighorn sheep are generally more divergent as they coil out from the base (Wehausen 1983). Adult male sheep stand up to 1 meter (m) (3 feet (ft)) tall at the shoulder; males weigh up to 99 kilograms (kg) (220 pounds (lbs)) and females 63 kg (140 lbs) (Buechner 1960).

The current and historical habitat of the Sierra Nevada bighorn sheep is almost entirely on public land managed by the U.S. Forest Service (FS), Bureau of Land Management (BLM), and National Park Service (NPS). The Sierra Nevada mountain range is located along the eastern boundary of California. Peaks vary in elevation from 1825 to 2425 m (6000 to 8000 ft) in the north, to over 4300 m (14,000 ft) in the south adjacent to Owens Valley, and then drop rapidly in elevation in the southern extreme end of the range (Wehausen 1980). Most precipitation, in the form of snow, occurs from October through April (Wehausen 1980).

Sierra Nevada bighorn sheep inhabit the alpine and subalpine zones during the summer, using open slopes where the land is rough, rocky, sparsely vegetated and characterized by steep slopes and canyons (Wehausen 1980; Sierra Nevada Bighorn Sheep Interagency Advisory Group (Advisory Group) 1997). Most of these sheep live between 3,050 and 4,270 m (10,000 and 14,000 ft) in elevation in summer (John Wehausen, University of California, White Mountain Research Station, pers. comm. 1999). In winter, they occupy high, windswept ridges, or migrate to the lower elevation sagebrush-steppe habitat as low as 1,460 m (4,800 ft) to escape deep winter snows and find more nutritious forage. Bighorn sheep tend to exhibit a preference for south-facing slopes in the winter (Wehausen 1980). Lambing areas are on safe precipitous rocky slopes. They prefer open terrain where they are better able to see predators. For these reasons, forests and thick brush usually are avoided if possible (J. Wehausen, pers. comm. 1999).

Bighorn sheep are primarily diurnal, and their daily activity shows some predictable patterns that consists of feeding and resting periods (Jones 1950). Bighorn sheep are primarily grazers; however, they may browse woody vegetation when it is growing and very nutritious. They are opportunistic feeders selecting the most nutritious

diet from what is available. Plants consumed include varying mixtures of grasses, browse (shoots, twigs, and leaves of trees and shrubs), and herbaceous plants, depending on season and location (Wehausen 1980). In a study of the Mount Baxter and Mount Williamson subpopulations, Wehausen (1980) found that grass, mainly *Stipa speciosa* (perennial needlegrass), is the primary diet item in winter. As spring green-up progresses, the bighorn sheep shift from grass to a more varied browse diet, which includes *Ephedra viridis* (Mormon tea), *Eriogonum fasciculatum* (California buckwheat), and *Purshia* species (bitterbrush).

Sierra Nevada bighorn sheep are gregarious, with group size and composition varying with gender and from season to season. Spatial segregation of males and females occurs outside the mating season, with males more than 2 years old living apart from females and younger males for most of the year (Jones 1950; Cowan and Geist 1971; Wehausen 1980). Ewes generally remain in the same band into which they were born (Cowan and Geist 1971). During the winter, Sierra Nevada bighorn sheep concentrate in those areas suitable for wintering, preferably Great Basin habitat (sagebrush-steppe) at the very base of the eastern escarpment. Subpopulation size can number more than 100 sheep, including rams (this was observed at a time when the population size was larger than it is currently) (J. Wehausen, pers. comm. 1999). Breeding takes place in the fall, generally in November (Cowan and Geist 1971). Single births are the norm for North American wild sheep, but twinning is known to occur (Wehausen 1980). Gestation is about 6 months (Cowan and Geist 1971).

Lambing occurs between late April to early July, with most lambs born in May or June (Wehausen 1980, 1996). Ewes with newborn lambs live solitarily for a short period before joining nursery groups that average about six sheep. Ewes and lambs frequently occupy steep terrain that provides a diversity of slopes and exposures for escape cover. Lambs are precocious, and within a day or so, climb almost as well as the ewes. Lambs are able to eat vegetation within 2 weeks of their birth and are weaned between 1 and 7 months of age. By their second spring, they are independent of their mothers. Female lambs stay with ewes indefinitely and may attain sexual maturity during the second year of life. Male lambs, depending upon physical condition, may also attain sexual maturity during the second year of life (Cowan and Geist 1971). Average lifespan is 9 to 11 years in both sexes,

though some rams are known to have lived to 12 to 14 years old (Cowan and Geist 1971; Wehausen 1980).

### Distinct Vertebrate Population Segment

Recent analyses of bighorn sheep genetics and morphometrics (e.g., size and shape of body parts) suggest reevaluation of the taxonomy of Sierra Nevada bighorn sheep (*Ovis canadensis californiana*) is necessary (Ramey 1991, 1993, 1995; Wehausen and Ramey 1993; Wehausen and Ramey 2000 (in review)). A recent analysis of the taxonomy of bighorn sheep using morphometrics and genetics failed to support the current taxonomy (Ramey 1993, 1995; Wehausen and Ramey 1993; Wehausen and Ramey 2000 (in review)). This and other research (Ramey 1993) supports taxonomic distinction of the Sierra Nevada bighorn sheep relative to other nearby regions.

The biological evidence supports recognition of Sierra Nevada bighorn sheep as a distinct vertebrate population segment for purposes of listing, as defined in our February 7, 1996, Policy Regarding the Recognition of Distinct Vertebrate Population Segments (61 FR 4722). The definition of "species" in section 3(16) of the Act includes "any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." For a population to be listed under the Act as a distinct vertebrate population segment, three elements are considered—1) the discreteness of the population segment in relation to the remainder of the species to which it belongs; 2) the significance of the population segment to the species to which it belongs; and 3) the population segment's conservation status in relation to the Act's standards for listing (i.e., is the population segment, when treated as if it were a species, endangered or threatened?) (61 FR 4722).

The distinct population segment (DPS) of bighorn sheep in the Sierra Nevada is discrete in relation to the remainder of the species as a whole. This DPS is geographically isolated and separate from other California bighorn sheep populations. There is no mixing of Sierra Nevada bighorn sheep with other bighorn sheep subspecies. This is supported by an evaluation of the population's genetic variability and morphometric analysis of skull and horn variation (Ramey 1993, 1995; Wehausen and Ramey 1993, 1994; Wehausen and Ramey 2000 (in review)). Sierra Nevada bighorn sheep males have particularly wide skulls but small horns, compared to other subspecies of bighorn sheep (Wehausen and Ramey 2000 (in review)). Also, Sierra Nevada bighorn

sheep have a unique mitochondrial DNA pattern, different from other bighorn sheep populations (Ramey 1993, 1995). Mitochondrial DNA are genes that are inherited maternally in animals, and so are useful as genetic markers when researching population genetic questions (Ramey 1993). Researchers suggest that all other populations of *Ovis canadensis californiana* be reassigned to other subspecies, leaving *O. c. californiana* (i.e., the subspecies found within the DPS that is the subject of this rule) only in the central and southern Sierra Nevada (Ramey 1993, 1995; Wehausen and Ramey 1993, 1994; Wehausen and Ramey 2000 (in review)).

