

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AC01

30-94

Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for the Mojave Population of the Desert Tortoise

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) designates critical habitat for the Mojave population of the desert tortoise (*Gopherus agassizii*), a species federally listed as threatened under the Endangered Species Act of 1973, as amended (Act). Located primarily on Federal land, and to a lesser extent on State, private, and Tribal lands, this critical habitat designation provides additional protection under section 7 of the Act with regard to activities that require Federal agency action. As required by section 4 of the Act, the Service considered economic and other relevant impacts prior to making a final decision on the size and configuration of critical habitat.

EFFECTIVE DATE: March 10, 1994.

ADDRESSES: The complete administrative record for this rule is on file at the U.S. Fish and Wildlife Service, Nevada Field Office, Ecological Services, 4600 Kietzke Lane, Building C-125, Reno, Nevada 89502. The complete file for this rule will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Mr. David L. Harlow, Field Supervisor, Nevada Field Office, U.S. Fish and Wildlife Service, at the above address (702/784-5227).

SUPPLEMENTARY INFORMATION:**Background**

The Mojave population of the desert tortoise, referred to herein as desert tortoise or tortoise, is one of three species in the genus *Gopherus* found in the United States. The Berlandier's tortoise (*G. berlandieri*) is found in northeastern Mexico and southern Texas. The gopher tortoise (*G. polyphemus*) is found in the hot, humid portions of the southeastern United States. *G. agassizii* is relatively large, with adults measuring up to 15 inches in shell length, and inhabits the Mojave, Colorado, and Sonoran Deserts in the

southwestern United States and adjacent Mexico. The species is divided into the Sonoran and Mojave populations. The Sonoran population occurs south and east of the Colorado River in Arizona and Mexico, and the Mojave population occupies those portions of the Mojave and Colorado Deserts north and west of the Colorado River in southwestern Utah, northwestern Arizona, southern Nevada, and southern California.

For a thorough discussion of the ecology and life history of the desert tortoise, see the Draft Recovery Plan for the Desert Tortoise (Mojave Population) (U.S. Fish and Wildlife Service 1993) and the April 2, 1990, final rule listing the desert tortoise as a threatened species (55 FR 12178). These documents incorporate the majority of current biological information on the desert tortoise used to develop this rule.

The Endangered Species Act of 1973, as amended (Act) requires the Service to designate critical habitat to the maximum extent prudent and determinable concurrently with listing a species as endangered or threatened. On August 20, 1980, the Service listed the Beaver Dam Slope population of the desert tortoise (*Gopherus agassizii*), in southwestern Utah, as a threatened species and designated 35 square miles of critical habitat (45 FR 55654). On September 14, 1984, the Service received a petition from the Environmental Defense Fund, Natural Resources Defense Council, and Defenders of Wildlife to list the desert tortoise in Arizona, California, and Nevada as endangered. In September 1985, the Service determined that the listing was warranted but precluded by other listing actions of higher priority under authority of section 4(b)(3)(iii) of the Act (50 FR 49868). The Service made annual findings of warranted but precluded from 1985 through 1989 under section 4(b)(3)(C) of the Act. On May 31, 1989, the same three environmental organizations provided substantial new information and petitioned the Service to list the desert tortoise as endangered throughout its range in the United States under the expedited emergency provisions of the Act. As a result of the new information, on August 4, 1989 (54 FR 32326), the Service listed the Mojave population, excluding the Beaver Dam Slope population in Utah, as endangered by emergency rule. The Mojave population was designated in the emergency rule as all tortoises occurring north and west of the Colorado River, in California, Nevada, Arizona, and Utah. The Mojave population was then proposed under normal listing procedures on October

13, 1989 (54 FR 42270), and listed as threatened on April 2, 1990 (55 FR 12178).

Section 4(a)(3) of the Act requires that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. The Service's regulations (50 CFR 424.12(a)(2)) state that critical habitat is not determinable if information sufficient to perform required analyses of the impacts of the designation is lacking or if the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat. At the time of listing, the Service found that critical habitat was not determinable because the specific size and spatial configuration of essential habitats, as well as vital linkages connecting areas necessary for ensuring the conservation of the Mojave desert population throughout its range, could not be determined without further information.

On January 8, 1993, several plaintiffs filed a motion in *Desert Tortoise et al. v. Lujan et al.*, Civ. No. 93-0114 MHP (N.D. Cal.) seeking to stop the transfer of public land to the State of California for construction of a low-level nuclear waste disposal facility in Ward Valley located in southern California. The plaintiffs contended that the Service violated the Act by failing to designate critical habitat for the desert tortoise and sought an injunction prohibiting transfer of the site until critical habitat was designated and a new section 7 biological opinion that addressed the effects of the transfer on critical habitat was completed.

On January 27, 1993, the Natural Resources Defense Council and other environmental groups sued to compel designation of critical habitat for the Mojave population of the desert tortoise, alleging that the Secretary had failed to meet the designation deadline under section 4(b)(6)(C)(ii) of the Act (*Natural Resources Defense Council v. Babbitt*, No. C-93-0301 MHP (N.D. Cal.)). Plaintiffs further requested the court to prohibit the Service from issuing any further biological opinions for the tortoise under section 7 of the Act until critical habitat was designated.

On May 21, 1993, the plaintiffs, in both cases, and the Secretary agreed on a stipulation requiring the defendants to propose critical habitat for the desert tortoise by August 1, 1993, and to designate critical habitat by December 1, 1993. On July 30, 1993, the plaintiffs agreed to an extension of these deadlines to August 29, 1993, for a proposal and December 15, 1993, for a final decision.

On March 30, 1993, the Service announced the availability of the Draft Recovery Plan for the Desert Tortoise (Mojave Population) (Draft Recovery Plan) (58 FR 16691). The Draft Recovery Plan (U.S. Fish and Wildlife Service 1993) divides the range of the desert tortoise into 6 recovery units and recommends establishment of 14 Desert Wildlife Management Areas (DWMAs) within the recovery units. Within each DWMA, the Draft Recovery Plan recommends specific management actions to effect recovery of desert tortoises. The public comment period on the Draft Recovery Plan closed on June 30, 1993.

The Service published a proposed rule to designate critical habitat for the desert tortoise on August 30, 1993 (58 FR 45748). The August 30 proposal requested comments from all interested parties on the proposed determination and associated economic analysis. This final rule represents the Service's final decision on this issue. However, the Service may revise critical habitat in the future if land management plans, recovery plans, or other conservation strategies that are developed and fully implemented reduce the need for the additional protection provided by critical habitat designation.

Definition of Critical Habitat

Critical habitat is defined in section 3(5)(A) of the Act as "(i) the specific areas within the geographic area occupied by the species * * * on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed * * * upon a determination * * * that such areas are essential for the conservation of the species." The term "conservation," as defined in section 3(3) of the Act, means "* * * to use and the use of all methods and procedures which are necessary to bring an endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary," i.e., the species is recovered and removed from the list of endangered and threatened species. Section 3 further states that in most cases the entire range of a species should not be encompassed within critical habitat.

Role in Species Conservation

Use of the term "conservation" in the definition of critical habitat indicates that its designation should identify lands that may be needed for a species'

eventual recovery and delisting. However, when critical habitat is designated at the time a species is listed, the Service frequently does not know exactly what may be needed for recovery. In this regard, critical habitat serves to preserve options for a species' eventual recovery.

The designation of critical habitat will not, in itself, lead to recovery, but is one of several measures available to contribute to a species' conservation. Critical habitat helps focus conservation activities by identifying areas that contain essential habitat features (primary constituent elements) regardless of whether or not they are currently occupied by the listed species, thus alerting the public to the importance of an area in the conservation of a listed species. Critical habitat also identifies areas that may require special management or protection. Critical habitat receives protection under section 7 of the Act with regard to actions carried out, funded, or authorized by a Federal agency. The added protection of these areas may shorten the time needed to achieve recovery. Aside from the added protection provided under section 7, the Act does not provide other forms of protection to lands designated as critical habitat.

Designating critical habitat does not create a management plan, it does not establish numerical population goals, it does not prescribe specific management actions (inside or outside of critical habitat), nor does it have a direct effect on areas not designated as critical habitat. Specific management recommendations for critical habitat are more appropriately addressed in recovery plans, management plans, and section 7 consultations.

In addition to considering biological information in designating critical habitat, the Service also considers economic and other relevant impacts of designating critical habitat. The Service may exclude areas from critical habitat when the benefits of such exclusion outweigh the benefits of including the areas within critical habitat, provided that the exclusion will not result in the extinction of a species.

Critical habitat identifies specific areas essential to the conservation of a species. Areas not currently containing all of the essential features, but with the capability to do so in the future, may also be essential for the long-term recovery of the species, particularly in certain portions of its range, and may be designated as critical habitat. However, not all areas containing the features of a listed species' habitat are necessarily essential to the species' recovery. Areas

not included in critical habitat that contain one or more of the essential elements are still important to a species' conservation and may be addressed under other facets of the Act and other conservation laws and regulations. All designated areas may also be of considerable value in maintaining ecosystem integrity and supporting other species, although that is not a consideration in designating critical habitat.

The process of designating critical habitat for the desert tortoise consisted of three steps that are explained in this document. The first step was to determine the elements and areas essential to the tortoise's conservation. This step was completed in the proposal process and is summarized in the sections of this rule entitled "Primary Constituent Elements" and "Criteria for Identifying Critical Habitat." The second step was to determine the potential costs of the proposed designation, which was completed in the proposal process and is summarized in this rule in the section entitled "Economic Summary of the August 30 Proposal." The final step was to consider whether any areas should be excluded based upon economic and other relevant impacts and to determine the costs associated with the final designation. This step is discussed in the sections entitled "Summary of the Exclusion Process," "Effects of the Designation," "Economic Impacts of the Final Designation," and "Available Conservation Measures." A section on biodiversity is included to highlight the importance of that issue and its relationship to the desert tortoise.

Designation of critical habitat may be reevaluated and revised, at any time, when new information indicates that changes are warranted. The Service may revise critical habitat if land management plans, recovery plans, or other conservation strategies are developed and fully implemented, reducing the need for the additional protection provided by critical habitat designation. For example, after the Desert Tortoise Recovery Plan is finalized, land management agencies may implement increased protection for the desert tortoise. If protection measures are implemented, the Service may revise its critical habitat designation in the future. With increased protection, some components of environmental variability threatening tortoise populations (or contributing to the variance of growth rates) may be reduced, thus lessening the need for large populations. In such an event, a population viability analysis—considering population trends based on

the variance of population growth rates—might suggest that smaller, viable, populations would require less habitat (i.e., smaller DWMA's and less need for critical habitat designation). Therefore, critical habitat units (CHUs) could be decreased in size, increased in size, or eliminated based on changes in certain environmental variables, in land status, or tortoise populations.

Primary Constituent Elements

In determining the areas to designate as critical habitat, the Service considers those physical and biological attributes that are essential to a species' conservation. In addition, the Act stipulates that the areas containing these elements may require special management considerations or protection. Such physical and biological features, as stated in 50 CFR 424.12, include, but are not limited to, the following:

- (1) Space for individual and population growth, and for normal behavior;
- (2) Food, water, or other nutritional or physiological requirements;
- (3) Cover or shelter;
- (4) Sites for breeding, reproduction, rearing of offspring; and
- (5) Generally, habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

The Service is required to base critical habitat designations upon the best scientific and commercial data available (50 CFR 424.12). In designating critical habitat for the desert tortoise, the Service has reviewed its overall approach to the conservation of the desert tortoise undertaken since its emergency listing in 1989. In addition, the Service reviewed all available information that pertains to habitat requirements of this species, including material received during the public comment period from State and Federal agencies, other entities, and members of the public.

Inherent difficulties in designating critical habitat for wide-ranging threatened species, such as the desert tortoise, make it unlikely that all habitat within the range of the species would be included in the designation. In fact, section 3(5)(C) of the Act states that, in most cases, critical habitat should not encompass the entire range of the species. Based upon the parameters discussed below, the Service determined the appropriateness of including specific areas.

Habitat Characteristics

The Service has determined that the physical and biological habitat features (referred to as the primary constituent elements) that support nesting, foraging, sheltering, dispersal, and/or gene flow are essential to the conservation of the desert tortoise. These elements were determined from studies on desert tortoise habitat preferences (e.g., habitat structure and use, forage requirements) throughout the range of the species (U.S. Fish and Wildlife Service 1993). Desert tortoise habitat consists of the following primary constituent elements: Sufficient space to support viable populations within each of the six recovery units and provide for movements, dispersal, and gene flow; sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality.

Designated critical habitat for the desert tortoise encompasses portions of the Mojave and Colorado Deserts that contain the primary constituent elements and focuses on areas that are essential to the species' recovery. The CHU boundaries are based on proposed DWMA's in the Draft Recovery Plan. Because the boundaries were drawn to conform with accepted principles of conservation biology (U.S. Fish and Wildlife Service 1993), the areas may contain both "suitable" and "unsuitable" habitat. The term "suitable" generally refers to habitat that provides the constituent elements of nesting, sheltering, foraging, dispersal, and/or gene flow.

Ecological Considerations

The range of the Mojave population of the desert tortoise includes portions of the Mojave Desert and the Colorado Desert division of the Sonoran Desert (Colorado Desert) and spans portions of four States. The Mojave Desert is located in southern California, southern Nevada, northwestern Arizona, and southwestern Utah. It is bordered on the north by the Great Basin Desert, on the west by the Sierra Nevada and Tehachapi ranges, on the south by the San Gabriel and San Bernardino Mountains and the Colorado Desert, and on the east by the Grand Wash Cliffs and Hualapai Mountains of Arizona. This area includes parts of Inyo, Kern, Los Angeles, San Bernardino, and Riverside Counties in California; the

northwestern part of Mohave County in Arizona; Clark County, and the southern parts of Esmeralda, Nye, and Lincoln Counties in Nevada; and part of Washington County in Utah. The Colorado Desert is located south of the Mojave Desert, east of California's Peninsular Ranges, and west of the Colorado River. This area includes Imperial County and parts of San Bernardino and Riverside Counties, California.

The desert tortoise is most commonly found within the desert scrub vegetation type, primarily in creosote bush scrub vegetation, but also in succulent scrub, cheesebush scrub, blackbush scrub, hopsage scrub, shadscale scrub, microphyll woodland, and Mojave saltbush-allscale scrub. Within the desert microphyll woodland, the desert tortoise occurs in blue palo verde-ironwood-smoke tree woodland. The desert tortoise also occurs in scrub-steppe vegetation types of the desert and semidesert grassland complex (U.S. Fish and Wildlife Service 1993).

Within these vegetation types, desert tortoises potentially can survive and reproduce where their basic habitat requirements are met. These requirements include a sufficient amount and quality of forage species; shelter sites for protection from predators and environmental extremes; suitable substrates for burrowing, nesting, and overwintering; various plants for shelter; and adequate area for movement, dispersal, and gene flow. Throughout most of the Mojave Region, tortoises occur most commonly on gently sloping terrain with soils ranging from sand to sandy-gravel and with scattered shrubs, and where there is abundant inter-shrub space for growth of herbaceous plants. Throughout their range, however, tortoises can be found in steeper, rockier areas (U.S. Fish and Wildlife Service 1993).

The size of desert tortoise home ranges varies with respect to location and year. Females have long-term home ranges that are approximately half that of the average male, which range from 10 to 80 hectares (Berry 1986).

Although desert tortoise populations are not generally known to inhabit elevations much above 4,000 feet, tortoise burrows have been located at 4,800 feet in the Providence and Clark Mountains of the eastern Mojave (Luckenbach 1982; W. Yumiko, pers. comm., 1992). Reliable sources have recorded desert tortoises at 7,300 feet in Death Valley National Monument, California (Luckenbach 1982); at 4,800 feet in the Goodsprings Mountains (R. Marlow, pers. comm.) and the Spring Range, Nevada (C. Stevenson, pers.

comm.); at 5,000 feet in the East Pahrangat Range, Nevada (C. Stevenson, pers. comm.); and at 5,200 feet on the Nevada Test Site (B. Burge, pers. comm.). In addition, numerous anecdotal reports place desert tortoises as high as 7,000 feet on Mount Charleston, Nevada, and in the Clark Mountains, California. Fossil remains from the Pleistocene to late Holocene (12,000 to 1,000 years before present) indicate the preferred habitat of the desert tortoise included elevations far exceeding those of today, perhaps in response to arid climatic episodes that occurred during this epoch (Morafka and Brussard, in prep.; Schneider and Everson 1989). This fossil evidence indicates that the species may have spent less than 10 percent of its taxonomic life span in the contemporary warm creosote bush desert, the remainder having been spent in more mesic, equable, and productive climates and ecosystems. This implies that contemporary tortoise populations in most of the Mojave region are likely to be vulnerable to adverse climatic conditions and to regional climate change (Morafka and Brussard, in prep.).

Throughout its geographic distribution, the desert tortoise exhibits trait variations in behavior, ecology, genetics, morphology, and physiology (Weinstein and Berry 1988, Germano 1989, Lamb *et al.* 1989, Brussard 1992, Brussard and Britten 1992). For example, three basic shell shapes (phenotypes) are indicative of desert tortoise populations in distinct geographic areas within their range (Weinstein and Berry 1988). Tortoises occurring in California and southern Nevada exhibit a boxlike, high-domed shell phenotype; Beaver Dam Slope tortoises have a short plastron (underside) and a low-domed shell phenotype; and Sonoran Desert tortoises have a pear-shaped, low-domed shell phenotype (Weinstein and Berry 1988). Furthermore, identification of the three phenotypes parallels results of mitochondrial DNA (mtDNA) studies that also "type" desert tortoises into the same three populations based on genetics (Lamb *et al.* 1989). It is because of such variability that six recovery units representing six distinct population segments of the Mojave population have been proposed in the Draft Recovery Plan (U.S. Fish and Wildlife Service 1993). These population segments should not be confused with subspecies or recognized populations, e.g., the Mojave or Sonoran populations. The six recovery units within the range of the desert tortoise,

as outlined in the Draft Recovery Plan, mirror the biotic and abiotic variability found in the desert tortoise habitat.

The objective of the Draft Recovery Plan is the recovery and delisting of the Mojave population of the desert tortoise. Desert tortoise populations have declined substantially throughout the Mojave Region in the last 2 decades, primarily due to habitat loss. These populations grow slowly, and significant improvement in the status of the Mojave population will be a very long process, measured in decades or centuries in most parts of the Mojave Region. Nevertheless, delisting of the desert tortoise may be considered if the following criteria are met:

(1) As determined by a scientifically credible monitoring plan, the population within a recovery unit exhibits a statistically significant upward trend toward target density or remains stationary at target density for at least 12 years (one-half of a desert tortoise generation);

(2) Enough habitat is protected within a recovery unit and/or the habitat and desert tortoise populations are managed intensively enough to ensure long-term population viability;

(3) Regulatory mechanisms or land management commitments have been implemented that provide for adequate long-term protection of desert tortoises and their habitat; and

(4) The population is unlikely to need protection under the Act in the foreseeable future.

Even though the Draft Recovery Plan has not been approved, it represents the best available biological information on the conditions needed to bring the Mojave population of the desert tortoise to the point where listing under the Act is no longer necessary (i.e., recovery).

The Service would delist the Mojave population of the desert tortoise if the delisting criteria were met because protection under the Act would be unnecessary. With the delisting criteria met, the desert tortoise and its habitat would continue to be protected under other regulatory mechanisms outlined in a final recovery plan. Upon delisting, the interim protection afforded by the Act in the designation of critical habitat would be eliminated.

Management Considerations

Current and historic desert tortoise habitat loss, deterioration, and fragmentation is largely attributable to urban development, military operations, and multiple-uses of public land, such as off-highway vehicle (OHV) activities and livestock grazing. Historically, habitat reduction and fragmentation have not been uniform throughout the

desert tortoise's range, but have been concentrated around populated areas, such as Mohave, Boron, Kramer Junction, Barstow, Victorville, Apple Valley, Lucerne Valley, and Twentynine Palms, California. Similar patterns are evident near Las Vegas, Laughlin, and Mesquite, Nevada; and St. George, Utah.

Human "predation" (taking desert tortoises out of their natural populations either by death (accidental or intentional) or by removal) is also a major factor in the decline of the desert tortoise. People illegally collect desert tortoises for pets, food, and commercial trade. Some immigrants to the United States have collected desert tortoises for medicinal or other cultural purposes (U.S. Fish and Wildlife Service 1993).