The Sierra Nevada bighorn sheep DPS is biologically and ecologically significant to the species in that it constitutes the only population of California bighorn sheep inhabiting the Sierra Nevada. This DPS extends from Sonora Pass to Walker Pass, spanning approximately 346 km (215 mi) of contiguous suitable habitat in the United States. It is likely that there was gene flow in the past between bighorn sheep populations in the Sierra Nevada Mountains (*Ovis canadensis californiana*) and the White-Inyo Mountains (*O. c. nelsoni*), which are separated by Owens Valley (Ramey 1993, 1995). Genetic research indicates, however, that there are differences between the bighorn sheep populations in the Sierra Nevada and those in the White-Inyo Mountains (Ramey 1991, 1993, 1995). Any dispersal that occurred between the two mountain ranges was likely by males since female bighorn sheep have a much lower rate of dispersal, probably due to the females not wanting to expose themselves or their lambs to predation by crossing the open terrain of Owens Valley (Ramey 1995). Movement between the populations apparently no longer occurs due to artificial barriers such as canals, highways, and fences (Jones 1950; Ramey 1993, 1995). Sierra Nevada bighorn sheep also have different morphological features, and they are genetically different from other bighorn populations (Ramey 1991, 1993, 1995; Wehausen and Ramey 1993, 1994; Wehausen and Ramey 2000 (in review)). The loss of Sierra Nevada bighorn sheep would result in the total extirpation of bighorn sheep from the Sierra Nevada in California. The loss of Sierra Nevada bighorn sheep in the Sierra Nevada mountain range would also create a significant gap in bighorn sheep population distribution. The Sierra Nevada bighorn sheep are the most northern population of bighorn in

California, with the closest population to the north being at Hart Mountain in Oregon (Jinelle, O'Connor, Lassen National Forest, pers. comm. 1999), and the closest population to the south and east being the White-Inyo Mountain bighorn populations. The loss of the Sierra Nevada bighorn sheep would further isolate bighorn sheep populations in Oregon from those in southern California.

#### Status and Distribution

Historically, Sierra Nevada bighorn sheep populations occurred along and east of the Sierra Nevada crest from Sonora Pass (Mono County) south to Walker Pass (Olancho Peak) (Kern County) (Jones 1950; Wehausen 1979). Sheep apparently occurred wherever appropriate rocky terrain and winter range existed. With some exceptions, most of the populations wintered on the east side of the Sierra Nevada and spent summers near the crest (Wehausen 1979).

Subpopulations of Sierra Nevada bighorn sheep probably began declining with the influx of gold miners to the Sierra Nevada in the mid-1880s, and those losses have continued through the 1900s (Wehausen 1988). By the 1970s, only two subpopulations of Sierra Nevada bighorn sheep, those near Mount Baxter and Mount Williamson in Inyo County, are known to have survived (Wehausen 1979). Specific causes for the declines are unknown. Market hunting may have been a contributing factor as evidenced by menus from historic mining towns such as Bodie, which included bighorn sheep (Advisory Group 1997). However, with the introduction of domestic sheep in the 1860s and 1870s, wild sheep are known to have died in large numbers in several areas from disease contracted from domestic livestock (Jones 1950; Buechner 1960). Large numbers of domestic sheep were grazed seasonally in the Owens Valley and Sierra Nevada prior to the turn of the century (Wehausen 1988), and disease is believed to be the factor most responsible for the disappearance of bighorn subpopulations in the Sierra Nevada. Jones (1950) suggested that scabies were responsible for a die-off in the 1870s on the Great Western Divide. Experiments have confirmed that bacterial pneumonia (*teurellaecies*), carried normally by domestic sheep, can be fatal to bighorn sheep (Foreyt and Jessup 1982).

In 1971, the Sierra Nevada bighorn sheep was listed as threatened under the 1970 California Endangered Species Act (California Department of Fish and Game 1974, as cited by Advisory Group

1997; California Department of Fish and Game 1999). This classification led to the development and implementation of a State recovery plan, which has two main goals: (1) create at least two additional populations numbering at least 100 sheep that could serve as reintroduction stock in the event of a catastrophic decline in the Mount Baxter subpopulation, and (2) re-establish the sheep throughout historic ranges in the Sierra Nevada where biologically and politically feasible (Advisory Group 1997). Intensive field studies began in 1975 which provided accurate census data for the two surviving subpopulations. In 1979, reintroductions of sheep into historical habitat (also known as the restoration program) began and was conducted by several Federal and State agencies from 1979 to 1988 (Advisory Group 1997). By 1979, only 220 sheep were known to exist in the Mount Baxter subpopulation, and 30 in the Mount Williamson subpopulation (Wehausen 1979). Sheep were obtained from the Mount Baxter subpopulation and transplanted to three historic locations, which were Lee Vining Canyon, Wheeler Crest, and Mount Langley (Wehausen 1996; Advisory Group 1997). Consequently, Sierra Nevada bighorn sheep now occur in five subpopulations in Mono and Inyo Counties: Lee Vining Canyon, Wheeler Crest, Mount Baxter, Mount Williamson, and Mount Langley. The Sierra Nevada bighorn sheep population reached a high of about 310 in 1985–86, but subsequent population surveys have documented a declining trend (J. Wehausen, pers. comm. 1999). Currently, it is estimated that the total Sierra Nevada bighorn sheep population is 125 animals (J. Wehausen, pers. comm. 1999).

The following table best represents the total Sierra Nevada bighorn sheep population over various time periods. These totals represent the numbers of sheep emerging from winter in each of these years, and best documents the status of the population by incorporating winter mortality, especially of lambs born the previous year. These totals are not absolute values; numbers have been rounded to the nearest five (J. Wehausen, pers. comm. 1999). The continuing decline of the Sierra Nevada bighorn sheep has been attributed to a combination of the direct and indirect effects of predation (Wehausen 1996).

TABLE 1.—SIERRA NEVADA BIGHORN SHEEP POPULATION NUMBERS, BY YEAR (J. WEHAUSEN, PERS. COMM. 1999)

Year	Number of populations	Total sheep
1978 .....	2	250
1985 .....	4	310
1995 .....	5	100
1996 .....	5	110
1997 .....	5	130
1998 .....	5	100
1999 .....	5	*125

\*Note that the difference in population size between 1998 and 1999 is based on (1) a small band of bighorn sheep were located in Sand Mountain (Mount Baxter subpopulation), and (2) approximately 15 lambs were born to the Wheeler Crest subpopulation in 1999.

#### Previous Federal Action

In our September 18, 1985, Notice of Review, we designated the Sierra Nevada bighorn sheep as a category 2 candidate and solicited status information (50 FR 37958). Category 2 candidate species included taxa for which we had information indicating that proposing to list as endangered or threatened was possibly appropriate, but for which sufficient data on biological vulnerability and threats were not currently available to support a proposed rule. Category 1 candidates were those species for which we had sufficient information on file to support issuance of proposed listing rules. In our January 6, 1989 (54 FR 554), and November 21, 1991 (56 FR 58804), Notices of Review, we retained the Sierra Nevada bighorn sheep in category 2. Beginning with our February 28, 1996, Notice of Review (61 FR 235), we discontinued the designation of multiple categories of candidates, and we now consider only species that meet the definition of former category 1 as candidates for listing. At that point, the Sierra Nevada bighorn sheep was not identified as a candidate.