Desert tortoises are often struck and killed by vehicles on roads and highways, and mortality of desert tortoises due to gunshot and OHV activities is common in many parts of the Mojave Region, particularly near cities and towns. In the western Mojave Desert of California, 14.3 percent of the carcasses found on 11 permanent study plots showed evidence of gunshot (Sievers *et al.* 1988). At one plot, 28 percent of the carcasses had evidence of gunshot. Loss of tortoises from vandalism has also been reported in northwestern Arizona. Approximately 10 percent of shell remains from a tortoise study plot near Littlefield, Arizona, had gunshot wounds.

OHV use in the desert has increased and proliferated since the 1960s (U.S. Fish and Wildlife Service 1993). As of 1980, OHV activities affected approximately 25 percent of all desert tortoise habitat in California, as well as substantial portions in southern Nevada (U.S. Fish and Wildlife Service 1993). Negative effects range from minor habitat alteration to total denudation of extensive areas. While direct effects are immediate (mortality from crushing, collection, and vandalism), indirect effects can be either immediate (disruption of soil integrity; degradation of annual plants, grasses, and perennial plants; and/or destruction of desert tortoise shelter sites), delayed, and/or cumulative (soil loss due to erosion, soil compaction and its effects on annual and perennial plants, water pollution, and litter and refuse) (Biosystems Analysis 1991).

Impacts of roads within desert tortoise habitat extend significantly beyond the tracks that are created. Fewer tortoise signs are found closer to roads, suggesting reduced populations (Nicholson 1978). Thus, well-used OHV areas often result in depressed tortoise populations extending beyond the

immediate boundaries of the directly disturbed habitat.

The use of OHVs appears to have a significant effect on tortoise abundance and distribution. Although road closures have been implemented in some areas, illegal vehicle route proliferation has also occurred in many areas and can result in a significant cumulative loss of habitat. Human access increases the incidence of tortoise mortality from collecting, gunshot, and crushing by vehicles.

Domestic livestock grazing has occurred in desert tortoise habitat since the mid-1800s, with an increase in intensity near the turn of the century to the mid-1930s (Biosystems Analysis 1991). Possible direct impacts from grazing include trampling of both tortoises and shelter sites; possible indirect impacts include loss of plant cover, reduction in number of suitable shelter sites, change in vegetation, compaction of soils, reduced water infiltration, erosion, inhibition of nitrogen fixation in desert plants, and the provision of a favorable seed bed for exotic annual vegetation (U.S. Fish and Wildlife Service 1991, 1993). Habitat destruction and degradation are especially evident in livestock watering, bedding, loading, and unloading areas (U.S. Fish and Wildlife Service 1991).

The degree and nature of impacts from livestock grazing are dependent upon the local ecosystem, grazing history, seasons of use, stocking rates, annual rainfall, and density of the tortoise population. Desert ecosystems require decades to recover from disturbances, and desert tortoise populations are incapable of rapid growth, even under optimum conditions.

Desert tortoises, particularly hatchlings and juveniles, are preyed upon by several native species of mammals, reptiles, and birds. Domestic and feral dogs are a new source of mortality.

Common raven (*Corvus corax*) populations in the southwestern deserts have increased significantly since the 1940s, presumably in response to expanding human use of the desert. Sewage ponds, landfills (authorized and unauthorized), power lines, roads, and other human uses have increased available foraging, roosting, and nesting opportunities for ravens. Over the last 20 years, raven populations in the western Mojave Desert have increased 1528 percent between 1968 and 1988 (about 15 percent per year) and increased in the Colorado-Sonoran Deserts 474 percent (over 9 percent per year). While not all ravens may include tortoises as significant components of

their diets, these birds are highly opportunistic in their feeding patterns and concentrate on easily available seasonal food sources, such as juvenile tortoises. Increased mortality of young desert tortoises (in part due to predation by ravens), combined with drastically lowered survivorship of adults, is likely responsible for observed catastrophic population declines (U.S. Fish and Wildlife Service 1993).

An upper respiratory tract disease (URTD) is prevalent in captive desert tortoises and has been identified in wild desert tortoises in many localities in the western Mojave Desert and in limited localities elsewhere. URTD appears to be spreading and may have been introduced to wild populations through illegal releases of diseased captive desert tortoises. Wild desert tortoises with signs of URTD are commonly found near cities and towns with concentrations of captive desert tortoises (Marlow and Brussard 1993). Disease has contributed to high mortality rates in the western Mojave Desert in the last 4 years (Avery and Berry 1990, U.S. Fish and Wildlife Service 1993).

Recent studies have demonstrated *Mycoplasma agassizii* sp. nov. as the causative agent of URTD. Predisposing factors, such as habitat degradation, poor nutrition, and drought, are likely involved in increasing the susceptibility of individual animals to disease (Jacobson *et al.* 1991). Drought and concomitant poor nutrition have the potential to compromise desert tortoises immunologically and, therefore, make them more susceptible to URTD and other diseases. Controlling human-related spread of URTD, improving habitat conditions, and monitoring health status of desert tortoise populations are some of the more important management tools that can be used in controlling URTD in wild populations of the desert tortoise (U.S. Fish and Wildlife Service 1993).

A shell disease has also been observed in the Chuckwalla Bench population in the eastern Colorado Desert (Jacobson *et al.* 1992). A variety of mineral and metal deficiencies, as well as various toxicants, are known to cause integumentary pathology in mammals, suggesting disease or toxicosis may be responsible for these observed shell abnormalities (U.S. Fish and Wildlife Service 1993). Another shell disease, osteopenia, occurs in desert tortoise populations on the Beaver Dam Slope and may be related to poor nutrition (Jarchow and May 1989).

Criteria for Identifying Critical Habitat

The maintenance of stable, self-sustaining, and well-distributed populations of desert tortoises throughout their range is dependent upon habitat quality and its ability to support viable populations. The biological and physical characteristics of the desert ecosystem that support nesting, foraging, sheltering, dispersal, and/or gene flow are essential for this purpose. The Service based its designation of critical habitat on those areas recommended for recovery of the desert tortoise in the Draft Recovery Plan.

The Draft Recovery Plan proposes 14 DWMA's within 6 recovery units within the range of the desert tortoise. The Service used the DWMA's as the basis for CHUs because:

- (1) The Draft Recovery Plan's conservation strategy is based upon the best available information on desert tortoises gathered and analyzed over the past 20 years;
- (2) The Draft Recovery Plan represents an in-depth analysis of the conservation needs of the desert tortoise;
- (3) The areas recommended as DWMA's were proposed by experts familiar with the species and its habitat based on the principles of conservation biology; and
- (4) Use of the DWMA's is consistent with the Service's other conservation efforts (e.g., it has been the focus in section 7 consultations and conservation planning).

The Service's identification of areas consistent with the proposed DWMA's containing the primary constituent elements described above was based on the seven principles of conservation biology used in the Draft Recovery Plan:

- (1) Reserves should be well-distributed across a species' native range;
- (2) Reserves should contain large blocks of habitat with large populations of the target species;
- (3) Blocks of habitat should be close together;
- (4) Reserves should contain contiguous rather than fragmented habitat;
- (5) Habitat patches should contain minimal edge to area ratios;
- (6) Blocks should be interconnected by corridors or linkages containing protected, preferred habitat for the target species; and
- (7) Blocks of habitat should be roadless or otherwise inaccessible to humans.

Critical habitat is based on the framework of the Draft Recovery Plan. Should a final approved recovery plan

vary significantly from the draft, or significantly change the assumptions underlying this critical habitat designation, then the Service may reevaluate critical habitat boundaries.

Differences From the Draft Recovery Plan

Designation of critical habitat does not accomplish the same goals or have as dramatic an effect upon tortoise conservation as does a recovery plan because critical habitat does not apply a management prescription to designated areas. Because critical habitat designation is not a management plan, there was not a limitation on the size of the areas designated, although the designation is consistent with recommendations of the Draft Recovery Plan.

Adjustments to Legally Described Boundaries

The regulations require that the Service define " * * * by specific limits using reference points and lines as found on standard topographic maps" those areas designated as critical habitat (50 CFR 424.12 (c)). After selecting DWMA's as the starting point, the Service made several types of adjustments. To facilitate legal definition, CHU boundaries were adjusted to adjacent section lines, depending upon the amount and quality of habitat within the adjacent sections. The boundaries generally follow the 4,100-foot elevation contour line, except where excluding higher elevations would compromise reserve design principles. When adjacent to cities or towns, critical habitat boundaries were drawn on 1/2 or 1/4 section lines to remove as much unsuitable habitat as possible.

In addition to adjusting DWMA boundaries to meet the requirements to define critical habitat boundaries, the Service made other changes. Some CHUs represent more precisely described desert tortoise habitat within the DWMA boundary, and thus, encompass a much smaller area. For example, portions of DWMA's were not included in critical habitat if unsuitable habitat was identifiable on available maps and the exclusion would not affect the size or configuration recommendations made by the Draft Recovery Plan. Conversely, some critical habitat boundaries were expanded beyond DWMA boundaries to include additional habitat based on information made available to the Service during preparation of the rule.

In addressing the above factors, the Service considered existing suitable habitat and desert tortoise populations

that were not included in existing DWMA's and areas where additional protection should be considered to reduce the risk to recovery. When including other areas, the Service considered factors similar to those outlined in the Draft Recovery Plan on contiguity, shape, habitat quality, and spacing. Areas with minimal fragmentation were selected over areas with more extensive fragmentation.

The desert tortoise requires large, contiguous areas of habitat to meet its life requisites. Human activities have reduced much of the habitat in some areas to small, fragmented, and isolated areas that are not expected to support viable populations over time. In some cases, those areas were designated as critical habitat when they were needed to promote future development of large contiguous habitat areas in the future.

Lands Outside of Critical Habitat

Not all suitable desert tortoise habitat was included in critical habitat. The Service recognizes the importance of all lands, but did not incorporate all habitat within CHUs, primarily because most of these lands did not meet the designation criteria (i.e., were not associated with an area recommended in the Draft Recovery Plan, were too small to maintain a stable population of tortoises over time, or were already protected). This does not mean that lands outside of critical habitat do not play an important role in the tortoise's conservation. These lands are also important to providing nesting, foraging, sheltering, dispersal, and/or gene flow habitat for tortoises.

Previously Protected Areas

The current management policies of the Desert National Wildlife Range, Joshua Tree National Monument, and the Desert Tortoise Natural Area provide adequate protection against potential habitat-altering activities because they are primarily managed as natural ecosystems. The Service considered their relative contribution to the tortoise's conservation but did not include them in critical habitat because of their current classification. These lands are essential to the conservation of the species because they provide important links and contain large areas of contiguous habitat.

By themselves, these previously protected areas are not large enough and do not contain sufficient population levels to support viable populations. They will be considered in developing recovery areas for the desert tortoise, in addition to surrounding public lands with desert tortoise habitat.

Management Planning

The Service's intent in designating critical habitat for the desert tortoise is to provide protection for habitat that contains constituent habitat elements in sufficient quantities and quality to maintain a stable population of desert tortoises throughout their range. The emphasis for future management will be on maintaining or developing habitat that has the characteristics of suitable tortoise habitat and to avoid or reduce the adverse effects of current management practices.

Although critical habitat is not a management plan, the areas selected for inclusion play a role in maintaining a stable and well-distributed population of tortoises. Identification of these areas concluded the first step in the designation of critical habitat for the desert tortoise.

Economic Summary of August 30 Proposal

Section 4(b)(2) of the Act requires the Service to designate critical habitat on the basis of the best scientific data available and to consider the economic effects and other relevant impacts of specifying any particular area as critical habitat. The Secretary may exclude areas from critical habitat if he determines that the benefits of such exclusions outweigh the benefits of specifying such areas as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such areas as critical habitat will result in the extinction of the species concerned.

The economic effects of designating critical habitat for the desert tortoise are the incremental impacts over and above those impacts that occurred as a result of implementation of management plans, such as Federal land management plans, habitat conservation plans that have already been implemented, and previous events, including the listing of the desert tortoise. The economic analysis considers the critical habitat impacts to be those incremental impacts that are expected as a result of the critical habitat.

The Service analyzed the economic effects of the August 30, 1993, proposal to designate critical habitat (Schamberger *et al.* 1993). A summary of that analysis was provided in the proposed rule (58 FR 45748). That analysis examined how designation of critical habitat was expected to affect the use of Federal lands or State or private activities with some Federal involvement, and the economic costs or benefits that would ensue in the four-

State area. These were the regional economic effects of the designation that were over and above those expected to result from previous actions, including the listing of the desert tortoise as threatened. The economic analysis assumed those values that were in place prior to critical habitat (e.g., final Bureau of Land Management (BLM) plans, section 7 jeopardy standard, the Clark County short-term habitat conservation plan, and section 9 prohibitions) as the baseline for this analysis. As a result, critical habitat effects were those incremental impacts that would occur solely as a result of the critical habitat proposal above and beyond the effects of these other actions.

The critical habitat covers a broad geographic area in four States and includes Federal, State, private, and Tribal lands. Because the designation affects only Federal agency actions under section 7, it is assumed that any ensuing economic impacts of the designation would occur only on Federal lands or on non-Federal lands where there is Federal involvement. The Service concluded that the impacts on Federal lands would be largely limited to livestock grazing, mining, and recreational activities that may affect tortoise habitat.

As a result of that analysis, the Service concluded that the August 30 proposal would affect 51 Federal grazing permits that provide about 59,500 animal unit months (AUMs). The maximum potential reduction in regional employment was estimated to be 425 jobs (340 direct jobs; 85 indirect jobs). The profitability of ranches in the seven counties is estimated to fall by \$4,470,000 due to critical habitat designation. That is the estimated permanent decrease in ranch profits, capitalized at 10 percent for a 50-year period, in accordance with the methodology of Rice *et al.* (1978). Reduced grazing fees in the seven-county region from Federal allotments was estimated to total \$170,000 annually. Half of this amount (\$85,000) was returned to the grazing programs for range improvements, the U.S. Treasury received a maximum 37.5 percent (\$63,750) of the fees, and local governments received a minimum of 12.5 percent (\$21,250). The effect of reduced grazing on Federal land is expected to vary among counties. The designation of critical habitat is not expected to have significant economic effects within any of the seven counties.

Designation of critical habitat will not affect ongoing mining operations, as the ground disturbances typical of mineral extraction make mine sites unsuitable for tortoise habitat. Expansion of

existing mines or development of new mines will require section 7 consultation with the Service. Most of the CHUs include surface areas on which mining claims have been filed. The economic impact of critical habitat designation cannot be determined at the present time due to the uncertainty of economically feasible mineral extraction. Mining claims allow exploration but do not assure exercise of exploration rights, nor do they ensure economic profits to the owner.

The Service was unable to identify significant economic impacts to recreation activities due to critical habitat designation.

Conservation of the desert tortoise and its habitat through designation of critical habitat will result in a wide range of benefits, including recreation values, watershed protection, and others, as well as the values that society places on conservation of the tortoise and its ecosystem. However, it was not possible to place dollar estimates on these values.

As a result of this analysis, the Service concluded that the economic impacts that would be incurred from critical habitat designation would not be significant to either the regional (seven-county) or national economy. The Service did not recommend any exclusions based on economic effects.

Summary of the Exclusion Process

To determine whether or not to exclude areas from the designation of critical habitat pursuant to section 4(b)(2) of the Act requires determinations of:

- (1) The benefits of excluding an area as critical habitat,
- (2) The benefits of including an area, and
- (3) The effects of exclusions on the probability of species extinction.

This process consists of estimating the benefits of retaining or excluding CHUs, weighing those benefits, and determining if exclusion of an area or areas will lead to the extinction of the species. If the exclusion of an area or areas from critical habitat will result in eventual species extinction, then the exclusion would be prohibited under the Act.

Extinction

Critical habitat consists of areas with habitat characteristics that are essential to the conservation of a listed species. However, the exclusion process focuses upon a threshold for species extinction. Conservation (recovery) and extinction are separate standards. Recovery and extinction are at opposite ends of a continuum, with the likelihood of a

species' continued survival increasing the closer the species is to the recovery end of the continuum. It may be more difficult to predict the point at which extinction would be inevitable than to determine where recovery may occur.

Each such determination may be different for different species and may vary over the range of a species. It may be related to a number of factors, such as the number of individuals, amount of habitat, condition of the habitat, and reproductive success. Extinction of a wide-ranging species such as the desert tortoise would most likely occur as a result of increased fragmentation of its habitat (affecting quality). Portions of the species' range would no longer support tortoises before the species would become extinct. Cumulatively, reductions in range would inevitably lead to the species' extinction. The focus of the analysis was on those factors that pertain to these issues and included consideration of the condition and location of habitat.

Criteria and Decision

The Act specifically prohibits consideration of economic effects when listing species as threatened or endangered, but requires an analysis of the economic and other relevant impacts of designating critical habitat. Therefore, economic costs and benefits of critical habitat designation were defined as the economic effects that:

- (1) Exceed those that resulted from listing the desert tortoise as a threatened species in April 1990; and
- (2) Are above those economic effects resulting from the previous implementation of tortoise protection measures by Federal land management agencies.

In evaluating the designation of critical habitat to determine whether or not to exclude areas because of concerns over economic effects, the Service used the following process:

- (1) Areas were identified that are essential to the conservation of the species based upon the criteria described in this document; and
- (2) An economic analysis was conducted to ascertain the anticipated economic consequences of designating areas as critical habitat, using the county as the basic level of economic analysis.

Exclusion

After considering the economic and other factors that may be pertinent to any decision to exclude areas from designation as critical habitat, the Secretary of the Interior has determined that no exclusions are appropriate.

Biological Modifications to Boundaries

Based on information received during the proposal process, the Service refined boundaries of six CHUs based on biological information that these areas did not contain constituent elements and that deletion of them from critical habitat would not compromise the function of the CHU or its reserve design. These areas included:

- (1) Approximately 2,900 acres in the Chocolate Mountains in the Chuckwalla CHU in California;
- (2) Approximately 29,800 acres within and adjacent to the Twentynine Palms Marine Corps Base in the Ord-Rodman CHU in California;
- (3) Approximately 13,200 acres in the Newberry Mountains in the Piute-Eldorado CHU in Nevada;
- (4) Approximately 76,300 acres on both the northern and southern borders of the Mormon Mesa CHU in Nevada;
- (5) Approximately 80,757 acres around the Gold Butte-Pakoon CHU in Arizona; and
- (6) Approximately 8,100 acres north of St. George, Utah in the Upper Virgin River CHU in Utah.

In addition, based on information and a request submitted from the BLM, the Service included an additional 1,920 acres on the southern border of the Beaver Dam Slope CHU in Arizona. This request was accommodated because:

- (1) It was made by the landowner and will not affect other landowners,
- (2) The proposed inclusion constitutes an insignificant change from the proposed rule, and
- (3) It will allow the BLM's desert tortoise study plots to be included within desert tortoise habitat.

Effects of the Designation

The proposed rule for the designation of critical habitat for the desert tortoise published on August 30, 1993, identified 12 areas encompassing a total of approximately 6.6 million acres. It

included eight CHUs totaling 4.8 million acres in California, four CHUs totaling 1.3 million acres in Nevada, two CHUs totalling 137,200 acres in Utah, and two CHUs totaling 417,400 acres in Arizona. This included 5 million acres of BLM land, 247,400 acres of military lands, 151,200 acres of National Park Service land, 170,100 acres of State lands, 1,600 acres of Tribal lands, 1,079,500 acres of private lands, and 100 acres of Forest Service land. A summary of changes in acreage between the proposed rule and this final rule are provided in Table 1.

TABLE 1.—SUMMARY OF CHANGES IN ACREAGE BETWEEN PROPOSAL AND FINAL CRITICAL HABITAT DESIGNATIONS

[Figures are rounded to the nearest hundred]

	Total acre reduction
Reductions:	
Bureau of Land Management	204,900
Military	5,200
National Park Service	3,900
State	4,000
Tribal	0
Increases:	
Private	118,900

¹An increase in private land acreage resulted from a correction in land status in the Mormon Mesa CHU; the BLM land sold to Aerojet-General Corporation through the Nevada-Florida Land Exchange Act of 1988 was originally shown as BLM.