On February 12, 1999, we received a petition dated February 9, 1999, from the Friends of the Inyo, National Parks and Conservation Association, Natural Resources Defense Council, Sierra Nevada Bighorn Sheep Foundation, and The Wilderness Society, to list the Sierra Nevada bighorn sheep as endangered throughout its range, with a special request for an emergency listing under the Act. The petition provided information on the species' classification and biology, past and present conservation efforts, historic and current distribution, population trends, and threats facing this species, including small population effects, disease, predation and habitat

curtailment, fire, and inadequacy of existing regulations.

On April 20, 1999, we published an emergency rule to list the Sierra Nevada distinct population segment of California bighorn sheep as endangered (64 FR 19300), as well as a proposed rule (64 FR 19333) to list the species as endangered on that same date.

The processing of this final rule conforms with our listing priority guidance published in the **Federal Register** on October 22, 1999 (64 FR 57114). Highest priority is processing emergency listing rules for any species determined to face a significant and imminent risk to its well being (Priority 1). Second priority (Priority 2) is processing final determinations on proposed additions to the Federal lists of endangered and threatened wildlife and plants. Third priority is processing new proposals to add species to the lists. The processing of administrative petition findings (petitions filed under section 4 of the Act) is fourth priority. The processing of critical habitat determinations (prudence and determinability decisions) and proposed and final designations of critical habitat will no longer be subject to prioritization under the listing priority guidance. This final rule is a Priority 2 action and is being completed in accordance with the current listing priority guidance. We have updated this rule to reflect any changes in information concerning distribution, status, and threats since publication of the proposed rule.

#### Summary of Comments and Recommendations

In the April 20, 1999, proposed rule (64 FR 19333), we requested all interested parties to submit factual reports or information that might contribute to development of a final rule. A 60-day comment period closed on June 21, 1999. We contacted appropriate Federal agencies, State agencies, county and city governments, scientific organizations, and other interested parties and requested comments. We published public notices of the proposed rule in the *Inyo Register* in Inyo County and *Fresno Bee* in Fresno County on May 8, 1999, and in the *Mammoth Times* in Mono County on May 13, 1999, which invited general public comment. We did not receive any requests for a public hearing. We re-opened the comment period on September 30, 1999, at the request of the Foundation for North American Wild Sheep and to solicit a peer review of the proposed rule. The comment period ended on October 15, 1999.

During the public comment period, we received written comments from 39 individuals or organizations, with one commenter submitting comments during both comment periods. All but two commenters supported the listing of the Sierra Nevada bighorn sheep. One commenter sent a letter refuting some information presented to us by another commenter. Issues, and our response to each, are summarized below.

**Issue 1:** One commenter requested that we recognize a long-term ecosystem approach for recovery that includes healthy predator/prey relations.

**Our Response:** We agree that recovery should be based on restoring, to the greatest extent possible, the ecosystem such that the natural dynamics of predator/prey relationships function with minimal or no human intervention. We recognize this in the rule, and the actual goals and tasks necessary to achieve recovery of the species will be discussed in detail in the Sierra Nevada bighorn sheep recovery plan.

**Issue 2:** Two commenters asked that we designate critical habitat for the Sierra Nevada bighorn sheep.

**Our Response:** In the emergency rule, we indicated that designation of critical habitat was not determinable for the Sierra Nevada bighorn sheep due to a lack of information sufficient to perform the required analysis of impacts of the designation. As discussed below in the critical habitat section, we have re-examined the question of whether critical habitat is not determinable and have determined that there is sufficient information to do the required analysis and that designation of critical habitat for the species is prudent.

As explained in detail in the Final Listing Priority Guidance for FY 2000 (64 FR 57114), our listing budget is currently insufficient to allow us to immediately complete all of the listing actions required by the Act. We will defer critical habitat designation for the Sierra Nevada bighorn sheep in order to allow us to concentrate our limited resources on higher priority critical habitat (including court-ordered designations) and other listing actions, while allowing us to put in place protections needed for the conservation of the Sierra Nevada bighorn sheep without further delay.

We plan to employ a priority system for deciding which outstanding critical habitat designations should be addressed first. We will focus our efforts on those designations that will provide the most conservation benefit, taking into consideration the efficacy of critical habitat designation in addressing the threats to the species, and the magnitude and immediacy of those

threats. We will develop a proposal to designate critical habitat for the Sierra Nevada bighorn sheep as soon as feasible, considering our workload priorities.

*Issue 3:* Several commenters stated that we should require other Federal agencies to utilize their authorities to eliminate grazing permits on Federal land, and initiate formal consultation under section 7 of the Act.

*Our Response:* Upon emergency listing of the Sierra Nevada bighorn sheep, we notified all Federal agencies of this listing and their responsibilities under section 7 of the Act to consult with us on actions that may affect the Sierra Nevada bighorn sheep. During the emergency listing period, the FS consulted on their actions for permitting domestic sheep grazing, conducting prescribed burns to enhance bighorn sheep winter habitat, as well as removing wreckage from a crashed airplane in bighorn sheep habitat. With the final listing of this species, we will continue to expect Federal agencies to comply with section 7 of the Act and consult with us, and we will work with these Federal agencies, as well as State agencies, to reduce threats to the species.

*Issue 4:* One commenter requested that we clarify our policies and procedures on deterrence and removal of Sierra Nevada bighorn sheep predators, and that the final rule should include clear guidelines for how we will manage predators.

*Our Response:* In accordance with our Interagency Cooperative Policy on Recovery Plan Participation and Implementation Under the Endangered Species Act (July 1, 1994; 59 FR 34272), and our recovery guidelines, we will develop a recovery plan that is ecosystem-based, and clearly identify quantifiable recovery criteria and goals, and we will clearly identify those management actions necessary to achieve recovery of the species.

*Issue 5:* One commenter stated that we should conduct studies to examine biological effects of differential removal of mountain lions on the Sierra Nevada bighorn sheep.

*Our Response:* We agree that this should be an important goal of recovery efforts. In addition to specific management actions, specific research aimed at better understanding the species and ecosystem (e.g., predator/prey relationships, population demography) will be identified in the recovery plan.

*Issue 6:* One commenter stated that Federal listing is no longer warranted because: 1) Assembly Bill (A. B.) 560 was recently signed into State law

providing the California Department of Fish and Game (CDFG) to remove or take mountain lions that are perceived to be a threat to the sheep; (2) CDFG was appropriated State funds for the recovery of the Sierra Nevada bighorn sheep; and (3) Federal agencies and the Los Angeles Department of Water and Power have demonstrated good faith efforts at reducing the likelihood of contact between domestic sheep and the Sierra Nevada bighorn sheep.

*Our Response:* We disagree. In evaluating the need for listing, we must look at a variety of factors affecting the species. This DPS of California bighorn sheep meets the definition of an endangered species based on several factors, only one of which is mountain lion predation. We agree that the passage and signing into law of A. B. 560 provides an additional ability to protect the Sierra Nevada bighorn sheep from mountain lions, as well as funds for recovery efforts. However, while this law will reduce the threat from mountain lion predation, it will not completely eliminate it. In addition, this legislation was enacted very recently, in September of 1999, and little time has passed to allow an evaluation of its effectiveness. We also agree that the CDFG was appropriated funds for the recovery of the species, however, these funds do not mean that all of the threats to the species have been removed such that listing is unnecessary. We also agree that the Federal agencies and Los Angeles Department of Water and Power have demonstrated good faith efforts at reducing the likelihood of contact between domestic and wild sheep. However, these efforts have come about due to the emergency listing and the subsequent requirement that Federal agencies must consult with us to ensure that their actions do not jeopardize the continued existence of the species.

#### Peer Review

In accordance with our July 1, 1994, Interagency Cooperative Policy for Peer Review in Endangered Species Act Activities (59 FR 34270), we solicited the expert opinions of three independent specialists regarding pertinent scientific or commercial data and assumptions relating to bighorn sheep ecology, predator/prey relationships, and disease considered in the proposed rule (64 FR 19333). The purpose of such a review is to ensure that listing decisions are based on scientifically sound data, assumptions, and analyses, including input from appropriate experts. All three reviewers sent us a letter during the public comment period supporting the listing of the Sierra Nevada bighorn sheep. One

of the three provided additional documentation on disease threats to bighorn sheep from domestic sheep; another provided conservation and recovery recommendations. Information and suggestions provided by the reviewers were considered in developing this final rule, and incorporated where applicable.

#### Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, we have determined that the Sierra Nevada bighorn sheep DPS warrants classification as an endangered species. We followed procedures found at section 4 of the Act and regulations (50 CFR part 424) issued to implement the listing provisions of the Act. We determine a species 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 Sierra Nevada bighorn sheep DPS (*Ovis canadensis californiana*), are as follows:

##### *A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

Habitat throughout the historic range of Sierra Nevada bighorn sheep remains essentially intact; the habitat is neither fragmented nor degraded. However, by 1900, about half of the Sierra Nevada bighorn sheep populations were lost, most likely because of the introduction of diseases by domestic livestock, and illegal hunting (Advisory Group 1997). Beginning in 1979, animals from the Mount Baxter subpopulation were translocated to reestablish subpopulations in Lee Vining Canyon, Wheeler Crest, and Mount Langley in Mono and Inyo Counties in order to reestablish the species in historical habitat (Advisory Group 1997). Currently, Sierra Nevada bighorn sheep are limited to five subpopulations. Almost all of the historical and current habitat is administered by either the FS, BLM, or NPS, though there are some small parcels of inholdings within the species' range which are owned by the Los Angeles Department of Water and Power. Also, there are some patented mining claims in bighorn sheep habitat, but the total acreage is small.

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

During the period of the California gold rush (starting about 1849), hunting to supply food for mining towns may have played a role in the decline of the population (Wehausen 1988). Besides

being sought as food, Sierra Nevada bighorn sheep were also killed by sheepmen who considered the species competition for forage with domestic sheep. The decimation of several wildlife species in the late 1800s prompted California to pass legislation providing protection to several species including bighorn sheep (Jones 1950; Wehausen 1979).

Commercial and recreational hunting of Sierra Nevada bighorn sheep is not permitted under State law. There is no evidence that other commercial, recreational, scientific, or educational activities are currently a threat. Poaching does not appear to be a problem at this time.

#### C. Disease or Predation

Disease is believed to have been the major contributing factor responsible for the precipitous decline of Sierra Nevada bighorn sheep starting in the late 1800s (Foreyt and Jessup 1982).

Bighorn sheep are host to a number of internal and external parasites, including ticks, lice, mites, tapeworms, roundworms, and lungworms. Most of the time, parasites are present in relatively low numbers and have little effect on individual sheep and populations (Cowan and Geist 1971).

Cattle were first introduced into the Sierra Nevada in 1860s but were replaced with domestic sheep that could graze more extensively over the rugged terrain (Wehausen *et al.* 1987; Wehausen 1988). Large numbers of domestic sheep were grazed seasonally in the Sierra Nevada prior to the turn of the century, and the domestic sheep would use the same ranges as the wild sheep, occasionally coming into direct contact with them. Both domestic sheep and cattle can act as disease reservoirs. Scabies, most likely contracted from domestic sheep, caused a major decline of bighorn sheep in California in the 1870s to the 1890s, and caused catastrophic die-offs in other parts of their range (Buechner 1960). A die-off of bighorn sheep in the 1870s on the Great Western Divide (Mineral King area of Sequoia National Park) was attributed to scabies, presumably contracted from domestic sheep (Jones 1950).

Die-offs from pneumonia contracted from domestic sheep is another important cause of losses. In 1988, a strain of pneumonia, apparently contracted from domestic sheep, wiped out the reintroduced South Warner Mountains herd of bighorn sheep (David A. Jessup, CDFG, *in litt.* 1999). These bighorn sheep, which included Sierra Nevada bighorn sheep, died of fibrinopurulent bronchopneumonia, caused by a virulent strain of

*Pasteurella* species bacteria. Domestic sheep had been observed running with the bighorn prior to this outbreak (D. Jessup, *in litt.* 1999). Native bighorn sheep cannot tolerate strains of respiratory bacteria such as *Pasteurella* species, carried normally by domestic sheep, and close contact with domestic animals results in transmission of disease and subsequent deaths of the exposed animals (Foreyt and Jessup 1982). Similar die-offs of bighorn sheep populations have occurred elsewhere, such as in Lava Beds National Monument, California, and in Gerlach, Nevada, where it was documented that domestic sheep came into contact with wild sheep (Foreyt and Jessup 1982; D.A. Jessup, *in litt.* 1999).

Bighorn sheep can also develop pneumonia independent of contact with domestic sheep. Lungworms of the genus *Protostrongylus* are often an important contributor to the pneumonia disease process in some situations (J. Wehausen, pers. comm. 1999). Lungworms are carried by an intermediate host snail, which is ingested by a sheep as it is grazing. Lungworm often exists in a population without causing a problem. However, if the sheep are stressed in some way, they may develop bacterial pneumonia, which is complicated by lungworm infestation. Bacterial pneumonia is usually a sign of weakness caused by some other agent such as a virus, parasite, poor nutrition, predation, human disturbance, or environmental or behavioral stress that lowers the animal's resistance to disease (Wehausen 1979; Foreyt and Jessup 1982). Bighorn sheep in the Sierra Nevada carry *Protostrongylus* species (lungworms), but the parasite loads have been low, and there has been no evidence of any clinical signs of disease or disease transmission (Wehausen 1979; Richard Perloff, Inyo National Forest, pers. comm. 1999).