Total Acres Included in Critical Habitat

As a result of boundary revisions based on new biological information, the Service is designating approximately 199,100 acres less than proposed in the August 30, 1993 proposal. The final rule for the designation of critical habitat for the desert tortoise identifies 12 areas, encompassing a total of 6.4 million acres. The Service has designated eight units totaling 4.8 million acres in

California, four units totaling 1.2 million acres in Nevada, two units totaling 129,100 acres in Utah, and two units totaling 338,700 acres in Arizona. The final designation encompasses approximately 4,790,600 acres of BLM land, 242,200 acres of military land, 147,200 acres of National Park Service land, 166,200 acres of State land, 1,600 acres of Tribal land, and 1,098,400 acres of private land (see Tables 2 and 3). Three CHU boundaries span more than one State—Piute-Eldorado (California and Nevada), Gold Butte-Pakoon (Nevada and Arizona), and Beaver Dam Slope (Nevada, Arizona, and Utah).

TABLE 2.—APPROXIMATE ACREAGE OF CRITICAL HABITAT DESIGNATED FOR THE DESERT TORTOISE BY CRITICAL HABITAT UNIT

[Figures are rounded to the nearest hundred]

Critical habitat unit	Acres
California:	
Chemehuevi	937,400
Chuckwalla	1,020,600
Fremont-Kramer	518,000
Ivanpah Valley	632,400
Pinto Mountains	171,700
Ord-Rodman	253,200
Piute-Eldorado	453,800
Superior-Cronese	766,900
Nevada:	
Beaver Dam Slope	87,400
Gold Butte-Pakoon	192,300
Mormon Mesa	427,900
Piute-Eldorado	516,800
Utah:	
Beaver Dam Slope	74,500
Upper Virgin River	54,600
Arizona:	
Beaver Dam Slope	42,700
Gold Butte-Pakoon	296,000

TABLE 3.—APPROXIMATE ACREAGE OF CRITICAL HABITAT DESIGNATED FOR THE DESERT TORTOISE BY LANDOWNERSHIP

[Figures are rounded to the nearest hundred]

	California	Nevada	Utah	Arizona	Total
Bureau of Land Management	3,327,400	1,085,000	89,400	288,800	4,790,600
Military	242,200	0	0	0	242,200
National Park Service	0	103,600	0	43,600	147,200
State	132,900	0	27,600	5,700	166,200
Tribal	0	0	1,600	0	1,600
Private	1,051,500	35,800	10,500	600	1,098,400
Total	4,754,000	1,224,400	129,100	338,700	6,446,200
Number of critical habitat units	8	4	2	2	*12

*Two areas overlap two States, one area overlaps three States.

Developed areas, such as towns, airports, and roads, and dry lakes, active mining operations, and water bodies will not be affected by the designation because they will never contain primary constituent elements. To the extent possible, these areas were deleted from critical habitat. If these areas were found along the periphery of CHUs, boundaries were redrawn to physically exclude them from the final maps. This was not possible for areas imbedded within individual units. Acreage totals were adjusted where possible to reflect their exclusion.

The majority of desert tortoises and suitable desert tortoise habitat (i.e., for nesting, sheltering, foraging, dispersal, and gene flow) are found on BLM land. Much of the private land included in the critical habitat boundaries results from checkerboard landownership patterns along railroads. The final designation of critical habitat includes the areas that contain the best remaining desert tortoise habitat.

Economic Impacts of the Final Designation

The economic analysis (Schamberger *et al.* 1993) provides the Service's conclusions on the potential impacts of the areas selected for final designation as critical habitat. This analysis served as a decision document in evaluating economic consequences of the action leading to the final decision to designate critical habitat.

Consistent with the requirements of section 4 of the Act, the economic analysis reviews the final economic impact of designating critical habitat. Only these incremental costs and benefits of designation may be considered in determining whether to exclude lands from designation. The economic analysis examined the costs and benefits of precluding or limiting specific land uses within portions of critical habitat beyond those restrictions that have already been implemented either for the benefit of the desert tortoise through the listing process or for some other reason. Incremental analysis was the appropriate method to use because the designation of critical habitat is the only action for which the Service now has decision authority. The economic costs of listing the species have already been incurred, and the economic effects of actions taken by other Federal or State agencies are outside the purview of the Service. The analysis was cast in a "with" critical habitat versus a "without" critical habitat framework and measures the net change in various categories of benefits and costs when the critical habitat designation was imposed on the existing

baseline. The analysis evaluated national economic, or efficiency, costs and benefits that reflect changes in social welfare. The standard measure of those costs and benefits is economic surplus in the form of economic rents and consumer surplus.

The costs of designating an area as critical habitat are the net economic costs of precluding or restricting certain land uses over the period of analysis. Costs are measured as the difference between the resource's value in its economically best use without critical habitat and its next best use (opportunity cost) when that use is precluded or restricted by critical habitat. Economic effects include a mixture of efficiency and equity measures.

The economic efficiency effects of designation include those that result in changes in social welfare. Regional economic impacts often represent transfers among people, groups, and/or geographic regions. For simplicity, economic efficiency effects are referred to as benefits and costs, and distributional effects are cited as economic impacts. National economic efficiency effects may include, but are not restricted to:

- (1) Net change in aggregate value of capital (e.g., lands) due to critical habitat designation;
- (2) Wage earnings foregone from a significant number of employees permanently displaced through critical habitat designation;
- (3) Opportunity costs of foregone or precluded economic activities (e.g., curtailed or terminated land development); and
- (4) Benefits of retaining genetic and biological diversity through specific species protection measures.

Regional (distributional) economic impacts may include:

- (1) Changes in specific county tax revenues due to changes in land use (e.g., developed real estate versus raw, undeveloped land); and
- (2) Regional social costs and benefits from factors such as transient unemployment, job training, or redistribution of existing job-mix categories (e.g., transitioning from underemployment in seasonal range or mine work to full employment in other sectors).

The analysis of effects of critical habitat designation combines national economic efficiency effects and regional (distributional) impacts. These include effects on the net returns of local ranch operations, foregone grazing fees, compensation to allottees for permanent improvements to land leased from the Federal government for grazing, changes

in total employment, and the portion of grazing fees that would be shared with local governments.

These consequences are presented in the context of size, relative to the value added, of the seven counties in which the grazing impacts would be realized. These consequences illustrate the relative magnitude of critical habitat designation economic effects.

Economic Baseline

In assessing the economic impacts of the critical habitat designation, the Service has used the expected economic situation consistent with restrictions that were in place at the time of proposing critical habitat. The principal land use restrictions that were already in place were the BLM's Management Framework Plans, Resource Management Plans, and habitat management plans; the BLM's Rangeland Plan; National Park Service land management policies; military land-use policies; and the listing of the desert tortoise as a threatened species (section 7 jeopardy standard and section 9 prohibitions).

Industry (e.g., grazing and mining) and recreation-related effects of designating critical habitat concern primarily those activities not already affected by earlier decisions. For all activities, however, it is the incremental effects of avoiding adverse modification of critical habitat and the marginal changes in ensuing benefits and costs that are the appropriate measures of the effects of critical habitat designation.

Desert tortoise management and curtailment of the activities that threatened the species began when the BLM established the Desert Tortoise Preserve in 1973 in the Western Mojave Desert (Brussard *et al.* 1993). The preserve was expanded and formally designated a Research Natural Area and an Area of Critical Environmental Concern (ACEC) by 1980 (U.S. Fish and Wildlife Service 1993). In 1988, the BLM published its Rangeland Plan (Spang *et al.* 1988), which is based on the categorization of desert tortoise habitat on BLM land into three categories based on:

- (1) Importance of the habitat to maintaining viable populations,
- (2) Resolvability of conflicts,
- (3) Desert tortoise density, and
- (4) Desert tortoise population status (stable, increasing, or decreasing).

Category 1 lands are the most important to desert tortoises for survival and recovery, and category 3 lands are the least important. The Rangeland Plan provides management goals and objectives for each form of authorized multiple use within each of the

and managed by livestock grazing activities. All CHUs minimally include and/or 2 habitats. Additionally, CHUs contain some category 3 habitats, uncategorized habitats, and lands managed by other Federal entities.

The Service has assumed a distinction exists between the effects of listing the species and the incremental effects of designating critical habitat. The differences between listing and designation of critical habitat vary within each CHU based on existing management.

Eight CHUs, or portions thereof, are designated in California (Chemehuevi, Chuckwalla, Pinto Mountain, Piute-Eldorado (includes Fenner DWMA), Ivanpah, Fremont-Kramer, Ord-Rodman, and Superior-Cronese). All are managed primarily by the BLM according to guidance provided in the California Desert Conservation Area Plan of 1980, as amended (Desert Plan), and the 1992 California Statewide Desert Tortoise Management Policy (Tortoise Management Policy). The Desert Plan defines four classes of land use with differing management goals and prescriptions. Classes include controlled use (wilderness and areas recommended for wilderness), limited use, moderate use, and intensive use (vehicle travel restrictions range from designated routes only in limited-use areas to no vehicular restrictions in intensive use areas). The Tortoise Management Policy designates three categories of desert tortoise habitat in which varying levels of protection are afforded to the desert tortoise and its habitat. Additional management guidance is provided in livestock allotment management plans (AMPs), habitat management plans (HMPs) for desert tortoises and other wildlife species, the East Mojave National Scenic Area Plan, and management plans for specific ACECs.

The West Mojave Coordinated Management Plan and the Eastern Colorado Desert HMP are BLM management plans currently in preparation that will have an important effect on desert tortoise management in California. The West Mojave Coordinated Management Plan will be the basis for a programmatic section 7 consultation for BLM activities in the western Mojave Desert and may serve as a basis for habitat conservation plan(s) for local governments in the section 10(a)(1)(B) permit process. The Eastern Colorado Desert HMP will address all BLM activities in the Chuckwalla Bench

area and will provide a framework for a programmatic section 7 consultation.

The Chuckwalla CHU is managed by the BLM and the Navy (Chocolate Mountains Aerial Gunnery Range). Parts of the Superior-Cronese CHU are managed by the Army (National Training Center at Ft. Irwin) and the Navy (China Lake Naval Air Weapons Station). The Fremont-Kramer CHU includes a portion of Edwards Air Force Base. Portions of the Piute-Eldorado and Ivanpah CHUs in California are within the boundaries of the East Mojave National Scenic Area, which affords special protection to the area's natural, scenic, and other values (BLM 1980).

Several programmatic and other biological opinions have resulted in additional regulation of activities within desert tortoise habitat in California. Biological opinions have limited grazing of sheep to category 3 habitats. Programmatic consultations have been completed for land use plans at the Naval Air Weapons Station and the Rand-Fremont Valley areas. The Service has also completed a biological opinion concerning the on-going mission for the Army's National Training Center at Ft. Irwin. Programmatic consultations also exist that define standard terms and conditions for mining operations disturbing less than 10 acres, for non-competitive vehicle races, such as poker runs, which occur on designated routes in some desert tortoise areas, and for the four OHV management areas within the western Mojave Desert.

The Service and the BLM are currently developing a programmatic approach to long-term pipeline maintenance. The Service and the Navy are also informally consulting on a programmatic consultation for training activities at the Marine Corps Air Ground Combat Center (MCAGCC) and within the Chocolate Mountains Aerial Gunnery Range.

In Nevada, the majority of the desert tortoise habitat is managed by the BLM under the Clark County Management Framework Plan. The Stateline Resource Area of the Las Vegas District has prepared a draft Resource Management Plan that proposes designation of ACECs for desert tortoises; however, this document has not yet been finalized. Livestock grazing in Nevada is restricted to the period of June 15 to March 1, in accordance with the BLM's proposed livestock grazing program and the Service's biological opinion that analyzed that proposal. However, as of this date, the BLM's decision to implement this seasonal restriction has been stayed by an Administrative Law Judge. Although Interior Board of Land Appeals Administrative Law Judges

have the authority to review land use decisions made by Interior agencies, they lack jurisdiction needed to review biological opinions issued by the Service. In southern Clark County, portions of the Piute-Eldorado CHU are also managed by the National Park Service (Lake Mead National Recreation Area).

In 1991, the Piute-Eldorado Valley was established as a Tortoise Management Area (TMA), as mitigation for the incidental take of desert tortoises in the Las Vegas Valley, pursuant to section 10(a)(1)(B) of the Act. The Short-Term Habitat Conservation Plan for the Desert Tortoise in the Las Vegas Valley, Clark County, Nevada (Regional Environmental Consultants 1991), which described this mitigation, provides land-use control measures for this area. These measures include prohibition of competitive and commercial events, except in some portions of Eldorado Valley, placing livestock grazing areas into non-use status, and designation of roads and trails.

The majority of the lands within the Gold Butte-Pakoon and Beaver Dam Slope CHUs in Arizona are managed by the BLM under the Arizona Strip Management Plan. This plan designates the Beaver Dam Slope ACEC and includes management prescriptions designed to minimize impacts to desert tortoises and their habitat. All desert tortoise habitat in Arizona is within the area managed by the Virgin River-Pakoon Basin Habitat Management Plan, a cooperative Sikes Act document written by the BLM and the Arizona Game and Fish Department. Additionally, desert tortoise habitat occurring in wilderness areas in Arizona is managed according to the Paiute-Beaver Dam Wilderness Management Plan and the Grand Wash Cliffs Wilderness Management Plan. Grazing is administered according to the Cedar Wash, Highway, Beaver Dam Slope, Mormon Well, Littlefield Community, Mesquite Community, Mosby-Nay, Pakoon Springs, Pakoon, Cottonwood, Mud and Cane, and Tassi Allotment Management Plans. In addition to prescriptions set forth in these allotment management plans, a Service biological opinion on livestock grazing limited grazing to the period from June 1 to March 15.

In Utah, the Beaver Dam Slope CHU is primarily managed by the BLM. In the Castle Cliffs allotment, a 3,040-acre enclosure encompassing the historic Woodbury-Hardy study area and several other important tortoise shelter site areas was established to serve as a natural study area to enhance the

tortoise population. However, the enclosure was never completely operational or effective in eliminating grazing in the area. The BLM reduced the enclosure to 1,500 acres, where grazing was completely excluded. The Dixie Resource Area developed a resource management plan for the area, but the final document was rejected and the process has been reinitiated. Currently, BLM management in the Beaver Dam Slope CHU is conducted under the Habitat Management Plan adopted in 1980.

The BLM and the State of Utah are the primary managers of the Upper Virgin River CHU. Smaller amounts of habitat are owned by private entities and by the Paiute Indians. Several consultations have been initiated regarding grazing, housing development, horse racing, and energy pipeline developments, for which the Service has prepared draft biological opinions. Also, Washington County is pursuing development of a habitat conservation plan for the area encompassing the Upper Virgin River CHU, and the Service is providing guidance for development of this plan. The BLM is pursuing land exchanges with the State of Utah for consolidation of desert tortoise habitat within the Upper Virgin River CHU for ease of management and for long-term conservation of the desert tortoise and other desert species. The BLM's Dixie Resource Area is currently preparing a Resource Management Plan to guide land management on BLM lands encompassing the Upper Virgin River CHU. Because of the area's small size and its proximity to an expanding urban

population center, the Service has maintained that any significant losses of habitat within this area would likely jeopardize the continued existence of desert tortoises within the Upper Virgin River Recovery Unit.

Limitations of the Analysis

The regional economy includes the full economic activity of each county in which proposed CHUs are located. CHUs generally are located in remote areas containing a very small fraction of the human population and total economic activity within a county. The entire county economy may not be affected by establishing CHUs; thus, the size of the relevant regional economy may be overstated. Likewise, important activities in rural areas may appear to be insignificant when compared to the entire regional economy. For example, mining does not appear to be an important employer in the seven counties, but may contribute to the economic stability of small rural communities that offer few other employment opportunities.

Costs of Critical Habitat Designation

The following sections summarize the results of the Service's analysis of data and identify the potential costs associated with the final designation of critical habitat.

Regional Effects to Livestock Industry

Public lands in the four States in 1990 furnished nearly 3,000 operators with cattle grazing permits that provided more than 3 million AUMs (Table 4). The designation of critical habitat may

partially or totally eliminate grazing permits that provided such permits. Nearly all sheep grazing was removed from most CHUs prior to critical habitat designation; therefore, sheep grazing was not an activity examined in the economic analysis. The effect of CHU restrictions on the availability of Federal land for grazing varies widely among the States, from 0.6 percent of cattle AUMs in Nevada to 9.6 percent of cattle AUMs in California. Across the four States, CHUs may affect 1.7 percent of cattle and sheep grazing AUMs (note these effects apply to the States rather than the seven-county region, for which comparable data were not available).

The economic consequences of reduced cattle grazing on Federal lands to establish the proposed CHUs includes three effects. Ranch profits in the seven counties are estimated to fall by \$4,470,000. This amount is the estimated permanent decrease in ranch profits, capitalized at 10 percent for a 50 year period, in accordance with the methodology of Rice *et al.* (1978). The Federal government will compensate allottees with a one-time payment estimated at \$376,000 for the loss of permanent improvements to grazing lands (pending BLM administrative decisions of partially affected allotments). Discontinuing grazing leases will result in an annual reduction of \$170,000 in collected grazing fees that are divided among range improvements, the U.S. Treasury, and local governments. The \$170,000 is not a "net" annual reduction in that it does not include the reduced costs of grazing program administration.

TABLE 4.—CATTLE GRAZING AFFECTED BY CRITICAL HABITAT UNITS

State	Grazing permits on CHUs	AUMs on CHUs*	AUMs Statewide*	Percent
Arizona	12	10,580	514,674	2.1
California	13	28,240	295,676	9.6
Nevada	17	11,790	1,821,875	0.6
Utah	9	8,870	770,143	1.2
Total	51	59,480	3,402,368	1.7

* Includes cattle and sheep.

Source: U.S. Bureau of Land Management 1991. U.S. Bureau of Land Management, district offices, personal communications, 1993.

Regional Effects of Mining Industry

The Service does not anticipate disruption to current mining operations from designation of critical habitat. The Service notes that active or previously disturbed mine sites typically do not provide suitable habitat for desert tortoises. Those areas, such as currently operating mine sites, lacking primary

constituent elements are not considered critical habitat.

Expansion of mining sites on public land would require section 7 consultation to determine whether the expansion would likely destroy or adversely modify critical habitat. In cases where habitat is likely to be adversely modified, the Service may recommend reasonable and prudent

alternatives, including relocation of roads or recovery of disturbed mine sites. Mining claims provide rights to explore and develop mineral deposits but there is no assurance that deposits can be developed economically.

Claims may never be developed if market conditions do not warrant or if reserves prove insignificant. The uncertainty involved in mining claims

and mineral reserves precludes accurate estimation of economic effects from designation of critical habitat.

Reductions in County Revenues

Potential revenue loss to the seven counties examined in the economic analysis due to reduced use of existing Federal leases and/or permits is not precisely calculable due to several factors, including (but not limited to):

(1) The aggregate number of leases for grazing that have been issued under section 15 of the Taylor Grazing Act of 1934, and from which a 50 percent revenue-sharing basis exists, as opposed to section 3 permits that carry a basis of 12.5 percent revenue sharing with the affected county;

(2) The final administrative decision by the BLM to partly or completely terminate certain permits/leases for grazing predicated upon their location, existing ingress/egress to other lands, etc.; and

(3) The percentage mixture of the above two types of permits issued by the BLM and its attendant fee structure.

Although it is known that certain grazing fees in each of the counties will be reduced and/or foregone, it is not possible to estimate accurately the dollar impact on the specific county level until the BLM has concluded its administrative decision process. The effect to the seven counties is expected to total approximately \$21,000 (the minimum 12.5 percent local share of the \$170,000 grazing fees collected on allotments affected by critical habitat designation).

Net Economic Effect to U.S. Treasury

The U.S. Treasury's portion of grazing fees collected by the BLM in fiscal year 1989 was insufficient to cover the direct

costs of administering grazing programs in eight BLM districts in the hot deserts of the southwest. According to a 1991 report from the U.S. General Accounting Office (GAO), the BLM collected grazing fees totaling \$3.97 million from the eight BLM desert districts. Half of this amount (\$1.98 million) was returned to the grazing programs for range improvements, the U.S. Treasury received a maximum 37.5 percent (\$1.49 million) of the fees, and local governments received a minimum of 12.5 percent (\$496,000). The U.S. Treasury thus received no more than \$1.49 million, 53 percent of the \$2.79 million expense for grazing management in the eight BLM districts. According to GAO:

"Critics of livestock grazing could argue that the costs of managing livestock grazing * * * exceeded the funds available to the Treasury to offset these management costs. Proponents could counter that * * * grazing fees more than offset * * * management costs and provided funds for State and county projects as well as for range improvements.

No matter how costs are analyzed, the resources currently being spent on range management * * * are insufficient to perform all essential tasks. [I]nsufficient funding and staffing have been instrumental in the BLM's inability to restore degraded riparian areas, deal with overstocked grazing allotments, and detect livestock grazing trespass. Consistent with our findings, the BLM has concluded that its current budget is inadequate to perform all needed land management tasks throughout the public lands" (U.S. General Accounting Office 1991).

Based on the GAO's findings, the U.S. Treasury may realize a net financial gain from discontinuing or reducing Federal grazing programs in the hot desert (assuming administrative costs were

reduced accordingly and not reassigned). Although the potential savings to the U.S. Treasury was not evaluated in the Draft Economic Analysis, it is reasonable to assume that discontinuation of grazing on the public lands designated as critical habitat for the desert tortoise may contribute to those savings.

Employment Effects

Designation of critical habitat for the desert tortoise is expected to result in the loss of no more than 425 jobs in the seven-county region (Table 5). This estimate includes 340 jobs lost directly in ranching and 85 jobs lost indirectly in other industries. This job loss, due to the reduction of Federal grazing permits in CHUs, is an insignificant proportion of the 1,535,100 workers employed in the seven counties in 1990. Specific employment losses cannot be estimated for each county until the BLM decides on how to handle partially affected grazing allotments. This total job loss will be reduced if there is replacement of affected permits by permits on unaffected lands (Federal or private) or if those laborers transfer to jobs on unaffected ranch lands. These estimated employment losses will not be permanent for most laborers, as it is anticipated that over 85 percent will be reemployed within 2 years.

Critical habitat designation is not expected to result in lost jobs in the mining sector because current mining operations will not be affected by designation. The impact on future employment in the mining sector cannot be calculated reliably because of the uncertainty of future expansion and development of claims.

TABLE 5.—REGIONAL EMPLOYMENT LOSSES FROM CRITICAL HABITAT DESIGNATION COMPARED WITH TOTAL REGIONAL EMPLOYMENT

State	Direct ranching employment loss	Employment multiplier	Total employment loss	Total employees
Arizona	35-60	1.21	40-75	36,600
California	40-80	1.25	50-100	1,031,900
Nevada	45-120	1.14	50-135	446,800
Utah	40-80	1.44	55-115	19,800
Total	160-340	195-425	1,535,100

Source: Estimated direct employment losses supplied by BLM offices in affected areas. Employment multiplier estimated by IMPLAN.

Summary of Potential Impacts

The economic consequences of designating critical habitat includes reduced ranch profits in the seven counties of \$4,470,000 (this amount is the estimated permanent decrease in ranch profits capitalized at 10 percent for a 50-year period, in accordance with

the methodology of Rice *et al.* (1978)). The Federal government will compensate allottees with a one-time payment estimated at \$376,000 for the loss of permanent improvements to grazing lands (pending BLM administrative decisions of partially affected allotments). Discontinuing

grazing will result in an annual reduction of \$170,000 in collected grazing fees that are divided among range improvements, the U.S. Treasury, and local governments.

Critical habitat designation should result in the loss of fewer than 425 total jobs in the seven counties. These

include 340 direct ranching jobs and 85 indirect jobs in other industries. The estimated employment loss will not be permanent because over 85 percent of laborers will be reemployed within 2 years.

Benefits of Critical Habitat Designation

Conservation of the desert tortoise and its habitat through designation of critical habitat may result in a wide range of benefits. These benefits include preservation of recreation and existence values that will increase the benefits for most affected activities. Scenic beauty contributes to the quality of desert recreational experiences. Many of the CHUs are adjacent to or within Wilderness Study Areas or in designated Wilderness Areas. Habitat conservation will enhance the wilderness values of these adjacent or contiguous areas. Habitat preservation also provides for improved water quality, scenic and air quality, biological diversity, and other environmental benefits.

Many of the resource services provided by critical habitat are not marketed. The lack of market prices makes it difficult to value them in dollar terms, as compared to some cost impacts, such as impacts to livestock grazing. As a result, this analysis currently focuses on the cost impacts, primarily related to livestock grazing. No comprehensive estimate of the benefits of designating critical habitat is feasible with available data. Rather, the analysis provides a discussion of the kinds of benefits that are expected to ensue, with empirical data and examples as available. Existence values represent an additional category of non-use benefit, albeit one that remains difficult to measure. Furthermore, society places preservation benefits on endangered species for the option of future recreational use, with the knowledge that the desert tortoise's natural ecosystem exists and is protected, and the satisfaction from its bequest to future generations. Many of these benefits are expected to increase in relative value over time. As human activities continue to reduce desert ecosystems, the remaining areas will become less available and more valuable. Habitat protection for the desert tortoise clearly benefits other species, as well as the human use and enjoyment of these species.

Dividing the sum of benefits between the various parts by which gains are generated is a delicate task. If preservation of a species is accomplished wholly through designating critical habitat, then the full value of benefits could be attributed to

that action. Typically, however, preservation is attained through a set of interactive management actions, each of which is essential to success and no one of which can be singled out as the sole means by which a species is preserved (Walsh 1992). Given the information at hand, and without better understanding the network of consequences from management alternatives, it is not possible to disaggregate the sum of benefits to identify that portion directly attributable to critical habitat designation.

Biodiversity Benefits

Designation of critical habitat for the desert tortoise will contribute to the protection of the biotic diversity of the arid Southwest. The tortoise's habitat includes components that make it useful to a variety of other desert species whose existence is enhanced through retention of original characteristics of their habitat. Modification or elimination of activities that would adversely modify the natural ecology of the region will conserve the desert tortoise, as well as other animal and plant species.

Recreational Use Benefits

Direct, non-consumptive recreational use of the desert tortoise (i.e., tortoise watching) occurs, although it is limited by the desert tortoise's burrowing habits and its relatively dispersed populations. Some recreational activities may be relocated or restricted due to critical habitat designation, particularly OHV use.

Intrinsic Values

Users and non-users of natural resources place value on knowing that resources will exist in the future. Benefits, which may be substantial, reside in the form of ensured future existence and availability for use and in the ability to preserve the resource for future generations. By designating critical habitat for the desert tortoise, land managers will assure the retention of option and bequest values, potentially providing benefits far outside the designated habitat region.

Long-Term Effects of Critical Habitat Designation

The analysis of economic impacts of critical habitat designation was based primarily on data that are both current and calculable. Long-term economic impacts, especially on a county-level basis, explicitly have not been addressed. For example, although there may be a very low level of temporary unemployment (less than 0.1 percent) of those laborers on any given Federal

allottee's lease/permit, it is normally anticipated that those workers will be reemployed within 2 years or be shifted to other private ranch lands in the short-term.

A given county's receipt of grazing fees will be based on final administrative decisions by the surface managing agencies on the number of issued/reissued permits and their percentage revenue sharing base (cited in Schamberger *et al.* 1993).

Mining may be impacted over the long term, but only to the extent that surface expansion is limited explicitly to avoid adverse modification to critical habitat. If such limitations do occur, they would also be predicated on governmental administrative decision at that time (by the BLM, military, tribal councils), but reasonably would be expected to be minimal both in percent and dollar-level impacts.

Available Conservation Measures

The purpose of the Act, as stated in section 2(b), is to provide a means to conserve the ecosystems upon which endangered and threatened species depend and to provide a program for the conservation of listed species. Section 2(c)(1) of the Act declares that " * * * all Federal departments and agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherance of the purposes of this Act."

The Act mandates the conservation of listed species through different mechanisms, such as: Section 7 (requiring Federal agencies to further the purposes of the Act by carrying out conservation programs and insuring that Federal actions will not likely jeopardize the continued existence of the listed species or result in the destruction or adverse modification of critical habitat); section 9 (prohibition of taking of listed species); section 10 (wildlife research permits and habitat conservation planning on non-Federal lands); section 6 (cooperative State and Federal grants); land acquisition; and research. Other Federal laws also require conservation of endangered and threatened species, such as the Federal Land Policy Management Act, National Environmental Policy Act, and various other State and Federal laws and regulations.

The Service's intent in designating critical habitat is to provide habitat that contains primary constituent elements in sufficient quantities to maintain viable populations of desert tortoises within the six recovery units. Critical habitat designation will help reduce the risk associated with the near-term reduction in desert tortoise numbers

and cumulative loss of habitat anticipated from on-going management plans. Critical habitat offers additional protection through section 7, but it does not replace the management recommendations provided by the Draft Recovery Plan. Designation of critical habitat will, however, provide regulatory protection and help retain options until long-term conservation plans are accepted and fully implemented.

Other Protections

The States of Nevada, California, Arizona, and Utah have established laws that provide varying levels of protection for individual desert tortoises. The State of Nevada affords limited protection to the desert tortoise, having established it as a protected reptile under section 501.110.1(d) of the Nevada Revised Statutes, protected and rare outside of the urban areas of Clark County (Las Vegas) under section 503.080.2 of the Nevada Administrative Code, and unlawful to transport across State lines without the written consent of the Nevada Department of Wildlife. Nevada does not have any laws that regulate the degradation of desert tortoise habitat.

The California Fish and Game Commission listed the desert tortoise as a State threatened species on June 22, 1989, amending the California Code of Regulations, section 670.5(b)(4) of title 14. California has also designated the desert tortoise as its official State reptile.

The Arizona Game and Fish Commission extended full protection from take to the desert tortoise, effective January 1, 1988, through Commission Order 43: Reptiles. Also prohibited is the sale of desert tortoises and their importation to the State, as well as the release of captive tortoises into the wild. There is no State authority in Arizona to regulate the modification of desert tortoise habitat.

In Utah, the desert tortoise is considered a "prohibited reptile," protecting it from collection, importation, transportation, possession, sale, transfer, or release because it poses unacceptable disease, ecological, environmental, or human health or safety risks. No State regulations exist to stop the loss or degradation of desert tortoise habitat through land development or other actions (U.S. Fish and Wildlife Service 1990).

Recovery Planning and Section 7 Consultation

Recovery planning under section 4(f) of the Act is the "umbrella" that eventually guides all of the Act's

activities and promotes a species' conservation and eventual delisting. Because critical habitat designation was based on recommendations provided in the Draft Recovery Plan, final critical habitat will be incorporated as part of the final recovery plan for the desert tortoise. The Service has worked closely with the Recovery Team and other efforts to ensure consistency and will reevaluate the need for critical habitat after completion and implementation of the recovery plan or at any time that new information indicates that changes may be warranted. The Service may also reassess critical habitat designation if other land management plans or conservation strategies, which may reduce the need for the additional protection provided by critical habitat designation, are developed and fully implemented.

Although critical habitat is not intended as a management or conservation plan, association with the Draft Recovery Plan leaves the perception that critical habitat is a form of that plan. The Draft Recovery Plan, critical habitat, and other conservation processes are working with the same land base containing the same specific locations of desert tortoise populations within recovery units; it is therefore inevitable that these processes overlap. Critical habitat is based upon the recommendations of the Draft Recovery Plan because it lays out a framework for identifying and evaluating habitat that is founded on scientific principles. Designation of critical habitat does not offer specific direction for managing desert tortoise habitat. That type of direction, as well as any change in direction, will come through administration of other facets of the Act (e.g., section 7, section 10, and recovery planning) or through development of land management plans addressing the desert tortoise.

The final DWMA boundaries will be determined by land management agencies, in consultation with the Service, through a planning process that is coordinated with local government and interested members of the public. The Service intends that critical habitat for the Mojave desert tortoise population conform to the DWMA boundaries determined through the recovery planning and implementation process. Because the agency planning process for determining the DWMA boundaries will not be completed until after critical habitat for the Mojave desert tortoise population is initially designated, adjustments to critical habitat may need to be made in subsequent rulemaking documents to make critical habitat conform to the

DWMA. As soon as the agency planning process for delineating DWMA boundaries is completed, the Service will consider publishing a proposed rule to effect appropriate adjustments in the critical habitat boundaries for the affected recovery unit(s).

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to destroy or adversely modify critical habitat. This Federal responsibility accompanies, and is in addition to, the requirement in section 7(a)(2) of the Act that Federal agencies ensure their actions do not jeopardize the continued existence of any listed species. Regulations implementing this interagency cooperation provision of the Act are found at 50 CFR part 402. As required by 50 CFR 402.14, a Federal agency must consult with the Service if it determines an action may affect a listed species or critical habitat. Thus, the requirement to consider adverse modification of critical habitat is an incremental section 7 consideration above and beyond section 7 review to evaluate jeopardy and incidental take of the species.

Jeopardy is defined at 50 CFR 402.02 as any action that would be expected to appreciably reduce the likelihood of both the survival and recovery of a species. Destruction or adverse modification of critical habitat is defined at 50 CFR 402.02 as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. The regulations also clearly state that such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

Survival and recovery, mentioned in both the definition of adverse modification and jeopardy, are directly related. Survival may be viewed as a linear continuum between recovery and extinction of the species. The closer one is to recovery, the greater the certainty in the species' continued survival. The terms "survival and recovery" are thus related by the degree of certainty that the species will persist over a given period of time. Survival relates to viability. Factors that influence a species' viability include population numbers, distribution throughout the range, stochasticity, expected duration, and reproductive success. A species may be considered recovered when there is a high degree of certainty for the species' continued viability.

The Act's definition of critical habitat indicates that the purpose of critical habitat is to contribute to a species' conservation, which by definition equates to recovery. Section 7 prohibitions against the destruction or adverse modification of critical habitat apply to actions that would impair survival and recovery of the listed species, thus providing a regulatory means of ensuring that Federal actions within critical habitat are considered in relation to the goals and recommendations of a recovery plan. As a result of the link between critical habitat and recovery, the prohibition against destruction or adverse modification of the critical habitat should provide for the protection of the critical habitat's ability to contribute fully to a species' recovery. Thus, the adverse modification standard may be reached closer to the recovery end of the survival continuum, whereas the jeopardy standard traditionally has been applied nearer to the extinction end of the continuum.

Basis for Analysis

Designation of critical habitat focuses on the primary constituent elements within the defined units and their contribution to the species' recovery, based on consideration of the species' biological needs and factors that contribute to recovery (e.g., distribution, numbers, reproduction, and viability). The evaluation of actions that may affect critical habitat for the desert tortoise should consider the effects of the action on any of the factors that were the basis for determining the habitat to be critical, including the primary constituent elements of nesting, foraging, sheltering, dispersal, and/or gene flow, as well as the contribution of the area to recovery. The Service will focus on a proposed action's effect on the eventual recovery of the tortoise in a CHU (e.g., the type of activities that led to the tortoise's listing, such as habitat loss, degradation, and fragmentation). The Service would issue an adverse modification opinion if it determined that a proposed action was likely to preclude recovery of the tortoise in a particular unit.

The range of the desert tortoise has been divided into six recovery units in the Draft Recovery Plan. These areas are based on genetic, morphological, ecological, and physiological differences among the desert tortoises. The designated CHUs are intended to provide for viable populations of desert tortoises representing this variation in traits. The basis for an adverse modification opinion should follow the recommendations in the recovery plan for maintaining viable populations and

variation throughout the range. Should the Recovery Team redefine these parameters in the final recovery plan, then the basis for analysis under section 7 will follow that basis.

For a wide-ranging species such as the desert tortoise, where multiple CHUs are designated, each unit has both a local role and a rangewide role in contributing to the conservation of the species. The loss of a single unit may not jeopardize the continued existence of the species but may significantly reduce the ability of critical habitat to contribute to recovery.

Present conditions vary throughout the range of the desert tortoise, with the result that some areas may be less able to sustain continuing impacts than others at any given time. The level of disturbance a CHU could withstand and still fulfill its intended purpose is variable throughout the tortoise's range and will need to be reviewed in the context of its current status, condition, and location.

Each project will need review as to its impacts at all levels. When determining whether any particular action would appreciably diminish the value of the habitat for the survival and recovery of the tortoise, the baseline condition and expected role for the individual unit and those within the same recovery unit must be considered. Among the factors to be considered are the extent of the proposed action, the present condition of the habitat (e.g., percent of the area containing the primary constituent elements, degree of fragmentation, size of the unit), the existing density of desert tortoises in the unit, the expected time to regenerate sufficient habitat to support an effective population in a particular area, consistency of the action with the intent of the recovery plan, geographic consideration, and local and regional problems. The analysis should also consider the effect of the action on critical habitat from actions planned outside the designated area. Analysis of impacts to individual units must consider the effects to the local area, the recovery unit in which it resides, and the overall range of the listed species.

Consultation Process

Section 7 consultation for critical habitat will focus on the effects of actions on tortoise habitat whether or not it is currently occupied. The presence or absence of tortoises will not factor into the determination of actions that trigger section 7. Any action that may affect critical habitat will trigger section 7 consultation.

The requirement to consider adverse modification of critical habitat is an incremental section 7 consideration

above and beyond section 7 review necessary to evaluate jeopardy and incidental take. As required by 50 CFR 402.14, a Federal agency must consult with the Service if it determines an action may affect a listed species or its critical habitat. Federal agencies are responsible for determining whether or not to consult with the Service and should consider a number of factors when determining if a proposed action may affect critical habitat. To the extent possible, agencies should consult on a programmatic basis.

The Service will consider the effect of the proposed action on the primary constituent elements along with the reasons why that particular area was determined to be critical habitat. The trigger to initiate section 7 consultation (under adverse modification) is any action that may affect any of the five primary constituent elements of critical habitat or reduce the potential of critical habitat to develop these elements—this is independent from any action that would affect known individuals. The evaluation should also take into consideration what happens outside of critical habitat because such projects may also impact habitat within critical habitat. It should also consider what effects the action may have on other adjacent CHUs, the recovery unit, and the overall range of the desert tortoise.

Examples of Proposed Actions

Section 4(b)(8) of the Act requires, for any final regulation that designates critical habitat, a brief description and evaluation of those activities (public or private) that may adversely modify such habitat or may be affected by such designation. Regulations found at 50 CFR 402.02 define destruction or adverse modification of critical habitat as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

Activities that disturb or remove the primary constituent elements within designated CHUs might adversely modify the tortoise's critical habitat. These activities may include actions that would reduce the area of a recovery unit below that which can sustain a viable population or provide for movements, dispersal, and gene flow; reduce the quantity and quality of forage species, either directly or through soil modifications, thereby affecting the tortoise's nutritional requirements; reduce the suitability of substrates for

burrowing, nesting, and overwintering; reduce the number and availability of burrow sites, caliche caves, and other shelter sites; appreciably modify the function and/or availability of vegetation to provide shelter from temperature extremes and predators; and increase the potential for future habitat disturbance and human-caused mortality.

A number of Federal agencies or departments fund, authorize, or carry out actions that affect lands that the Service designates as critical habitat. Among these agencies are the BLM, Department of Defense (DOD), Bureau of Mines, Corps of Engineers, Bureau of Reclamation, Bureau of Indian Affairs (BIA), Federal Energy Regulatory Commission, National Park Service, Federal Highway Administration, and Department of Housing and Urban Development. Federal agencies and the Service are currently consulting on numerous activities proposed within the range of the desert tortoise. These activities include Federal land management plans; Bureau livestock grazing operations; road, trail, and utility construction and maintenance; mining plans of operation; land sales, leases, and exchanges; Federal housing loans; BLM recreation and public purpose leases; permits for OHV activities; military operations; sand and gravel operations; rights-of-way; landfills; and a number of smaller actions. The economic analysis provides more details on specific projects affected by critical habitat designation.

The Service expects that proposed actions that are inconsistent with land management recommendations for DWMA's in the Draft Recovery Plan would likely be considered to adversely modify critical habitat. Proposed actions that are consistent with the recommendations within the Draft Recovery Plan would not be likely to result in destruction or adverse modification of critical habitat.