Currently, domestic sheep grazing allotments are permitted by the FS in areas adjacent to Sierra Nevada bighorn sheep subpopulations. Domestic sheep occasionally escape the allotments and wander into bighorn sheep areas, sometimes coming into direct contact with bighorn sheep (Advisory Group 1997). For example, in 1995, 22 domestic sheep that were permitted on FS land wandered away from the main band and were later found in Yosemite National Park, after crossing through occupied bighorn sheep habitat (Advisory Group 1997; Bonny Pritchard, Inyo National Forest, pers. comm. 1999; R. Perloff, pers. comm. 1999). Other stray domestic sheep, in smaller numbers, have been known to wander

up the road in Lee Vining Canyon into bighorn sheep habitat (B. Pritchard, pers. comm. 1999). Based on available information, and given the susceptibility of bighorn sheep to introduced pathogens, disease will continue to pose a significant and underlying threat to the survival of Sierra Nevada bighorn sheep until the potential for contact with domestic sheep is eliminated.

Predators such as coyote (*Canis latrans*), bobcat (*Lynx rufus*), mountain lion, gray fox (*Urocyon cinereoargenteus*), golden eagle (*Aquila chrysaetos*), and free-roaming domestic dogs prey upon bighorn sheep (Jones 1950; Cowan and Geist 1971). Predation generally has an insignificant effect except on small populations such as the Sierra Nevada bighorn sheep. Coyotes are the most abundant large predator sympatric (occurring in the same area) with bighorn sheep populations (Bleich 1999), and are known to have killed young Sierra Nevada bighorn sheep (Vernon Bleich, CDFG, pers. comm. 1999). In the late 1980s, mountain lion predation of Sierra Nevada bighorn sheep increased throughout their range (Wehausen 1996). This trend has continued into the 1990s, as evidenced by Table 1.

Predation by mountain lions probably was a natural occurrence and part of the natural balance of this ecosystem. From 1907 to 1963, the State provided a bounty on mountain lions; the State also hired professional lion hunters for many years. The bounty most likely kept the mountain lion population reduced such that bighorn sheep predation was rare and insignificant. Between 1963 and 1968, mountain lions were managed as a nongame and nonprotected mammal, and take was not regulated. From 1969 to 1972, lions were re-classified as game animals. A moratorium on mountain lion hunting began in 1972 and lion numbers likely increased. In 1986, the species was again classified as a game animal, but CDFG hunting recommendations were challenged in court in 1987 and 1988 (Tories *et al.* 1996). In 1990, a State-wide ballot initiative (Proposition 117) passed into law prohibiting the killing of mountain lions except if humans, or their pets or livestock are threatened. Another ballot measure, Proposition 197, which would have modified current law regarding mountain lion management failed to pass in 1996, largely because of the public's concern that the change may allow mountain lion hunting (Tories *et al.* 1996). With the removal of the ability to control the mountain lion population, lion predation became a significant

limiting factor on Sierra Nevada bighorn sheep.

The increased presence of mountain lions appears to have changed Sierra Nevada bighorn sheep winter habitat use patterns. Wehausen (1996) looked at mountain lion predation in two bighorn sheep subpopulations, one in the Granite Mountains of the eastern Mojave Desert, and the other in the Mount Baxter subpopulation in the Sierra Nevada. He found that the lions reduced the subpopulation in the Granite Mountains to eight ewes between 1989 and 1991, and held it at that level for 3 years, after which lion predation decreased and the bighorn sheep subpopulation increased at 15 percent per year for 3 years. All the mortality in that subpopulation was attributed to mountain lion predation. The Mount Baxter bighorn sheep subpopulation abandoned its winter ranges, presumably due to mountain lion predation. Forty-nine sheep were killed by lions on their winter range between 1976 and 1988 out of an average subpopulation size of 127 sheep. These mortalities from mountain lion predation represented 80 percent of all mortality on the winter range, and 71 percent for all ranges used. Evidence also indicates that many of the bighorn sheep killed were prime-aged animals (J. Wehausen, pers. comm. 1999).

The bighorn sheep on Mount Baxter may have moved to higher elevations to evade lions. By avoiding the lower terrain and consequently the higher quality forage present during the spring, sheep emerged from the winter months in poorer condition. Consequences from the change in habitat use resulted in a decline in the Baxter subpopulation due to decreased lamb survival, because lambs were born later and died in higher elevations during the winter. This may have also been the case with the Lee Vining subpopulation decline; bighorn sheep may have run out of fat reserves at a time when they should have been replenishing their reserves with highly nutritious forage from low elevation winter ranges. We believe that because of the winter habitat shift by the bighorn sheep, the Mount Baxter subpopulation has declined significantly. With the large decline of bighorn sheep on Mount Baxter, the total population of Sierra Nevada bighorn sheep has now dropped below what existed during implementation of the restoration program between 1979 and 1988 (Wehausen 1996; Advisory Group 1997), which transplanted sheep back into historical habitat. In a 1996 survey on Mount Williamson, there was no evidence of groups of sheep, and this subpopulation was the last one found

using its low-elevation winter range in 1986. Mountain lion predation may have led to the extirpation of this subpopulation, one of the last two native subpopulations of Sierra Nevada bighorn sheep (Wehausen 1996; J. Wehausen, pers. comm. 1999).

In 1998 and 1999, few mountain lions were documented using the Wheeler Crest subpopulation winter habitat. As a result, this subpopulation returned to its winter range, and 15 lambs were born to the subpopulation in 1998 and again in 1999. The Langley subpopulation continues to avoid its winter habitat, presumably due to the presence of mountain lions there. As a result, the ewes were in very poor condition in the spring and had not recovered to good condition by August 1999. One sheep was documented to have been killed by a mountain lion in 1999 (J. Wehausen, pers. comm. 1999).

On September 16, 1999, California enacted legislation (Assembly Bill 560) amending Proposition 117 allowing the CDFG to remove or take mountain lions that are perceived to be a threat to the survival of any threatened, endangered or fully protected sheep species (Diana Craig, FS, *in litt.* 1999; Office of the Governor 1999). Passage of this bill will help manage mountain lion predation on Sierra Nevada bighorn sheep, but likely will not eliminate this threat. The authority of the State to manage mountain lion predation under this law is limited and has not yet been fully tested. For example, the law allows the State to take mountain lions perceived to be an immediate threat to protected bighorn sheep. However, it is not clear that this authority extends to removing lions whose presence at lower elevation, winter sheep habitat precludes normal, seasonal, bighorn sheep migration patterns. The ability to migrate to these lower elevation areas for winter use is considered crucial to improving the productivity rate of bighorn sheep populations.

The Sierra Nevada bighorn sheep restoration program, implemented between 1979 to 1988 to reintroduce the sheep into historical habitat, used the Mount Baxter subpopulation as the source of reintroduction stock. The three reintroduced subpopulations at Lee Vining Canyon, Wheeler Crest, and Mount Langley all suffered from mountain lion predation shortly after translocation of sheep (Wehausen 1996). The Lee Vining Canyon subpopulation lost a number of sheep to mountain lion predation, threatening the success of the reintroduction effort (Chow 1991, cited by Wehausen (1996)). The subpopulation was supplemented with additional sheep, and the State removed

one mountain lion each year for 3 years, which helped reverse the decline of this subpopulation (Bleich *et al.* 1991 and Chow 1991, cited by Wehausen (1996)). Also, because domestic sheep are preyed upon by mountain lions, livestock operators who have a Federal permit to graze their sheep on FS land can get a depredation permit from the State, and have the U.S. Department of Agriculture, Wildlife Services, remove the mountain lion. The Lee Vining Canyon subpopulation occurs in the general area where domestic sheep are permitted, and has benefitted from the removal of mountain lions that were preying on domestic sheep (B. Pritchard, pers. comm. 1999). However, this subpopulation has continued to decline, and in 1999, only one reproductive ewe remains (J. Wehausen, pers. comm. 1999).