Areas designated as critical habitat support a number of existing and proposed commercial and non-commercial activities. Commercial activities that may affect desert tortoise critical habitat include, but are not limited to, livestock grazing, sand and gravel extraction, mining, OHV activities, military operations, landfills, rights-of-way, and utility corridors. Commercial activities not likely to destroy or adversely modify critical habitat include various site-specific activities such as scenic tours. Conducting desert tortoise surveys would not likely destroy or adversely modify critical habitat. Non-commercial activities are largely associated with

recreation and are not considered likely to adversely affect critical habitat, provided they do not involve use of vehicles off of designated roads. Such activities include hiking, camping, hunting, and various activities associated with nature appreciation. In certain CHUs where more intensive management is needed (e.g., the Upper Virgin River CHU), the effects of recreational activities will be evaluated on a case-by-case basis.

Some activities could be considered to be of benefit to desert tortoise habitat and, therefore, would also not be expected to destroy or adversely modify critical habitat. Examples of activities that could be of benefit to critical habitat include protective measures such as some forms of fire suppression and restoration of disturbed areas. Further research may support or refute any potential benefits from such actions. At this time, they will be evaluated on a case-by-case basis.

In general, activities that do not remove or degrade constituent elements of habitat for desert tortoises are not likely to destroy or adversely modify critical habitat. Each proposed action would be examined pursuant to section 7 of the Act in relation to its site-specific impacts. Thus, proposed actions may or may not destroy or adversely modify critical habitat, depending on the type and extent of the action and the pre-project condition of the area in relation to desert tortoise habitat needs. The involved Federal agencies can assist the Service in its evaluation of proposed actions by providing detailed information on the habitat configuration of a project area, habitat conditions of surrounding areas, and information on known locations of desert tortoises.

The designation of critical habitat does not imply that lands outside of critical habitat do not play an important role in the conservation of the desert tortoise. Lands outside of critical habitat are important for providing nesting, sheltering, foraging, gene flow, and dispersal habitat for desert tortoises. Federal activities outside of critical habitat are still subject to review under section 7 if they may affect the desert tortoise. The Service expects that management activities outside of critical habitat on Federal lands would be managed as recommended by a final recovery plan, Federal land management plans, or other valid plans.

Reasonable and Prudent Alternatives

In cases where it is concluded that an action would likely result in the destruction or adverse modification of critical habitat, to the extent possible,

the Service is required to provide reasonable and prudent alternatives to the proposed action in its biological opinion. By definition, reasonable and prudent alternatives allow the intended purpose of the proposed action to go forward and remove the conditions that would adversely modify critical habitat—alternatives may vary according to local conditions, project size, or other factors. The Service recommends that the agencies initiate discussions early enough in the planning process to preserve a greater number of options to reduce impacts.

Under this scenario, if adverse modification was anticipated, examples of possible reasonable and prudent alternatives that may be provided in a biological opinion include:

- (1) Relocating the planned action to another location.
- (2) Modifying the action to minimize fragmentation, and/or
- (3) Modifying the action to implement land management practices that are known to be compatible with maintaining primary constituent elements for the desert tortoise.

For some actions, the Service may propose minor modifications to the project design that may avoid adverse modification of critical habitat. In the case of a proposed upgrade of a powerline right-of-way corridor, for example, the Service may recommend that the corridor be expanded on one side of the existing corridor versus the other side to avoid impacts to habitat where the primary constituent elements are of higher quality. For projects that may result in more severe impacts, substantial project changes may be necessary. The Service would propose reasonable and prudent alternatives to the agency's proposed action. Reasonable and prudent alternatives, by definition, would allow the intended purpose of the project to go forward without adversely modifying critical habitat.

No reasonable and prudent alternatives may be available for some proposed actions. For example, due to the size of a unit or high levels of existing fragmentation, no level of habitat disturbance may be possible without resulting in the destruction or adverse modification of critical habitat. In these situations, the Service would issue an adverse modification biological opinion with no reasonable and prudent alternatives. The Service recommends that agencies initiate discussions at the earliest opportunity to help avoid this type of situation.

Research on desert tortoises and their habitat may negatively affect critical habitat. Wherever possible, research

should be conducted outside of CHUs, coordinated throughout the listed range of the tortoise, and based upon an approved long-term strategy.

Conservation Measures on Non-Federal Lands

State, private, and Tribal lands have been included within the designation of critical habitat. Critical habitat designation will not affect non-Federal lands except for actions that are authorized, funded, or carried out by a Federal agency. Actions on State and private lands will continue to be subject to section 9 of the Act, requiring an incidental take permit pursuant to section 10(a)(1)(B) of the Act for any actions that may result in take of desert tortoises. This provision also will apply to actions on Tribal lands without a Federal nexus. Those with a Federal nexus will be subject to section 7 consultation under the Act.

Section 9 of the Act prohibits intentional and non-intentional "take" of listed species and applies to all landowners regardless of whether or not their lands are within critical habitat. The term "take," as defined by the Act, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. "Harass" is defined as an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which includes breeding, feeding, or sheltering. "Harm" in the definition of "take" means any action, including habitat modification, 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 (50 CFR part 17).

Section 10(a)(1)(B) authorizes the Service to issue permits for the taking of listed species incidental to otherwise lawful activities, such as housing development. Incidental take permit applications must be supported by a habitat conservation plan (HCP) that identifies conservation measures that the permittee agrees to implement to conserve the species. A key element of the Service's review of an HCP is a determination of the plan's effect upon the long-term conservation of the species. An HCP would be approved and a section 10(a)(1)(B) permit issued if it would minimize and mitigate the impacts of the taking and would not appreciably reduce the likelihood of survival and recovery of that species in the wild.

Due to limited Federal involvement, the Service expects that few, if any, formal section 7 consultations would be initiated for State lands that are included in critical habitat. The States are subject to the "take" prohibitions under section 9 of the Act, however, and may enter into the section 10 HCP process where appropriate.

Desert tortoises occurring on lands outside critical habitat boundaries are still subject to section 9 prohibitions. The Service envisions that the role of desert tortoise habitat in the conservation of the species will be addressed through section 7, the HCP process, the recovery planning process, and other appropriate State and Federal laws. On these lands, it is expected that recovery goals will be achieved through the use of other conservation mechanisms available to the Service and other landowners (e.g., land exchanges, conservation and development easements).

Summary of Comments and Recommendations

In the August 30, 1993, proposed rule and associated notifications, the Service requested all interested parties to submit factual reports or information that might contribute to the development of this final rule. The public comment period was open from August 30, 1993, to October 29, 1993. During that period, the Service conducted three public hearings on this issue at the following locations: Riverside, California, on October 6, 1993; Las Vegas, Nevada, on October 12, 1993; and St. George, Utah, on October 14, 1993. The Service accepted testimony from the public from 1 to 4 p.m. and from 6 to 8 p.m. on each of those days. The Service announced the dates, times, and locations of the public hearings in the August 30, 1993, proposed rule (58 FR 45748). Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and asked to comment. In addition, the Service published notices in the *Kingman Daily Miner*, *Las Vegas Review Journal*, *Las Vegas Sun*, *Barstow Desert Dispatch*, *The Sun*, and the *Press Enterprise* on September 23, 1993, and in the *Daily Spectrum* on September 16, 1993, announcing the publication of the proposed rule and the dates, times, and locations of the public hearings.

During the 60-day comment period, the Service received approximately 270 written comments. In addition, 147 people testified at the three public hearings. The Service received comments from the BLM, the Bureau of

Mines, other Federal agencies, military installations, State and county agencies, town boards, environmental organizations, the mining industry, recreational enthusiasts, and the ranching industry. Comments are part of the administrative record and are available for public review. Issues raised during the public comment period announced in the August 30, 1993, proposal, whether written or oral, are discussed below.

Issue 1: One respondent requested that the Service adjust the boundaries of CHUs to reflect the boundaries proposed for the East Mojave National Park, as depicted in Senate Bill 21.

Service Response: The Service cannot assume that the legislation for the East Mojave National Park will pass or what form it will take. The boundaries proposed for the East Mojave National Park in Senate Bill 21 reflect the balancing of a variety of concerns, both biotic and abiotic, and should not be expected to resemble boundaries reflecting habitat critical to the recovery of a single species. Should the East Mojave National Park be established, the Service will reevaluate the designation of critical habitat, if appropriate.

Issue 2: The Service received several comments regarding the presence of unsuitable habitat within proposed CHUs. Examples of areas already developed that were included in the proposal were golf courses, buildings, towns, and existing mining operations. Many stated that these areas should not be included even for the ease of writing legal descriptions.

Service Response: The Service identified large contiguous blocks of tortoise habitat containing the primary constituent elements that support nesting, foraging, sheltering, dispersal, and/or gene flow, primarily on Federal lands. To the extent possible, the Service adjusted boundaries to exclude peripheral areas that do not support primary constituent elements. However, it was not possible to exclude all areas of non-habitat via boundary revisions. In some cases, CHUs contain small towns, farms, or human-made structures. These areas, although physically located within the boundaries of critical habitat, are not included in critical habitat designation because they do not contain any of the primary constituent elements of desert tortoise habitat. Areas not currently containing all of the essential features, but with the capability to do so in the future, may still be needed for the long-term conservation of the species, particularly in certain portions of the range.

Issue 3: Some respondents stated that the Service should use natural landmarks for critical habitat boundaries and legal descriptions rather than section lines. Use of section lines instead of natural or human-made boundaries will make enforcement difficult, if not impossible. One letter stated that, in a majority of cases (according to the BLM), documented sheep trespasses during the 1993 grazing season occurred where there were ambiguous boundary lines.

Service Response: In designating critical habitat, the Service is required to legally define boundaries. In this effort, the Service has primarily used section lines. The Service also used major roads to legally define some of the CHUs.

Issue 4: Many commenters suggested removing specific areas from the proposal. Such suggestions typically reflected concerns over inclusion of private lands in the proposal or were based on potentially conflicting uses, especially mining areas. Some letters provided additional biological information to support site-specific deletions from critical habitat.

Service Response: The Service has reviewed the individual requests and determined whether the critical habitat boundaries should be modified to avoid non-tortoise habitat. Where possible, considering restraints of the map scale with which the Service was working, boundary lines have been modified. Areas suggested for deletion on the basis of perceived land-use conflicts were deleted if they did not meet the criteria for inclusion or did not provide important benefits to the species. Areas suggested for deletion because of poor habitat were re-examined in terms of value to tortoises. In some key areas, habitat currently in poor condition was retained because of its important location and high potential for contribution to recovery.

Issue 5: A number of commenters stated that critical habitat should not be designated because existing reserved lands, such as national parks and wildlife refuges, provide sufficient land for the tortoise.

Service Response: The Service determined that the tortoise should be listed as a threatened species in 1990 (55 FR 12178) partly because insufficient habitat is protected within congressionally protected areas to adequately conserve desert tortoises. In addition, the Draft Recovery Plan recognizes that areas of sufficient size to support self-sustaining tortoise populations do not exist in already protected habitats. Critical habitat is primarily designated for areas identified

in the Draft Recovery Plan as necessary for recovery of the desert tortoise.

Issue 6: Many commenters stated that the Service had proposed to designate too much habitat for the desert tortoise.

Service Response: The Service proposed critical habitat designation for those areas that met certain criteria. The proposed and final designations include at least one CHU within each of the six recovery units outlined in the Draft Recovery Plan. The size of these areas is based primarily on the requirements to support self-sustaining populations. Land management agencies, in consultation with the Service, may establish desert wildlife management areas in which the desert tortoise will receive special consideration. Upon establishment of these areas, the Service may reevaluate the critical habitat designation.

Issue 7: Several respondents stated that the designation should include other important desert tortoise habitats, especially the southern portion of Ft. Irwin, Joshua Tree National Monument, the Desert Tortoise Natural Area (DTNA), and the Desert National Wildlife Range. They stated that Congressional withdrawal of public lands within the DTNA from the general mining and mineral laws must be renewed after 20 years (year 2000). If mineral extraction is allowed after that time, designation of the DTNA as critical habitat may be the only way to protect this habitat from the effects of mining. Some respondents questioned why management plans developed for the DTNA and Joshua Tree National Monument are sufficient to preclude critical habitat designation, yet the BLM's Conservation Plan of 1980 is ignored. One letter said that such inconsistencies degrade the Service's contention that the DTNA is protected so well that it need not be included in the critical habitat designation.

Service Response: The critical habitat designation includes the southern 2 mile-strip of Ft. Irwin, which is south of where most existing military operations have already degraded or eliminated desert tortoise habitat. Joshua Tree National Monument, the DTNA, and the Desert National Wildlife Range were not included in the designation of critical habitat because the designation would not afford these areas any additional benefit. The mandates of the Service and the National Park Service provide for ecosystem management, and those of the BLM are for multiple use of public lands. The DTNA is managed specifically for the benefit of the desert tortoise as both a research natural area and an Area of Critical Environmental Concern. The specified areas are

considered important for recovery of the desert tortoise in the Draft Recovery Plan and will be considered in establishing desert wildlife management areas. If, in the future, mineral extraction or other actions that may adversely affect critical habitat are proposed to be allowed within these areas, the Service may reevaluate whether additional critical habitat should be designated.

Issue 8: Several people were concerned that critical habitat would restrict access to their private lands or mining operations.

Service Response: The Service anticipates being able to work with other Federal agencies to minimize effects on private landowners. Section 7 consultation requirements on Federal rights-of-way applications may, in some limited cases, result in additional mitigation requirements or modified access to private lands, but the Service cannot quantify the economic effects.

Issue 9: A few letters stated that the critical habitat designation should include the Pahrump/Amargosa Valley.

Service Response: The Service based its critical habitat proposal on those areas recommended for recovery in the Draft Recovery Plan. The Pahrump/Amargosa Valley was not one of those areas, and, therefore, it was not included in the proposed designation.

Issue 10: A few respondents requested inclusion of additional areas as critical habitat for the desert tortoise. One letter suggested that inclusion of previously disturbed areas will provide buffer zones while recovery of the habitat occurs, thereby minimizing edge effects of incompatible land uses and providing smooth-edged boundaries that are preferable in minimizing the boundary-to-area ratio.

Service Response: The Administrative Procedure Act requires Federal agencies to provide appropriate notification of proposed actions prior to making final determinations. Therefore, the Service cannot adopt a final rule that is significantly different from the proposed rule without first offering the public an opportunity to comment on the differences. Departmental policy is to waive notice and public comment only in special cases such as emergencies or instances where a proposed amendment makes only minor technical changes in a rule. The only addition to critical habitat in the final rule for desert tortoise critical habitat was the inclusion of 3 square miles of BLM land on the southern boundary of the Beaver Dam Slope CHU in Arizona. This request for inclusion came from the BLM, as the landowner, to ensure that its desert tortoise study plot was within

desert tortoise critical habitat. No other landowners will be affected by this inclusion. Other requests for inclusions were considered significant and were not requested by the landowner. In order to meet the court-mandated schedule for designation of critical habitat, the Service was not able to prepare a second proposal including any of these areas for public review. Such inclusions may be considered during any future reevaluation of the designated critical habitat boundaries.

Issue 11: The BIA opposes designation of any critical habitat on any tribal lands. The critical habitat proposal included lands within Paiute Indian Tribe of Utah-Shivwits Band (Paiute-Shivwits) lands. The BIA maintains that formal consultation under the section 7 jeopardy standard of the Act provides adequate protection for the desert tortoise.

Service Response: The Service expects that all landowners, regardless of their status, will comply with the Act and will contribute to the conservation of the desert tortoise. Low, medium, and high density desert tortoise habitat exists on Utah tribal lands. Tribal lands were not excluded from final designation because no new biological or economic information was provided, and tribal lands contain desert tortoise habitat necessary for recovery of the Upper Virgin River Recovery Unit. This recovery unit is unique in that it contains some of the highest densities of desert tortoises known throughout the species' range, and it is the smallest recovery unit, requiring more intensive management to ensure long-term survivability and ultimate recovery of the unit. Desert tortoise habitat necessary for recovery within the Upper Virgin River Recovery Unit is not distinguished by landownership boundaries, and it includes Federal, State, private, and Tribal lands. Following Service approval and implementation of a Washington County HCP, the Service will reevaluate the critical habitat boundaries and may propose to modify critical habitat, if appropriate.

Issue 12: The Service received several comments concerning the Washington County HCP process, an effort that has been on-going for more than 2 years. The final critical habitat designation should reflect the final Desert Habitat Preserve, to be proposed under a Washington County HCP.

Service Response: Washington County, Utah, is preparing an HCP under section 10 of the Act, as part of its application for a permit to take desert tortoises incidentally. To issue a section 10(a) permit, the Service must

determine that, to the maximum extent practicable, the applicant will minimize and mitigate the impacts of the taking. The mitigation for the Washington County permit includes establishment of a Desert Habitat Preserve, primarily for desert tortoise survival and recovery. Washington County has not yet submitted an application for a section 10(a) permit or an HCP to the Service. This final designation of critical habitat for the desert tortoise reflects in large part the habitat conservation planning process to date that, if successful, will result in a desert habitat preserve of sufficient size and configuration to provide for survival and recovery of desert tortoises in this recovery unit. If the Service approves a Washington County HCP and issues a permit to take desert tortoises incidentally, the Service may reevaluate critical habitat, and propose revisions, if appropriate.

Issue 13: The designation of critical habitat will create "dumping grounds" for desert tortoises.

Service Response: Handling (e.g., "dumping") of desert tortoises is prohibited by the Act, which defines "take" to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any listed species. Critical habitat provides an extra layer of protection for desert tortoise habitat, but has no effect upon the other protections provided by the Act.

Issue 14: The Desert Habitat Preserve boundary line north of the city of Washington was "agreed upon" by members of the Washington County HCP Steering Committee, and that exact line should be reflected in final designation of critical habitat.

Service Response: The Service has not reviewed that "agreed upon" line, nor has it approved any aspect of a Washington County HCP to date. That line will be reviewed in the context of a Desert Habitat Preserve established under a Washington County HCP, as part of the mitigation for incidental take of desert tortoises and their habitat.

Issue 15: Some respondents perceived critical habitat designation for the desert tortoise as a means by which the Federal government can seize and "federalize" public and private lands. One person saw designation of critical habitat as a Federal conspiracy. The Service has a hidden political agenda, is deliberately misinforming the public, and is attempting to control private property, much in the same regard as if under a communist regime.

Service Response: Designation of critical habitat does not, in and of itself, impose additional legal restrictions on private lands except for actions that are authorized, funded, or carried out by

Federal agencies on those lands. Non-Federal, as well as Federal lands, with or without designated critical habitat, are still subject to the prohibitions against take of listed species on their land, pursuant to section 9 of the Act. Designation of critical habitat is not a conspiracy, but rather is a requirement of the Endangered Species Act for threatened and endangered species.

Issue 16: Numerous comments were received from DOD agencies, requesting that military installations be excluded from designation of critical habitat. The agencies cited concern over their ability to use existing facilities, the existence of desert tortoise management plans, the increased cost of managing critical habitat, and existing regulatory mechanisms that make the designation of critical habitat unnecessary.

Service Response: Numerous ongoing activities occur on Federal lands managed by the military. The Service has issued section 7 biological opinions on many of these activities. These opinions contain terms and conditions, which were usually developed in coordination with the military, to reduce the take of desert tortoises. Many ongoing activities and existing uses, such as the bombing ranges at Edwards Air Force Base (EAFB); the Naval Air Weapons Station (NAWS) at China Lake, the Chocolate Mountains Air Gunnery Range, the communications facilities at the National Aeronautics and Space Administrations' Goldstone Deep Space Communications Complex, and the rocket test area at Leuhmann ridge on EAFB, have already resulted in the removal of the constituent elements of desert tortoise habitat and would not be affected by a designation of critical habitat. Therefore, military agencies would not be required to relocate existing facilities to areas outside of critical habitat.

Issue 17: Several DOD agencies were concerned that expansion of existing facilities or the siting of new facilities would be prohibited by designation of critical habitat.

Service Response: In the case of new or expanded facilities that may affect desert tortoises or designated critical habitat, the DOD agencies will be required to consult with the Service pursuant to section 7 of the Act. Through the consultation process, the Service will determine if the proposed action is likely to jeopardize the continued existence of the desert tortoise or destroy or adversely modify designated critical habitat. The DOD provided no economic data for such future developments by which the Service could consider the economic

costs of designating critical habitat in these areas.

Issue 18: The NAWS and National Training Center at Ft. Irwin cited the existence of desert tortoise management plans on their lands and the increased costs of managing critical habitat as reasons for excluding these lands from critical habitat designation.

Service Response: The Service fully acknowledges the positive efforts on behalf of the desert tortoise already implemented by the Navy and the Army. Such plans should be considered in establishing recovery areas for the desert tortoise, as recommended by the Draft Recovery Plan. The DOD should work closely with the BLM and the Service in determining where these recovery areas will be located and what actions will be implemented within them to effect recovery of the desert tortoise. Following establishment of recovery areas, the Service will reevaluate its designation of critical habitat.

Issue 19: EAFB expressed concern that designation of critical habitat would prevent use of supersonic corridors in the desert.

Service Response: The primary potential adverse effects of supersonic flight on the desert tortoise would be to the tortoises themselves, as potential harm or harassment. Supersonic flight is not expected to destroy or adversely modify desert tortoise habitat.

Issue 20: The Marine Corps requested that Twentynine Palms Air Ground Combat Center be removed from critical habitat designation in the Ord-Rodman CHU.

Service Response: The Service has reevaluated the desert tortoise habitat within the Twentynine Palms Air Ground Combat Center. Off-road travel by armored vehicles, bombing and strafing with live ammunition, and emergency disposal of ordnance and fuel from aircraft have resulted in deterioration of habitat quality over large contiguous areas. Based on this reevaluation, the Service has refined the boundaries of the Ord-Rodman CHU to remove the Twentynine Palms Air Ground Combat Center from designation as critical habitat.

Issue 21: A few commenters responded that there is no substantive evidence that directly links the decline in tortoise numbers with livestock grazing, nor is there any evidence that tortoises have suffered because their habitat has been grazed.

Service Response: The Service is currently consulting informally with the BLM regarding impacts of livestock grazing on desert tortoise critical habitat. Although no definitive studies

on the relation between livestock grazing and the welfare of desert tortoises have yet been completed, there is a significant amount of scientific literature on the adverse effects of livestock grazing on desert ecosystems, in terms of vegetation changes, soil compaction and erosion, and reduction of microorganisms in the soil. The Service will continue discussions with the BLM and the Desert Tortoise Recovery Team on this issue.

Issue 22: Some letters stated that utility corridor expansion, road proliferation from illegal OHV activity, legal mineral exploration, and current grazing practices are existing activities that degrade tortoise habitat. Stopping these uses that are destructive to existing critical habitat is the answer to protecting the tortoise.

Service Response: As stated previously, designation of critical habitat does not create a land management plan. Federal agencies will enter into consultation pursuant to section 7 of the Act with the Service for all activities that they authorize, fund, or carry out. Through that consultation, the Service will determine if the actions are likely to jeopardize the continued existence of the species or destroy or adversely modify critical habitat. The Federal land management agencies will address the multiple uses on lands under their administration in the process of establishing desert wildlife management areas to implement recovery actions for the desert tortoise.

Issue 23: Some people questioned the existence of scientific data that reflects a true depiction of the distribution of desert tortoises in the West Mojave or elsewhere.

Service Response: Although not every square inch of land in the Mojave Desert has been inventoried for the presence of desert tortoises, the BLM and other agencies and biologists have spent considerable time and effort conducting desert tortoise surveys throughout the range of the desert tortoise. Such information has been compiled into the BLM's category and density maps for the desert tortoise, which are used by many of the agencies involved in desert tortoise management. This information was also used in preparing the Draft Recovery Plan. *Issue 24:* Some people stated that the Service should consider the custom and culture and the continued quality of existence of the human species. The customs and culture of the people should have the same consideration as biology and economics in determining critical habitat for the desert tortoise.

Service Response: The designation of critical habitat is mandated by the

Endangered Species Act and is based on the best scientific data available after taking into consideration the economic impact and any other relevant impact of specifying an area as critical habitat. In developing DWMA's, land management agencies will have the opportunity to consider local custom and culture in their decision processes.

Issue 25: One respondent stated that the Service's statements about increasing OHV use as of 1980 statistics did not address the extent of lands made unavailable between the years 1980 and 1993. Currently less than 2 percent of the California desert is accessible for motorized recreation.

Service Response: Although more roads have been closed since 1980, between 1980 and 1988, there were more open areas and limited access areas and fewer closed areas (Biosystems Analysis 1991). In addition, the impact of OHVs on tortoises has increased over the last decade due to changes in BLM zoning, increases in OHV use, and the proliferation of illegal roads, a factor that results in serious environmental impacts and a difficult management issue for the BLM.

Issue 26: One letter stated that organized OHV activities in the West Mojave are regulated by section 7 permits issued by the Service through consultation with the BLM. Because OHVs have abided by these stipulations, expansive designation of critical habitat is not necessary in light of the protection available through the permitting/stipulation process.

Service Response: Through section 7 of the Act, the Service consults with Federal agencies that authorize, fund, or carry out actions that may affect a listed species. With the listing of a species, the Service determines through these consultations whether an action is likely to jeopardize the continued existence of a species. The adverse modification standard may be applied when an action would likely preclude recovery of a listed species. Thus critical habitat provides additional protection to a species and its habitat through section 7 of the Act. After designation of critical habitat, the Service will also determine if an action is likely to destroy or adversely modify critical habitat. Following designation of critical habitat, all current activities for which a Federal agency maintains discretionary action must undergo reinitiation of consultation to analyze whether or not they are likely to destroy or adversely modify critical habitat. OHV activities within the designated critical habitat are not the only activities that may adversely affect the desert tortoise and its habitat.

Issue 27: Some letters objected to the general statements that OHV activity results in negative impacts on desert tortoise habitat without quantifying such effects.

Service Response: The negative impacts of OHV activity on desert tortoise habitat have been quantified extensively since the early 1970s. Tortoises are adversely affected by OHVs through loss of forage and vegetative cover; increased mortality from crushing, collection, and vandalism; and soil compaction and loss of burrow sites. Because the use of OHVs in desert areas is a highly charged issue, much attention has been placed on the review of studies and the appropriate use of statistical tests in the quantifying the resultant data.

Issue 28: Some respondents said that the BLM has already addressed protection of the desert tortoise in the Western Mojave Coordinated Management Plan and other management plans previously approved and implemented under the Federal Land Policy and Management Act. Further protection is not necessary.

Service Response: The Western Mojave Coordinated Management Plan is still in the planning stages and, therefore, does not yet afford the desert tortoise any protection. Upon its finalization and implementation, the Service may reevaluate the critical habitat designation.

Issue 29: One respondent said that the Service, as a government agency, has an obligation to the general public it serves to consider its actions that, in conjunction with the proposed rule, will affect all of the public, including those that engage in OHV recreation. There are no areas to which these activities can be relocated or restricted.

Service Response: Protection measures were implemented by the BLM in 1988 through its Rangewide Plan to reduce OHV use throughout the range of the desert tortoise in category I and II habitats. As stated in the Draft Economic Impact Analysis, in its off-highway users guide, California listed 24 OHV recreational areas managed by Federal, State, and other agencies in Imperial, Riverside, and San Bernardino Counties. Four sites in the guide lie just outside proposed CHUs. Critical habitat designation as proposed will not affect OHV use at these four sites. The other three States also offer areas for use by OHV enthusiasts.

Issue 30: One letter stated that hiking, camping, and birdwatching are listed in the proposed rule as examples of non-consumptive uses. All of these activities necessitate a vehicle, in most instances off of a paved road, therefore, acting as

OHVs. Also, OHV activities are not "commercial," but rather "recreational." The Service should reevaluate this classification.

Service Response: Any use of vehicles off of designated roads and trails, for whatever the reason, can negatively impact the desert ecosystem. The Service is not singling out organized OHV user groups in this assessment. However, the actions of hiking, camping, and birdwatching, provided they do not involve use of vehicles off of designated roads and trails, are not likely to adversely modify critical habitat. The Service recognizes that most recreational activity is not commercial. However, most OHV races involve profits for the promoters, which is considered a commercial enterprise.

Issue 31: Many respondents were concerned that designation of critical habitat would restrict all motorized access into these areas. Some stated that OHV recreation and desert tortoise protection are not mutually exclusive.

Service Response: The Service anticipates that, although Federal land managers may close some roads as a result of critical habitat designation, there will still be opportunities for scenic touring and other motorized uses on designated roads and trails within CHUs.

Issue 32: One letter stated that the management decision to set aside millions of acres violates the Federal Land Policy and Management Act because it exceeds 100,000 acres and requires approval of Congress within 90 days thereafter. Therefore, the designation of critical habitat has no force and effect.

Service Response: Designation of critical habitat is not a land withdrawal nor a land management action, but rather an action required by section 4 of the Endangered Species Act. Land-use actions authorized, funded, or carried out by Federal agencies must undergo section 7 consultation, whereby the Service will determine if such actions are likely to jeopardize the continued existence of the desert tortoise or destroy or adversely modify its critical habitat. Exclusion of activities is not automatic upon the designation of critical habitat.

Issue 33: One letter stated that designation of critical habitat may severely limit the ability of State game agencies to travel off-highway to develop wildlife enhancement projects involving construction of roads or other facilities.

Service Response: Designation of critical habitat will not prohibit construction and maintenance of wildlife developments. Each such

development will be evaluated on a case-by-case basis through section 7 consultation between the Federal land management agency and the Service. Although the land management agency may restrict off-road travel within critical habitat, delivery of construction materials can most often be accomplished by other means, such as by foot, horseback, or helicopter.

Issue 34: Some letters recommended that areas that have traditionally been heavily used for recreation should be excluded, as enforcement will be costly and ineffective.

Service Response: The Service has included those areas containing constituent elements consistent with recommendations in the Draft Recovery Plan. In the final rule, the Service, where practicable, has deleted areas that do not contain constituent elements. No such information was provided for the recreation areas described. Land management agencies can consider these recreation areas during their establishment of recovery areas for desert tortoises.

Issue 35: Several people were concerned that designation of critical habitat would preclude the recreational use of lands that their families have used for generations, and they strongly opposed its designation.

Service Response: Designation of critical habitat is not synonymous with setting aside wilderness, locking up the lands within, or prohibiting all uses. The Service anticipates that the land management agencies will designate roads and trails within critical habitat, and that they will close some roads that are secondary and not necessary for access to private lands or mines. Also, designation of critical habitat could increase certain types of recreational use. Many people enjoy areas that show fewer signs of human activity. Activities considered not likely to adversely affect critical habitat include hunting, picnicking, casual horseback riding (on designated roads and trails), camping, birdwatching, bike riding (on designated roads and trails), hiking, and motor vehicle use on designated roads.

Issue 36: Some local agencies and utility companies were concerned that designation of critical habitat would affect their ability to access, use, and maintain existing facilities, rights-of-way, and fee property. Some stated that existing utility corridors should be excluded from critical habitat designation. Several agencies were concerned that critical habitat designation would either exclude or significantly increase the cost of future public works projects.

Service Response: Designation of critical habitat should not interfere with on-going maintenance of existing roads and utilities. These structures do not normally contain primary constituent elements, and they would, therefore, not be affected by the designation. Routine maintenance operations on existing pipelines, buried fiber-optic lines, and electrical transmission line rights-of-way are generally covered under existing section 7 consultations and are not likely to constitute adverse modification of critical habitat. Any expansion, addition, or modification within the rights-of-way or fee property will be subject to section 7 consultation if authorized, funded, or carried out by a Federal agency. Through such consultation, the Service will determine if the proposed action is likely to jeopardize the continued existence of the desert tortoise or destroy or adversely modify its critical habitat.

Issue 37: Several individuals requested that the final rule contain a discussion of how CHUs will be managed. Other members of the public were concerned that critical habitat designation forces creation of a management plan, establishes population goals, or prescribes specific management actions.

Service Response: The designation of critical habitat does not create a management plan for the listed species. It is the responsibility of land management agencies to ensure that actions they authorize, fund, or carry out do not destroy or adversely modify designated critical habitat. Several Federal agencies charged with management of the public's lands are preparing or already implementing management plans that include actions that will benefit the desert tortoise. Development of such land use plans should focus on recommendations provided in the desert tortoise recovery plan.

Issue 38: Some people commented that the Service should prepare an Environmental Impact Statement pursuant to the National Environmental Policy Act (NEPA) on the proposed designation of critical habitat prior to publishing a final rule.

Service Response: The decision in *Pacific Legal Foundation v. Andrus*, 675 F.2d 829 (6th Cir. 1981), held that as a matter of law, an Environmental Impact Statement is not required for listings under the Act. The decision noted that preparing Environmental Impact Statements on listing actions does not further the goals of NEPA or the Act. The Service believes that, under the reasoning of this decision, preparing an Environmental Impact Statement on the

proposed critical habitat designation would not further the goals of NEPA or the Act and is not legally required. NEPA documentation will be required for BLM plans and activities that involve critical habitat. The Service published a notice outlining this determination on October 25, 1983 (48 FR 49244). The decision in *Douglas County v. Babbitt*, 810 F.Supp. 1470 (D. Ore. 1992), which held that the Service must comply with NEPA in designating critical habitat, has been stayed pending appeal of the decision to the Ninth Circuit Court of Appeals.

Issue 39: One letter stated that final designation should include more definitive guidelines and specific examples for measuring adverse modification of critical habitat.

Service Response: It is difficult for the Service to anticipate all activities that may be proposed within critical habitat. In addition, the Service should avoid prejudging the outcome of section 7 consultations. The Service will make a determination, on a case-by-case basis, if the proposed action is likely to jeopardize the continued existence of the species or destroy or adversely modify critical habitat.

Issue 40: A number of organizations and individuals requested that the Service include within critical habitat the proposed site for the low-level radioactive waste repository (LLRWR) in Ward Valley (Chemehuevi CHU). Commenters provided a variety of reasons for inclusion of the LLRWR site, including potential threats to the desert tortoise should the LLRWR leak radionuclide-contaminated fluids, leachate contamination of the aquifer underlying the LLRWR site, the potential for contamination of the Colorado River and subsequent adverse effects to listed species that inhabit the Colorado River, and the alleged poor operating record of the proposed licensee. Some commenters stated that allowing the proposed LLRWR in Ward Valley would violate sections 2, 4(b)(2), and 7(a)(1) of the Endangered Species Act.

Service Response: The Service has determined that the Ward Valley LLRWR facility site should be included in this critical habitat designation. Following designation of critical habitat, all current activities for which a Federal agency maintains discretionary action must undergo reinitiation of consultation to analyze whether or not they are likely to destroy or adversely modify critical habitat. As a result, the BLM will need to reinitiate consultation under section 7 to determine if its proposed transfer of lands to the State of California for the proposed LLRWR

facility is likely to result in the adverse modification of critical habitat.

Issue 41: One group stated that the Service must consider the cultural value to native peoples of lands within critical habitat. Specifically, these individuals stated that the cultural values of Ward Valley should be considered in the decision to include or exclude from critical habitat the proposed LLRWR site in Ward Valley.

Service Response: The Service designated critical habitat based on biological information regarding whether or not an area contains the primary constituent elements of desert tortoise habitat, after taking into account the economic costs of designating that area. Although the Service recognizes that Ward Valley is important culturally to indigenous peoples of the region, the Act does not address inclusion of areas within critical habitat for cultural reasons.

Issue 42: Some respondents stated that critical habitat should not be designated because species like the tortoise that cannot adapt should be allowed to become extinct.

Service Response: In section 2 of the Act, Findings, Purposes, and Policy, Congress found that numerous species of fish, wildlife, and plants had become extinct and that other species had become so depleted in numbers that these species were in danger of, or threatened with, extinction due to a lack of concern for their conservation. Furthermore, Congress found that these species of fish, wildlife, and plants are intrinsically valuable to the Nation and its people. These findings are the basis of the Endangered Species Act, the purpose of which is to conserve threatened and endangered species and the ecosystems on which they depend. The designation of critical habitat is one mechanism provided under the Act to facilitate the recovery of listed species. It would be contrary to the Act and the mission of the Service to allow the desert tortoise to become extinct without taking all reasonable preventative actions.

Issue 43: Some respondents stated that the Service had not protected enough critical habitat, because even full implementation of the draft recovery plan gives the tortoise only a 50/50 chance of surviving 500 years.

Service Response: The CHUs proposed by the Service were based on recommendations provided in the Draft Recovery Plan because those areas are necessary for the recovery of the desert tortoise. Some areas are larger than those recommended in the Draft Recovery Plan based on new biological information. The Draft Recovery Plan

pointed out that implementation of recovery actions can increase the probability of survival of the species.

Issue 44: One respondent stated that designation of critical habitat above that required or suggested by the Act as mitigation against threatened additional litigation is improper. Section 4(b)(2) of the Act defines the methodology to be used in the determination of critical habitat, as exemplified by the actions of the Recovery Team. However, the boundaries of the proposed CHUs extend beyond that recommended by the Desert Tortoise Recovery Plan for DWMA's. The Service should not arbitrarily designate additional acreage that is "unsuitable" or excessive. Critical habitat should not include the entire range of the species. The Service neither identifies nor makes available the content or source of the additional information upon which these expansions are based so that the reviewing public has an opportunity to base its comments upon the same information. The proposed rule increased the number of DWMA's in California from four to eight.

Service Response: The Service based its designation of critical habitat on biological information and recovery recommendations provided by the Draft Recovery Plan. The Draft Recovery Plan provided general areas in which recovery is necessary to ensure maintenance of viable populations of desert tortoises in each of the six recovery units. The Act requires that critical habitat boundaries be defined by legal metes and bounds. To refine the Draft Recovery Plan recommendations, the Service held regional meetings of desert tortoise biologists and agency personnel during preparation of the proposed rule. Information gathered during these meetings was evaluated and incorporated into the critical habitat boundaries, which were generally drawn to the nearest section line. Final designation of critical habitat also included an economic analysis of the costs of designating critical habitat.

The Draft Recovery Plan recommends eight DWMA's within four recovery units in California. These include Chemehuevi DWMA (Northern Colorado Recovery Unit); Chuckwalla and part of Joshua Tree DWMA's (Eastern Colorado Recovery Unit); Ord-Rodman, Superior-Cronese, Fremont-Kramer, and part of Joshua Tree DWMA's (Western Mojave Recovery Unit); and Fenner and Ivanpah DWMA's (Eastern Mojave Recovery Unit). The Fenner DWMA is incorporated into the Piute-Eldorado CHU, which extends into Nevada. Joshua Tree National Monument, although still considered

important for recovery, was not designated as critical habitat because such designation would not afford the desert tortoise any additional benefit due to the National Park Service's ecosystem management of the area. However, the BLM land north of the Joshua Tree National Monument was designated critical habitat, and was given the new name of the Pinto Mountains CHU.

Issue 45: One letter disagreed with the use of recovery units as legally and biologically accepted subpopulations of the Mojave population. Behavioral, physiological, and ecological uniqueness have not been linked to the genetic and morphologic variability described for Nevada populations. The bounds of adaptive plasticity for the desert tortoise have not been determined.

Service Response: The Service based the critical habitat designation on recommendations provided in the Draft Recovery Plan, which is the most comprehensive source of information on the desert tortoise at this time. Should the recommendations in the final recovery plan differ significantly from that of the draft, the Service will reevaluate the critical habitat designation.

Issue 46: One respondent stated that the proposed critical habitat designation focused attention only on activities that impair vegetation, soil structure, or other physical attributes of the habitat, and considered this analysis to be too narrow. The criteria should also include rectifying biological imbalances that result from habitat alteration (e.g., ravens and non-native plant species). Feral predators, such as dogs, should be considered in the same way as feral horses and burros. Surface disturbances caused by such activities as utility rights-of-way, road construction, and real estate development should be included.

Service Response: The Service already addresses those actions that may increase feral predators or ravens through section 7 of the Act to determine if such actions are likely to jeopardize the continued existence of the desert tortoise. The Service agrees that habitat imbalances negatively affect desert tortoises and should be avoided within critical habitat. Such imbalances often result in increased exotic species, such as weedy vegetation, and have contributed toward the increase of ravens in the Mojave Desert. The final rule discusses road and utility construction and issuance of Federal housing loans as requiring consultation pursuant to section 7 of the Act to determine, on a case-by-case basis,

whether or not such proposed actions are likely to adversely modify or destroy critical habitat.

Issue 47: Several letters stated that desert tortoises are not native to the Upper Virgin River Recovery Unit (nor CHU); they were imported into the area by humans. Therefore, critical habitat designation is really land acquisition, not a designation of natural habitat.