#### *D. The Inadequacy of Existing Regulatory Mechanisms*

In response to a very rapid decline in population numbers, in 1876 the State legislature amended an 1872 law that provided seasonal protection for elk, deer and pronghorn to include all bighorn sheep. Two years later, this law was amended, establishing a 4-year moratorium on the taking of any pronghorn, elk, mountain sheep or female deer. In 1882, this moratorium was extended indefinitely for bighorn sheep (Wehausen *et al.* 1987). In 1971, California listed the California bighorn sheep as "rare." The designation was changed to "threatened" in 1984 to standardize the terminology of the amended California Endangered Species Act (CESA) (Advisory Group 1997). The California Fish and Game Commission upgraded the species' status to "endangered" in 1999 (Mammoth Times 1999; San Francisco Chronicle 1999; CDFG 1999). Pursuant to the California Fish and Game Code and the CESA, it is unlawful to import or export, take, possess, purchase, or sell any species or part or product of any species listed as endangered or threatened. Permits may be authorized for certain scientific, educational, or management purposes, and to allow take incident to otherwise lawful activities.

The policy of the State of California is to protect and preserve all native species and their habitat, such as the Sierra Nevada bighorn sheep, that are threatened by extinction or are experiencing a significant decline that, if not halted, would lead to a threatened or endangered designation (California Fish and Game Commission 1999). However, the Sierra Nevada bighorn sheep occurs mainly on Federal lands administered by the BLM and the FS.



These Federal agencies are responsible for regulating activities on Federal lands that may adversely affect bighorn sheep. For example, the State alone cannot effectively address disease transmission from domestic sheep to Sierra Nevada bighorn sheep because the State does not regulate grazing on Federal lands.

Since the Sierra Nevada bighorn sheep was listed by the State of California in 1971, the CDFG has undertaken numerous efforts for the conservation of the sheep, including but not limited to—(1) intensive field studies; (2) reestablishment of three additional subpopulations in historical habitat; (3) creation, in 1981, of the Sierra Nevada Bighorn Sheep Interagency Advisory Group, including representatives from Federal, State, and local resource management agencies, which has produced the Sierra Nevada Bighorn Sheep Recovery and Conservation Plan (1984) and a Conservation Strategy for Sierra Nevada Bighorn Sheep (1997); and (4) culling four mountain lions that were taking Sierra Nevada bighorn sheep, which played a significant role in the efforts to reestablish one subpopulation (Chow 1991, cited by Wehausen (1996)).

Mountain lion hunting has not occurred in California since 1972 (Tories *et al.* 1996). As a result of passage of Proposition 117 in 1990 prohibiting the hunting or control of mountain lions, the CDFG lost the authority to remove mountain lions to protect the Sierra Nevada bighorn sheep and secure their survival. However, in September of 1999, California passed legislation (A. B. 560) allowing the CDFG to take or remove mountain lions that are a threat to the Sierra Nevada bighorn sheep populations (D. Craig, *in litt.* 1999; Office of the Governor 1999). We believe that this law will help eliminate the threat due to mountain lion predation, but will likely not completely eliminate it. In addition, this legislation was enacted so recently that little time has passed to allow us to evaluate its effectiveness as a regulatory mechanism.

Federal agencies have authority to manage the land and activities under their administration to conserve the bighorn sheep. Federal agencies are taking steps to enhance habitat through prescribed burning to improve forage and maintain open habitat, and to retire domestic sheep allotments that run adjacent to bighorn sheep habitat. For example, the FS burned 263 hectares (ha) (650 acres (ac)) in 1997 in Lee Vining Canyon to reduce mountain lion hiding cover, and there are plans to do more burns in other areas on FS land (R. Perloff, pers. comm. 1999). However, in

some cases, because of conflicting management concerns, conservation efforts are not proceeding as quickly as necessary. Although efforts have been underway for many years, the FS has been unable to eliminate the known threat of contact between domestic sheep and the Sierra Nevada bighorn sheep by either eliminating adjacent grazing allotments, or modifying allotments such that a sufficient buffer zone exists that would prevent contact between wild and domestic sheep.

In 1971, the State, in cooperation with the FS, established a sanctuary for the Mount Baxter and Mount Williamson subpopulation of Sierra Nevada bighorn sheep and called it the California Bighorn Sheep Zoological Area (Zoological Area) (Wehausen 1979; Inyo National Forest Land Management Plan (LMP) 1988). The FS set aside about 16,564 ha (41,000 ac) of FS land for these two subpopulations. At the time, many felt that the species' decline was related to human disturbance. The sanctuary was designed to regulate human use in some areas (Hicks and Elder 1979), and reduce domestic sheep/wild sheep interaction by constructing a fence below the winter range of the Mount Baxter subpopulation along the FS and BLM boundary (Wehausen 1979). Adjacent summer range on NPS land was also given a restrictive designation to reduce human disturbance (Wehausen 1979). The FS continues to manage the Zoological Area; it encompasses land designated as wilderness and mountain sheep habitat (LMP 1988; R. Perloff, pers. comm. 1999).

Despite the establishment of the sanctuary, the sheep population has continued to decline. This decline is most likely due to mountain lion predation and the abandonment of low elevation winter range (Wehausen 1996). Also, the sanctuary fence was constructed only at the mouth of the canyon where the Mount Baxter herd winters, adjacent to a stock driveway used to drive domestic sheep towards their summer grazing allotments on Federal land further north (B. Pritchard, pers. comm. 1999). The fence does not prevent domestic sheep from leaving their bands while on the grazing allotments and moving into habitat used by Sierra Nevada bighorn sheep.

#### *E. Other Natural or Manmade Factors Affecting its Continued Existence*

The Sierra Nevada bighorn sheep population is critically small with a total of only 125 sheep known from 5 subpopulations. There is no known interaction between the separate subpopulations. The Sierra Nevada

bighorn sheep currently is highly vulnerable to extinction from threats associated with small population size and naturally occurring events.

Although inbreeding depression has not been demonstrated in the Sierra Nevada bighorn sheep, the number of sheep occupying all areas is critically low. The minimum size at which an isolated group of this species can be expected to maintain itself without the deleterious effects of inbreeding is not known. Researchers have suggested that a minimum effective population size of 50 is necessary to avoid short-term inbreeding depression, and 500 to maintain genetic variability for long-term adaptation (Franklin 1980). Small populations are extremely susceptible to chance variation in age and sex ratios or other population parameters (demographic stochasticity) and genetic problems (Caughley and Gunn 1996). Small populations suffer higher extinction probabilities from chance events such as skewed sex ratio of offspring, (*e.g.*, fewer females being born than males). For example, the Mount Langley subpopulation has been declining. In 1996–97, out of a subpopulation of 4 ewes and 10 rams, 5 lambs were born, of which 4 were female. Although a positive event for this subpopulation, it could have been devastating if the female:male ratio had been reversed (J. Wehausen, pers. comm. 1999).

The five subpopulations include a total of nine female demes (*i.e.*, local populations). These demes are defined by separate geographic home range patterns of the females. Three of these demes appear not to use low elevation winter ranges at all, and they will probably go extinct as a result (J. Wehausen, pers. comm. 1999). For example, the Black Mountain deme, consisting of five ewes, was previously part of the Sand Mountain deme, which also has five ewes and is part of the Mount Baxter subpopulation. The Black Mountain deme became a separate deme after winter range abandonment in the late 1980s, and does not appear to know of the Sand Mountain winter range, which lies considerably north of their home range. This deme has shown a steady decline in size (J. Wehausen, pers. comm. 1999).

There are six female demes that may persist, but all are still very vulnerable to extinction due to small size. With the likely extinction of some of the existing demes, the remaining demes become all the more important to the persistence of this distinct population segment, and each remaining female is critically important to her deme. Individual mountain lions can do enormous



damage to any of these small demes, as can catastrophic events such as snow avalanches.

We also do not know the current distribution of genetic variation among all of these subpopulations. Each subpopulation likely has lost some genetic variability, thereby reducing its ability for long-term adaptation. The ultimate goal of conserving this DPS must be to preserve as much of its genetic variation as possible. It is likely that all or some of the existing demes now contain some variation not represented in others. Until some measure of the distribution of genetic variation exists, every deme should be considered a significant portion of the overall population. Maintenance of genetic variability requires the preservation of rams in addition to ewes.

Small, isolated groups are also subject to extirpation by naturally occurring random environmental events (*e.g.*, prolonged or particularly heavy winters and avalanches). In 1995, for example, a dozen sheep died in a single avalanche at Wheeler Crest (J. Wehouser, pers. comm. 1999). Such threats are highly significant because the subpopulations are small and it is also common in bighorn sheep for all members of one sex to occur in a single group. During the very heavy winters in the late 1970s and early 1980s, there was no notable mortality in the subpopulations because they were using low elevation winter ranges (J. Wehausen, pers. comm. 1999).

Competition for critical winter range resources can occur between bighorn sheep and elk and/or deer (Cowan and Geist 1971). However, competition between these species does not appear significant since deer and bighorn sheep readily mix on winter range, and the habitat overlap between elk and bighorn sheep is slight (Wehausen 1979).

In addition to disease, mountain lion predation, and naturally occurring events, other factors may contribute to bighorn sheep mortality. For example, two subpopulations (Wheeler Crest and Lee Vining) have ranges adjacent to paved roadways, exposing individuals from those subpopulations to potential hazards. Bighorn sheep have been killed by vehicles in Lee Vining Canyon on several occasions (V. Bleich, pers. comm. 1999).

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in developing this final rule. All five subpopulations of the Sierra Nevada distinct population of California bighorn sheep are imperiled by disease,

predation, naturally occurring environmental events, and the continual loss of genetic variation if the subpopulations remain small. The Sierra Nevada bighorn sheep population reached a high of about 310 in 1985–86, but subsequent population surveys have documented a declining trend. Currently, only about 125 animals exist. The potential for contact with domestic sheep and the transmission of disease could, by itself, eliminate an entire deme. Domestic sheep continue to stray into Sierra Nevada bighorn sheep habitat and come into close proximity to the resident bighorn sheep on numerous occasions. However, domestic sheep have not come into contact with bighorn sheep during these events. Vulnerability to demographic problems must be viewed as a combination of immediate threats of predation, changed habitat use due to the presence of mountain lions, the resultant decline of ewe nutrition and lamb survivorship, exposure to environmental catastrophes, and the transmission of disease from domestic sheep. Because of the high potential for these threats to result in the extinction of this bighorn sheep distinct population segment, it warrants listing as endangered. Immediately upon publication, this final rule will continue the protection for this DPS of California bighorn sheep, which began when we emergency listed this DPS on April 20, 1999.

#### Critical Habitat

In the emergency rule, we indicated that designation of critical habitat was not determinable for the Sierra Nevada bighorn sheep due to a lack of information sufficient to perform the required analysis of impacts of the designation. We have re-examined the question of whether critical habitat is not determinable, and have determined that there is sufficient information to do the required analysis.

In the absence of a finding that critical habitat would increase threats to a species, if there are any benefits to critical habitat designation, then a prudent finding is warranted. In the case of this species, there may be some benefits to designation of critical habitat. The primary regulatory effect of critical habitat is the section 7 requirement that Federal agencies refrain from taking any action that destroys or adversely modifies critical habitat (see Available Conservation Measures section). While a critical habitat designation for habitat currently occupied by this species would not likely change the section 7 consultation outcome, because an action that destroys or adversely modifies such

critical habitat would also be likely to result in jeopardy to the species, there may be instances where section 7 consultation would be triggered only if critical habitat is designated. Examples could include unoccupied habitat or occupied habitat that may become unoccupied in the future. There may also be some educational or information benefits to designating critical habitat. We find that critical habitat is prudent for the Sierra Nevada bighorn sheep.

Our Final Listing Priority Guidance for FY 2000 (64 FR 57114) states that the processing of critical habitat determinations (prudence and determinability decisions) and proposed or final designations of critical habitat will no longer be subject to prioritization under the Listing Priority Guidance. Critical habitat determinations, which were previously included in final listing rules published in the **Federal Register**, may now be processed separately, in which case stand-alone critical habitat determinations will be published as notices in the **Federal Register**. We will undertake critical habitat determinations and designations during FY 2000 as allowed by our funding allocation for that year." As explained in detail in the Listing Priority guidance, our listing budget is currently insufficient to allow us to immediately complete all of the listing actions required by the Act. Deferral of the critical habitat designation for the Sierra Nevada bighorn sheep will allow us to concentrate our limited resources on higher priority critical habitat and other listing actions, while allowing us to put in place protections needed for the conservation of the Sierra Nevada bighorn sheep without further delay. However, because we have successfully reduced, although not eliminated, the backlog of other listing actions, we anticipate in FY 2000 and beyond giving higher priority to critical habitat designation, including designations deferred pursuant to the Listing Priority Guidance, such as the designation for this species, than we have in recent fiscal years.

We plan to employ a priority system for deciding which outstanding critical habitat designations should be addressed first. We will focus our efforts on those designations that will provide the most conservation benefit, taking into consideration the efficacy of critical habitat designation in addressing the threats to the species, and the magnitude and immediacy of those threats. We will develop a proposal to designate critical habitat for the Sierra Nevada bighorn sheep as soon as feasible, considering our workload

priorities. For the immediate future, most of Region 1's listing budget must be directed to complying with numerous court orders and settlement agreements, as well as due and overdue final listing determinations.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. If a species is listed, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its designated critical habitat. If a Federal agency action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with us. Federal agency actions that may require conference and/or consultation include those within the jurisdiction of the FS, BLM, and NPS.