Service Response: Listing of the Mojave population of desert tortoises as a threatened species affords it protection under the Act, regardless of speculation on the origin of populations.

Issue 48: Several commenters pointed out that areas proposed as critical habitat within the Upper Virgin River CHU included areas that do not have desert tortoises present (e.g., developed areas, high elevations).

Service Response: The Service has used readily recognizable land features and legal descriptions to define the boundaries of desert tortoise critical habitat. Only the land within those boundaries that is suitable desert tortoise habitat (i.e., contains the primary constituent elements) is treated as critical habitat. Although the Service has adjusted boundary lines to exclude non-habitat to a great extent in this final designation, it remains mechanically impossible for the Service to specifically identify all non-habitat by legal description, particularly because many of these lands are less than 40 acres in size. Actions proposed within areas without the primary constituent elements of desert tortoise habitat will not be subject to section 7 of the Act, unless such actions may affect nearby critical habitat.

In the case of unoccupied, suitable desert tortoise habitat, the Act states clearly that areas in need of special management (inside or outside of the current range of the species) can be included in designation of critical habitat. Recovery of the desert tortoise within the Upper Virgin River Recovery Unit is dependent upon maintenance and improvement in the quantity, quality, and/or arrangement of habitat.

Issue 49: One letter stated that critical habitat designated on Tribal land in Utah is insufficient to support a viable population of desert tortoises.

Service Response: Population viability analysis is appropriate only at the population level. Therefore, the Service does not evaluate population viability of separate portions of a CHU. Although it requires more intensive management as it is a smaller population, the Upper Virgin River Recovery Unit, as recommended by the Desert Tortoise Recovery Team, is a viable and recoverable population of desert

tortoises. The Tribal lands within Utah are considered part of this recovery unit. The Upper Virgin River CHU corresponds to this recovery unit.

Issue 50: Several letters stated that the importance of mining and grazing in rural communities was not adequately addressed in the economic analysis.

Service Response: The smallest subdivision with standard, meaningful economic data normally is an individual county; thus, economic impacts are based upon county data for regional effects, whereas statewide or nationwide data and effects are addressed only if they become economically relevant.

Issue 51: A few people were concerned that inclusion of their private land within critical habitat boundaries would negate Ft. Irwin's desire to purchase their land for future expansion, and they asked if the Service was going to compensate them for their loss of revenue. In addition, some people submitted comments asking the government to compensate them for reductions in land values due to their inclusion within critical habitat boundaries.

Service Response: The National Training Center at Ft. Irwin revised its expansion proposal in response to the Service's concerns for desert tortoises prior to the proposal of critical habitat.

Therefore, designation of critical habitat would not affect private lands that were in the original proposed expansion area. In the future, the Federal government may pursue acquisition of private lands within the CHUs on a willing seller/willing buyer basis to further the conservation of the desert tortoise.

Neither the Act nor any other law administered by the Service authorizes compensation for perceived decreases in land value as suggested by the comments. Consequently, this issue is a matter for other agencies and Congress to consider.

Issue 52: Some respondents stated that the Service is underestimating economic impacts by separating impacts from the listing process and the designation of critical habitat. The economic analysis addresses only incremental impacts associated with designation of critical habitat and omits impacts resulting from previous management plans and consultations.

Service Response: The Endangered Species Act specifies that the listing of species should be based solely upon the best biological information available. However, the Act specifies that the Service should consider economic and other relevant impacts in the designation of critical habitat. Listing a species provides protection under the

jeopardy standard and incidental take; designating critical habitat provides additional protection through the adverse modification standard. These are intended to be separate standards to be addressed through section 7 consultation. The economic analysis clearly distinguishes between the costs and benefits of these independent and incremental actions and is not an effort to underestimate costs. The total cost of conserving the desert tortoise is greater than the cost of designating critical habitat alone, and it includes the costs of prior tortoise protection measures under other laws and costs resulting from listing under the Act, as well as the cost of designating critical habitat.

Issue 53: A few respondents stated that the section 7 decisions to restrict grazing are currently under litigation and a stay of these decisions has been issued. Therefore, the economic analysis should be based on current (prelisting) grazing practices.

Service Response: The Service based its economic baseline on the biological opinions rendered by the Service and the decisions issued by the BLM on livestock grazing in desert tortoise habitat. The Interior Board of Land Appeals may review land use decisions by Interior Department agencies, but lacks jurisdiction needed to review biological opinions issued by the Service. Therefore, the Interior Board of Land Appeals Judge's stay of these decisions does not alter the economic baseline.

Issue 54: One respondent stated that no attempt to quantify the benefits of critical habitat designation was made by the Service. This is needed to balance the costs, even if found not be significant. The Economic Analysis (page 60) states, "To properly compare benefits and costs, the full range of each must be considered." The study fails to do this; therefore, the existing study cannot be used to exclude any of the proposed critical habitat areas.

Service Response: Conducting a quantitative study of species benefits is a costly and lengthy process that was not possible within the court-mandated deadlines. Even with results of such a study, allocating the benefits of preservation and recovery of an endangered species between the various actions required is an extremely difficult task. If species preservation were accomplished entirely through designation of critical habitat, then the full value of benefits could be attributed to that action. Typically, however, preservation is achieved with multiple interactive management actions (e.g., federally listing as threatened or endangered, protection under State

laws), each of which may be essential to recovery and no one of which can be singled out as the sole means by which a species is preserved or recovery attained. Given the data available, and without a clear delineation of the results of each management alternative, it is not possible to disaggregate the sum of benefits to identify that portion directly attributable to critical habitat designation.

Issue 55: One letter stated that the economic analysis does not address the impact of potential delays in both maintenance and new construction caused by designation of critical habitat.

Service Response: Actions that are authorized, funded, or carried out by Federal agencies are already subject to the jeopardy standard pursuant to section 7 of the Act, if such actions may affect desert tortoises. These actions require consultation between the action agency and the Service to determine whether or not they are likely to jeopardize the continued existence of the desert tortoise. With designation of critical habitat, the Service will also determine whether or not such actions are likely to destroy or adversely modify critical habitat. Both assessments will be made concurrently through consultation between the Federal action agency and the Service; therefore, designation of critical habitat will not result in any additional project delays. The Act requires the Service to issue a biological opinion within 135 days of the receipt of a request for formal section 7 consultation from an action agency. Therefore, the requirement for Federal agencies to insure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat would not result in project delays.

Issue 56: One group stated that, given the long time frame necessary for recovery of the desert tortoise, the economic analysis should have considered the long-term effects of known or foreseeable projects.

Service Response: Without knowing the details of future projects, the Service cannot know how or to what extent such projects may affect critical habitat or vice versa. The Service evaluated economic information provided on existing projects to determine if the benefits of excluding areas outweighed the benefits of designating those areas as critical habitat. The Service was unable to assign a cost to those projects that may or may not be proposed within critical habitat in the future.

Issue 57: One group stated that the economic analysis of the effects of removing grazing from Federal lands was inadequate and understates the

importance of grazing to the region's economy. Ranchers act as land managers for the Federal government. By eliminating ranching, the Federal government would have to expend additional monies for management. In addition, range improvements, associated with grazing on Federal lands, improve overall habitat quality by providing water sources and facilitating effective forage use.

Service Response: According to a 1991 study by the GAO, the costs of administering the livestock grazing program by the BLM and Department of Agriculture (predator control and rangeland grasshopper control) far exceed the fees derived from the ranchers for their AUMs.

Issue 58: One letter stated that the critical habitat economic analysis should have included the costs associated with implementation of the recovery plan. A 2006 date for delisting was selected in an arbitrary and capricious manner and designed to limit the amount of funding the Recovery Team had to report in the Draft Recovery Plan.

Service Response: Implementation of the recovery plan for the desert tortoise is not a cost attributable to designation of critical habitat. The Draft Recovery Plan was prepared prior to proposing critical habitat and is mandated by the Endangered Species Act whether or not a species has designated critical habitat. Therefore, its implementation can be considered a cost of listing the desert tortoise as threatened versus a cost associated with designation of critical habitat.

Issue 59: The DOD installations stated that the economic analysis failed to evaluate the costs to the public of relocating base activities or potential base closures that might result from inclusion in critical habitat.

Service Response: After careful consideration of the activities that occur on the military installations, the Service concluded that designation of critical habitat should not result in the closure of military bases in the region. The Service maintains that most training conducted on the bases can be compatible with proper tortoise management and has concluded that concerns about military bases being rendered unusable due to designation of critical habitat are overstated. Areas that include existing facilities, or that have been highly degraded (e.g., high-impact bombing ranges), do not contain constituent elements of tortoise habitat. Therefore, they do not constitute critical habitat. Expansion or relocation of facilities or activities that may destroy or adversely modify critical habitat

within a CHU on a military base (e.g., relocation of high impact bombing targets) would require section 7 consultation to determine if the relocation is likely to jeopardize the continued existence of the desert tortoise or destroy or adversely modify its critical habitat.

Issue 60: The Service should, on economic grounds, exclude the proposed site of the LLRWR facility in Ward Valley.

Service Response: The Service is aware that including the Ward Valley site in critical habitat may threaten a portion of the investment made in siting the LLRWR facility and may result in potentially significant costs for the State of California. However, after considering these potential economic impacts, the Service has determined that the area should not be excluded from critical habitat designation.

Issue 61: Several letters suggested that designation of critical habitat would result in taking of private property.

Service Response: The courts have held that the mere enactment of laws that may result in restrictions on property does not necessarily equate to a taking of property for which compensation is required (*Hodel v. Virginia Surface Mining and Reclamation Association*, 452 U.S. 264, 295 (1981), *Agins v. Tiburon*, 447 U.S. 255, 260–263 (1980)). Therefore, the Service concludes that publication of a final rule designating critical habitat for the desert tortoise does not equate to a taking of property requiring just compensation.

Recognizing that governmental regulation involves adjustment of rights for the public good, the U.S. Supreme Court has found that a regulation that curtails the most profitable use of one's property, resulting in a reduction in value or limitations on use likewise does not necessarily equate to a taking (*Andrus v. Allard*, 444 U.S. 51, 66 (1979), *Agins*, 447 U.S. at 262, *Hodel*, 452 U.S. at 296). Where a regulation denies a property owner the economically viable use of his or her property, then a taking will likely occur (*Agins*, 447 U.S. at 260). However, where regulations do not categorically prohibit use but merely regulate the conditions under which such use may occur, and do not regulate alternative uses, then no taking occurs (*Hodel*, 452 U.S. at 296). With the designation of critical habitat, a property owner is not denied the economical viable use of his or her land. Use of land is not categorically prohibited but rather certain restrictions may be imposed upon Federal agency actions that may result in the destruction or adverse

modification of critical habitat. As such, the Service concludes that designation of critical habitat will not result in a taking of private property.

Furthermore, a property owner must establish that a "concrete controversy" exists before the court may even reach the merits of a takings claim (*Hodel*, 452 U.S. at 294, *Agins*, 447 U.S. at 260). The property owner must show a specific and real impact to specific properties before judicial resolution of a takings claim is made (*MacDonald, Sommer, and Frates v. Yolo County*, 477 U.S. 340, 348–349, *Agins*, 447 U.S. at 260). As applied to critical habitat designation, a claim of takings of property would not be ripe for judicial resolution until the consultation process is completed and exemption from the Endangered Species Committee is denied. Even then, it is highly unlikely that a takings claim would be successful because designation of critical habitat does not categorically prohibit use of the property owner's land. Therefore, the Service has concluded that designation of critical habitat for the desert tortoise does not pose significant takings implications.

Issue 62: One letter stated that designation of State lands as critical habitat violates the "trust" responsibility of the Federal government to the States. The main purpose of these State lands is to provide funding for the State's schools.

Service Response: Critical habitat designation will not affect State lands unless proposed actions on these lands are authorized, funded, or carried out by Federal agencies. Such actions would then be subject to consultation if they may affect the desert tortoise or its habitat pursuant to section 7 of the Act. As with private lands, State lands are already subject to prohibitions of section 9 of the Act, which prohibit unauthorized take of listed species.

Issue 63: Several groups stated that conferencing on projects in proposed critical habitat is illegal because the desert tortoise is already listed and because critical habitat has been proposed years beyond the statutory deadline for such designation.

Service Response: Section 7(a)(4) of the Act and 50 CFR 402.10 of the regulations require Federal agencies to confer with the Service on any action that is likely to result in destruction or adverse modification of proposed critical habitat. With designation of critical habitat, Federal agencies will be required to enter into formal consultation with the Service for any actions that may affect desert tortoises or their critical habitat.

Issue 64: One letter stated that the public did not receive an adequate opportunity to review the maps upon which the proposed rule was based because the maps provided in the Federal Register notice were too small to be useful.

Service Response: The Service provided opportunities for the public to review maps at a scale of 1:100,000 at each of three public hearings and made the maps available at the field offices located in Arizona, California, Nevada, and Utah. Due to the court-mandated time frame for development of the proposed rule, the Service was unable to provide copies of these larger-scaled maps to other agencies.

Issue 65: There was an insufficient amount of time for comment and review between the critical habitat proposal and final designation.

Service Response: The Service provided 60 days for public comment on the critical habitat proposal, which included three public hearings. The schedule for designation of critical habitat follows a stipulation and order of dismissal filed on August 3, 1993, in two lawsuits filed against the Service (*Natural Resources Defense Council, et al., v. Bruce Babbitt et al.* and *Desert Tortoise (Gopherus agassizii) a threatened species; et al., v. Manual Lujan, Jr.*). This court-mandated schedule requires publication of the final critical habitat rule by December 15, 1993. This short time frame for finalizing the rule does not allow for an extension of the public comment period.

Issue 66: One letter stated that Tribal economic costs resulting from critical habitat designation were not considered in the proposal.

Service Response: For a 60-day period after the draft economic analysis was made available to the public, the Service collected and considered other responses from State and Federal agencies, private land holders, the Tribe, and other entities regarding economic effects they might experience from the proposed designation. All responses that identified specific economic impacts were considered in completing the final economic analysis. During the public comment period, the Tribe commented that the proposed designation "could eliminate or reduce economic development and other opportunities," but did not identify or describe specific effects that allowed estimation of economic impacts.

Issue 67: The Aerojet-General Corporation and Wyle Laboratories have requested that the 42,800 acres that they have purchased (28,800 acres) and leased (14,000 acres) from the BLM be excluded from critical habitat

designation. The basis for the request was the Environmental Stipulations contained in the Land Exchange and Lease Agreements signed pursuant to the Nevada-Florida Land Exchange Authorization Act of 1988, which established a detailed plan for the conservation of the desert tortoise on these lands. In addition Aerojet-General Corporation felt that statements that critical habitat does not affect private lands are misleading, because designation of critical habitat will affect these lands and their future use either through the section 7 process or through the section 10 permit process.

Service Response: The Service recognizes the desert tortoise management plan for this area but does not believe that it adequately addresses the potential impacts of the transmission lines that are proposed through Coyote Spring Valley.

Therefore, the Service has included this area in the designation of critical habitat. Whether or not critical habitat is designated, lands containing desert tortoises and their habitat are still subject to section 9 of the Act, which prohibits unauthorized take of listed species. The only avenues for authorizing take that is incidental to otherwise lawful activities are the section 7 process for activities that are authorized, funded, or carried out by Federal agencies, and the section 10(a)(1)(B) permitting process for non-Federal actions on private or State lands.

National Environmental Policy Act

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

Regulatory Flexibility Act and Executive Order 12866

This final rule has been reviewed under Executive Order 12866. The Department of the Interior has determined that the final rule will not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). Based on the information discussed in this rule concerning public projects and private activities within CHUs, significant economic impacts will not result from the critical habitat designation. Also, no

direct costs, enforcement costs, information collection, or recordkeeping requirements are imposed on small entities by this designation. Further, the rule contains no recordkeeping requirements as defined by the Paperwork Reduction Act of 1980.

Takings Implications Assessment

The Service has analyzed the potential takings implications of designating critical habitat for the desert tortoise in a Takings Implications Assessment prepared pursuant to requirements of Executive Order 12630, "Governmental Actions and Interference with Constitutionally Protected Property Rights." The Takings Implications Assessment concludes that the designation does not pose significant takings implications.

References Cited

A complete list of all references cited herein is available upon request from the Field Supervisor, Nevada Field Office (see ADDRESSES section).

Authors

The primary authors of this rule and its associated CHU maps are Sheryl L. Barrett, Christine Mullen, Mark Maley, Michael Burroughs, and David L. Harlow, U.S. Fish and Wildlife Service, Nevada Field Office (see ADDRESSES section); Ray Bransfield, Kirk Waln, and Tim MacGillivray, U.S. Fish and Wildlife Service, Ventura Field Office; Marilet A. Zablan, U.S. Fish and Wildlife Service, Utah State Office; James Rorabaugh, U.S. Fish and Wildlife Service, Arizona Field Office; Arthur Davenport, U.S. Fish and Wildlife Service, Carlsbad Field Office; Mel Schamberger and Dirk Draper, U.S. Fish and Wildlife Service, National Ecology Research Center, Ft. Collins, Colorado.

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 hereby 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.

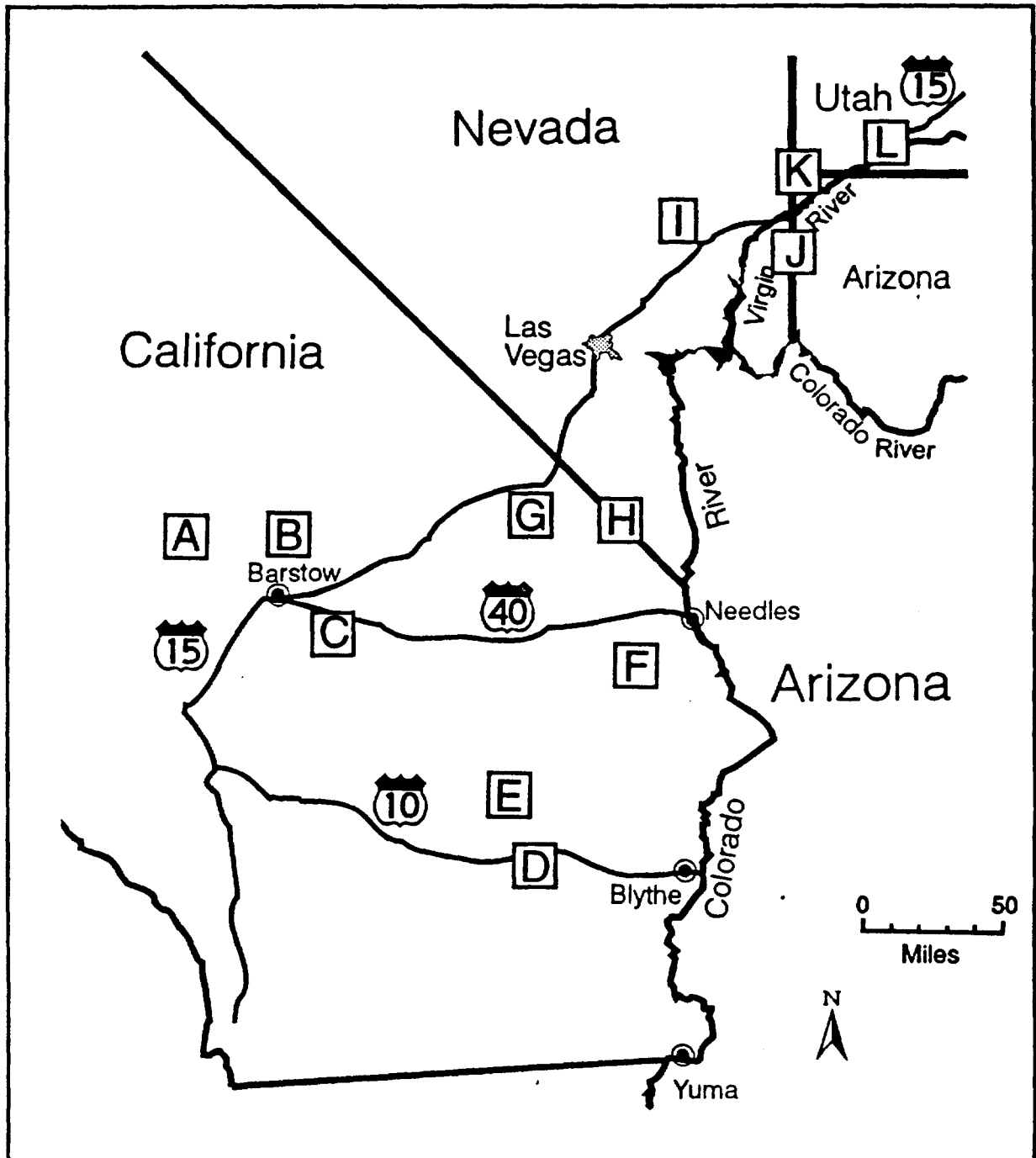
2. Section 17.95(c) is amended by removing the critical habitat of the

Beaver Dam Slope population of the desert tortoise and adding the following new critical habitat of the desert tortoise (*Gopherus agassizii*) in its place to read as follows:

§ 17.95 Critical habitat—fish and wildlife.
* * * * *
(c) * * *
* * * * *

Desert Tortoise—Mojave Population (*Gopherus agassizii*)
Index map of approximate locations of critical habitat units follows:
BILLING CODE 4310-66-P

MAP 1



BILLING CODE 4310-65-C

California. Areas of land as follows:

1. *Fremont-Kramer Unit*. Kern, Los Angeles, and San Bernardino Counties. From

BLM Maps: Victorville 1978 and Cuddeback Lake 1978. (Index map location A).