We believe that protection of the Sierra Nevada bighorn sheep requires reduction of the threat of mountain lion predation, particularly during the months of April and May when bighorn sheep attempt to use low elevation winter ranges to obtain necessary nutrition after lambing, and ewes and lambs are most vulnerable to predation. California's recently enacted legislation (A. B. 560) allowing removal of mountain lions that threaten Sierra Nevada bighorn sheep will reduce this threat. Removal of mountain lions may not necessarily involve lethal techniques.

We believe that protection of the Sierra Nevada bighorn sheep also requires reduction of the threat of disease transmission from domestic

sheep by preventing domestic sheep from coming into contact with bighorn sheep. We will work with the FS to reduce the threat of disease transmission by domestic sheep. Reduction of this threat may involve elimination of grazing allotments adjacent to bighorn sheep habitat, or modifying allotments to create a sufficient buffer zone that would prevent contact between domestic sheep and bighorn sheep.

Listing this species would provide for the development of a recovery plan. Such a plan would bring together both State and Federal efforts for the conservation of the species. The plan would establish a framework for agencies to coordinate activities and cooperate with each other in conservation efforts. The plan would set recovery priorities and estimate costs of various tasks necessary to accomplish them. It also would describe site-specific management actions necessary to achieve conservation and survival of the Sierra Nevada bighorn sheep. Additionally, pursuant to section 6 of the Act, we would be able to grant funds to affected states for management actions promoting the protection and recovery of this species.

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

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

It is our policy, published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed those activities that likely

would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a listing on proposed and ongoing activities within a species' range. Activities we believe will likely result in a violation of section 9 include, but are not limited to:

(1) Unauthorized trapping, capturing, handling or collecting of Sierra Nevada bighorn sheep. Research activities involving trapping or capturing of Sierra Nevada bighorn sheep will require a permit under section 10(a)(1)(A) of the Act.

(2) Failure to confine livestock to authorized grazing allotments resulting in transmission of disease or habitat destruction.

Activities we believe will not likely result in a violation of section 9 are:

(1) Possession, delivery, or movement, including interstate transport and import into or export from the United States, involving no commercial activity, of dead specimens of Sierra Nevada bighorn sheep that were collected prior to April 20, 1999, the date of publication of the emergency listing rule in the **Federal Register**;

(2) Normal, legal recreational activities in designated campsites or recreational use areas, and on authorized trails.

Direct your questions regarding any specific activities to our Ventura Fish and Wildlife Office (see **ADDRESSES** section). Requests for copies of the regulations regarding listed wildlife and about prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Ecological Services, Endangered Species Permits, 911 Northeast 11th Avenue, Portland, Oregon 97232-4181 (telephone 503/231-2063; facsimile 503/231-6243).

#### National Environmental Policy Act

We have determined that an environmental assessment or environmental impact statement, as defined under the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

#### Paperwork Reduction Act

This rule does not contain any information collection requirements for which Office of Management and Budget (OMB) approval under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* is required. An information collection related to the rule pertaining to permits for endangered and

threatened species has OMB approval and is assigned clearance number 1018-0094. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid control number. This rule does not alter that information collection requirement. For additional information concerning permits and associated requirements for endangered wildlife, see 50 CFR 17.22.

#### References Cited

A complete list of references cited in this rule is available upon request from the Ventura Fish and Wildlife Office of the U.S. Fish and Wildlife Service (see **FOR FURTHER INFORMATION CONTACT** section).

Authors. The primary authors of this final rule are Carl Benz, Ventura Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT** section), and Barbara Behan, Regional Office, 911 N.E. 11th Avenue, Portland, Oregon 97232 (telephone 503/231-6131).

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

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

#### Regulation Promulgation

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

#### PART 17—[AMENDED]

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

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

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

#### § 17.11 Endangered and threatened wildlife.

\* \* \* \* \*

(h) \* \* \*

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific Name						
* MAMMALS	*	*	*	*	*		*
* Sheep, Sierra Nevada bighorn.	* <i>Ovis canadensis californiana</i> .	* U.S.A. (western conterminous states), Canada (southwest), Mexico (north).	* U.S.A., CA-Sierra Nevada.	* E	* 660E 675	NA	NA
*	*	*	*	*	*		*

Dated: December 22, 1999.

**Jamie Rappaport Clark**,  
Director, Fish and Wildlife Service.

[FR Doc. 99–34056 Filed 12–30–99; 8:45 am]

BILLING CODE 4310–55–P

#### DEPARTMENT OF COMMERCE

#### National Oceanic and Atmospheric Administration

#### 15 CFR Part 902

#### 50 CFR Part 216

[Docket 990324081–9336–02, ID072098G]

RIN 0648–A185

#### Taking of Marine Mammals Incidental to Commercial Fishing Operations; Tuna Purse Seine Vessels in the Eastern Tropical Pacific Ocean (ETP)

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

**ACTION:** Interim final rule; request for comments.

**SUMMARY:** NMFS issues an interim final rule to implement provisions of the International Dolphin Conservation

Program Act (IDCPA). This interim final rule allows the entry of yellowfin tuna into the United States under certain conditions from nations fully complying with the International Dolphin Conservation Program (IDCP). It also allows U.S. vessels to set their purse seines on dolphins in the ETP. The standard for the use of “dolphin-safe” labels for tuna products also is changed. This interim final rule also establishes a tuna-tracking program to ensure adequate tracking and verification of tuna harvested in the ETP.

**DATES:** Effective February 2, 2000.

Comments must be received no later than 5 p.m., Pacific standard time, on April 3, 2000.

**ADDRESSES:** Written comments should be sent to J. Allison Routt, NMFS, Southwest Region, Protected Resources Division, 501 W. Ocean Blvd., Suite 4200, Long Beach, CA 90802–4213. Comments also may be sent via facsimile (fax) to 562–980–4027. Comments will not be accepted if submitted via e-mail or Internet. Copies of the Environmental Assessment (EA) accompanying this interim final rule may be obtained by writing to the same address. Send comments regarding reporting burden estimates or any other

aspect of the collection-of-information requirements in this interim rule, including suggestions for reducing the burdens to J. Allison Routt and to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Washington, DC 20503 (ATTN: NOAA Desk Officer).

**FOR FURTHER INFORMATION CONTACT:** J. Allison Routt, NMFS, Southwest Region, Protected Resources Division, (562) 980–4020, fax 562–980–4027.

#### SUPPLEMENTARY INFORMATION:

#### Background

In 1992, nations fishing for tuna in the ETP, including the United States, reached a non-binding international agreement (referred to as the La Jolla Agreement) that included, among other measures, a dolphin mortality reduction schedule providing for significant reductions in dolphin mortalities. By 1993, nations fishing in the ETP under the La Jolla Agreement had reduced dolphin mortality to less than 5,000 dolphins annually, 6 years ahead of the schedule established in that Agreement. In October 1995, the success of the La Jolla Agreement led the United States, Belize, Colombia, Costa Rica, Ecuador, France, Honduras, Mexico, Panama,