Mt. Diablo Meridian: T. 29 S., R. 39 E., secs. 13, 14, 22-26, 35, and 36; T. 29 S., R. 40 E., secs. 12-33; T. 29 S., R. 41 E., secs. 7, 8, 17-20, 27-30, and 32-36; T. 30 S., R.

38 E., secs. 24-26, 35, and 36; T. 30 S., R. 39 E., secs. 1-36 except secs. 3-5; T. 30 S., R. 40 E., secs. 4-9 and 13-36 except those portions of secs. 13, 14, and 23 lying northwesterly of the Randsburg-Mojave Road; T. 30 S., R. 41 E., secs. 1-36 except secs. 5-

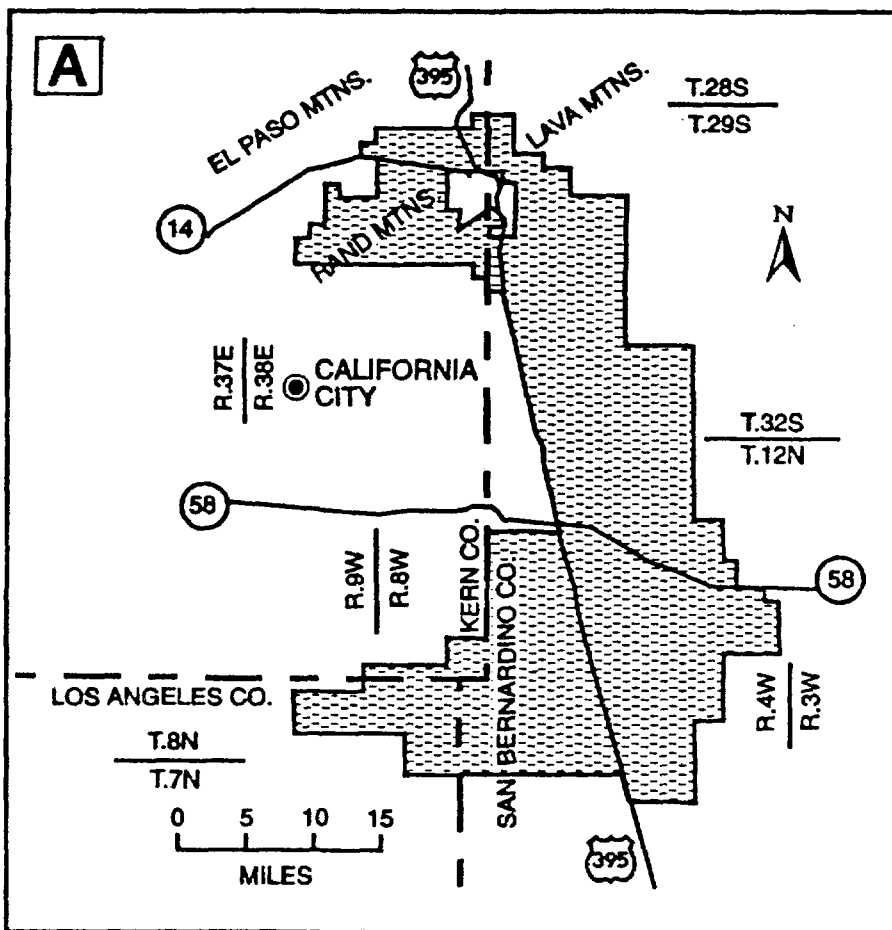
8 and 20 and those portions of secs. 17 and 18 lying easterly of U.S. Hwy. 395; T. 30 S., R. 42 E., secs. 7-10, 15-22, and 27-34; T. 31 S., R. 40 E., secs. 1 and 6 except that portion of sec. 6 lying southeasterly of the Randsburg-Mojave Road; T. 31 S., R. 41 E., secs. 1-17, 20-29, and 32-36 except those portions of secs. 20, 29 and 32 lying westerly of U.S. Hwy. 395; T. 31 S., R. 42 E., secs. 3-10, 15-22, and 27-34; T. 32 S., R. 41 E., secs. 1-4, 9-16, 21-28, and 34-36 except those portions of secs. 4, 9, 16, 21, 27, 28, and 34 lying westerly of U.S. Hwy. 395; T. 32 S., R. 42 E.; T. 32 S., R. 43 E., secs. 4-9, 16-21, and 28-33.

San Bernardino Meridian: T. 7 N., R. 5 W., secs. 2-11 and 14-18 except that portion of sec. 18 lying west of U.S. Hwy. 395; T. 7 N., R. 6 W., secs. 1-6, 12, and 13 except those portions of secs. 1, 12, and 13 lying westerly of U.S. Hwy. 395; T. 7 N., R. 7 W., secs. 1-6; T. 7 N., R. 8 W., secs. 1-4; T. 8 N., R. 4 W., secs. 6, 7, and 18; T. 8 N., R. 5 W., secs. 1-35 except secs. 24 and 25; T. 8 N., R. 6 W.; T. 8 N., R. 7 W.; T. 8 N., R. 8 W., secs. 1-28, and 33-36; T. 8 N., R. 9 W., secs. 1 and 7-24; T. 9 N., R. 4 W., secs. 2-11, 14-23, 30, and 31; T. 9 N., R. 5 W.; T. 9 N., R. 6 W.; T. 9 N., R. 7 W., secs. 1-4, 9-16, and 19-36; T. 9 N., R. 8 W., secs. 24, 25, and 31-36; T.

9 N., R. 9 W., sec. 36; T. 10 N., R. 4 W., secs. 6, 7, 18-20, and 29-34; T. 10 N., R. 5 W.; T. 10 N., R. 6 W., secs. 1-36 except sec. 6; T. 10 N., R. 7 W., secs. 9-16, 21-28, and 33-36; T. 11 N., R. 5 W., secs. 2-11, 14-23, and 26-35; T. 11 N., R. 6 W., secs. 1-36 except those portions of secs. 6, 7, 18, 19, 30, and 31 lying westerly of U.S. Hwy. 395; T. 11 N., R. 7 W., that portion of sec. 1 lying easterly U.S. Hwy. 395; T. 12 N., R. 5 W., secs. 31-35; T. 12 N., R. 6 W., secs. 31-36; T. 12 N., R. 7 W., that portion of sec. 36 lying easterly of U.S. Hwy. 395.

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MAP 2



BILLING CODE 4310-55-C

2 Superior-Cronese Unit. San Bernardino County. From BLM Maps: Cuddeback Lake 1978, Soda Mts. 1978, Victorville 1978, and Newberry Springs 1978. (Index map location B).

Mt. Diablo Meridian: T. 29 S., R. 42 E., secs. 35 and 36; T. 29 S., R. 43 E., secs. 25, 26, and 31-36; T. 29 S., R. 44 E., secs. 20-36; T. 29 S., R. 45 E., secs. 14-16, 19-23, and 25-36; T. 29 S., R. 46 E., secs. 30-32; T. 30 S., R. 42 E., secs. 1, 2, 11-14, 23-26, 35, and 36; T. 30 S., R. 43 E.; T. 30 S., R. 44 E.; T. 30 S., R. 45 E.; T. 30 S., R. 46 E., secs. 3-36; T. 30 S., R. 47 E., secs. 7-10, 15-22, and 27-34; T. 31 S., R. 42 E., secs. 1, 2, 11-14, 23-26, 35, and 36; T. 31 S., R. 43 E.; T. 31

S., R. 44 E.; T. 31 S., R. 45 E.; T. 31 S., R. 46 E.; T. 31 S., R. 47 E., secs. 3-10, 15-22, and 27-34; T. 32 S., R. 43 E., secs. 1-3, 10-15, 22-27, and 34-36; T. 32 S., R. 44 E.; T. 32 S., R. 45 E.; T. 32 S., R. 46 E.; T. 32 S., R. 47 E., secs. 3-10, 15-22, and 27-34.

San Bernardino Meridian: T. 9 N., R. 1 W., those portions of secs. 1 and 2 lying northerly of Interstate Hwy. 15; T. 9 N., R. 1 E., that portion of sec. 6 lying northerly of Interstate Hwy. 15; T. 10 N., R. 2 W., secs. 1-29; T. 10 N., R. 1 W., secs. 1-28, 30, and 33-36 except those portions of secs. 33-35 lying southwesterly of Interstate Hwy. 15; T. 10 N., R. 1 E., secs. 18, 19, 30, and 31; T. 10 N., R. 2 E., secs. 1-5, 8-17, and 22-34 except those portions of secs. 25, 26, and 34 lying

southeasterly of Interstate Hwy. 15; T. 10 N., R. 3 E., secs. 1-12, 14-21, and 30 except those portions of secs. 11, 12, 14-16, 19-21, and 30 lying southeasterly of Interstate Hwy. 15; T. 10 N., R. 4 E., those portions of secs. 5-7 lying northwesterly of Interstate Hwy. 15; T. 11 N., R. 5 W., secs. 1 and 12; T. 11 N., R. 4 W., secs. 1-7, 9, 11, and 12; T. 11 N., R. 3 W., secs. 1-13; T. 11 N., R. 2 W.; T. 11 N., R. 1 W.; T. 11 N., R. 1 E., secs. 1-31; T. 11 N., R. 2 E., secs. 1-36 except sec. 31; T. 11 N., R. 3 E.; T. 11 N., R. 4 E., secs. 1-34 except those portions of secs. 25, 26, 33, and 34 lying southeasterly of Interstate Hwy. 15; T. 11 N., R. 5 E., secs. 1-11 and 15-20 except those portions of secs. 1, 2, 10, 11, 15-17, 19, and 20 lying southeasterly of

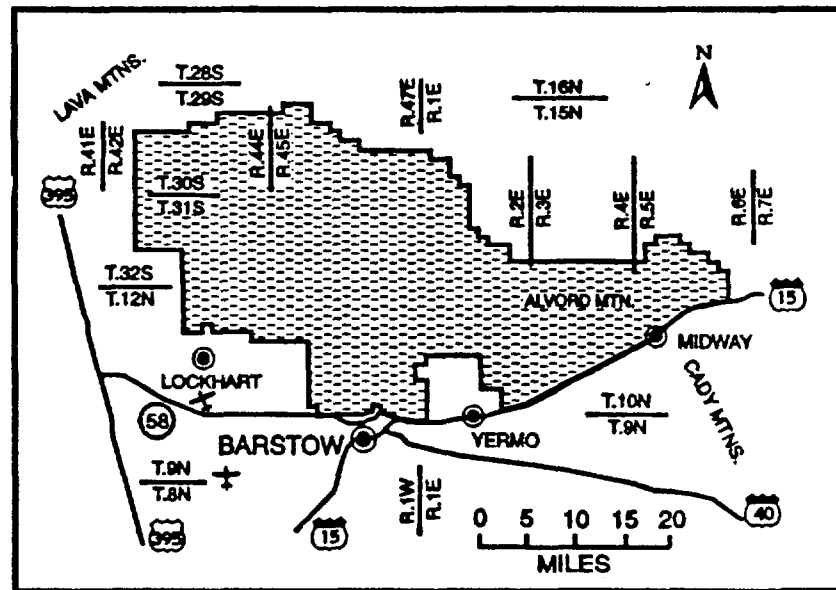
Interstate Hwy. 15; T. 12 N., R. 5 W., sec. 36; T. 12 N., R. 4 W., secs. 31-36; T. 12 N., R. 3 W., secs. 31-36; T. 12 N., R. 2 W., secs. 31-36; T. 12 N., R. 1 W., secs. 31-36; T. 12 N., R. 1 E.; T. 12 N., R. 2 E., secs. 3-36; T. 12

N., R. 3 E., secs. 7-36; T. 12 N., R. 4 E., secs. 7-36; T. 12 N., R. 5 E., secs. 1-5 and 7-36; T. 12 N., R. 6 E., secs. 5-9, 15-22, and 27-34 except those portions of secs. 31-34 lying southerly of Interstate Hwy. 15; T. 13 N., R.

1 E.; T. 13 N., R. 2 E., secs. 19 and 29-34; T. 13 N., R. 5 E., secs. 26-28 and 32-36; T. 14 N., R. 1 E., secs. 5-10, 15-23, and 24-36.

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MAP 3



BILLING CODE 4310-55-C

3 *Ord-Rodman Unit*. San Bernardino County. From BLM Maps: Newberry Springs 1978 and Victorville 1978. (Index map location C)

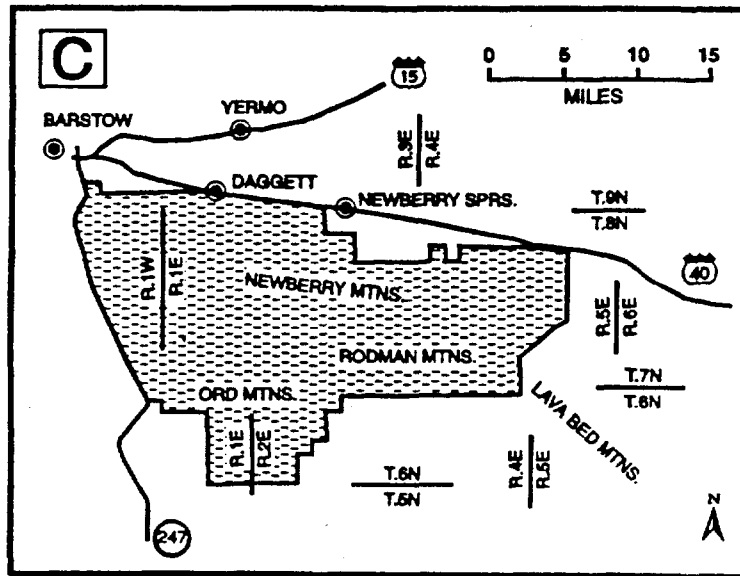
San Bernardino Meridian: T. 6 N., R. 1 E., secs. 1-6, 10-15, 22-27, and 34-36; T. 6 N., R. 2 E., secs. 1-11, 14-22, and 28-33; T. 7 N., R. 1 W., secs. 1-4, 9-15, 22-26, 35, and 36 except those portions of secs. 4, 9, 10, 15, 22, 23, 26, and 35 lying southwesterly of State Hwy. 247; T. 7 N., R. 1 E.; T. 7 N., R. 2 E.; T. 7 N., R. 3 E.; T. 7 N., R. 4 E.; T. 7

N., R. 5 E., secs. 4-9 and 17-19 except those portions of secs. 4, 8, 9, and 17-19 lying southerly of the northern boundary of Twentynine Palms Marine Corps Base; T. 8 N., R. 1 W., secs. 1-18, 20-29, and 32-36 except those portions of secs. 6, 7, 17, 18, 20, 29, 32, and 33 lying southwesterly of State Hwy. 247; T. 8 N., R. 1 E.; T. 8 N., R. 2 E., secs. 2-36; T. 8 N., R. 3 E., secs. 7 and 18-36; T. 8 N., R. 4 E., secs. 13-16 and 18-36; T. 8 N., R. 5 E., secs. 16-18, 19-21, 28-30, and 31-33 except those portions of secs. 16 and 17 lying northerly of Interstate Hwy. 40;

T. 8 N., R. 6 E., secs. 18-21 and 27-36 except those portions of secs. 18-21, 27, 28, 34, and 35 lying northerly of Interstate Hwy. 40; T. 9 N., R. 1 W., secs. 19, 20, and 25-36 except those portions of secs. 19, 20, and 29-31 lying westerly of State Hwy. 247; T. 9 N., R. 1 E., secs. 25-36 except those portions of secs. 25-27 lying northerly of Interstate Hwy. 40; T. 9 N., R. 2 E., secs. 27-35 except those portions of secs. 27-30 lying northerly of Interstate Hwy. 40.

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MAP 4



BILLING CODE 4310-65-C

4. *Chuckwalla Unit*. Imperial and Riverside Counties. From BLM Maps: Chuckwalla #18 1978, Parker-Blythe #16 1978, Salton Sea #20 1978, and Midway Well #21 1979. (Index map location D).

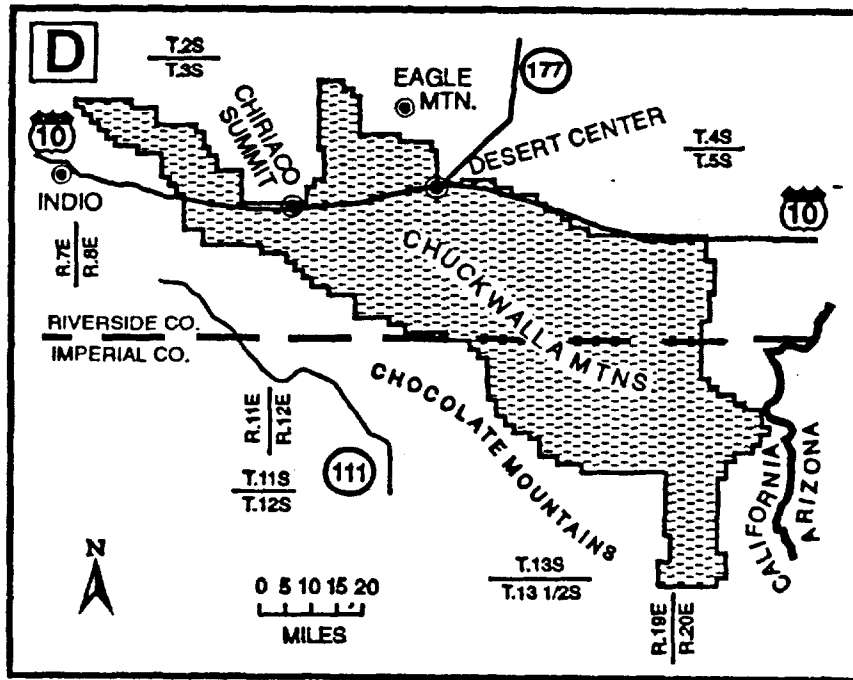
San Bernardino Meridian: T. 3 S., R. 13 E., secs. 19-21 and 27-35; T. 4 S., R. 8 E., secs. 1-6, 8-16, 22-26, and 36; T. 4 S., R. 9 E., secs. 6-10, and 15-36; T. 4 S., R. 10 E., secs. 19-21, and 27-34; T. 4 S., R. 13 E., secs. 2-36 except secs. 12 and 13; T. 4 S., R. 14 E., secs. 27-36; T. 4 S., R. 15 E., secs. 31 and 32; T. 5 S., R. 9 E., secs. 1-4, 12, 13, and 24; T. 5 S., R. 10 E., secs. 2-36 except sec. 31; T. 5 S., R. 11 E., secs. 19-21 and 28-33; T. 5 S., R. 12 E., sec. 36; T. 5 S., R. 13 E., secs. 1-36 except secs. 6 and 7; T. 5 S., R. 14 E.; T. 5 S., R. 15 E., secs. 4-9, 16-21, 25, S ½

sec. 26, S ½ sec. 27, and secs. 28-36; T. 5 S., R. 16 E., secs. 28-35; T. 6 S., R. 10 E., secs. 1-4, 9-16, 21-26, 35 and 36; T. 6 S., R. 11 E., secs. 4-36; T. 6 S., R. 12 E.; T. 6 S., R. 13 E.; T. 6 S., R. 14 E.; T. 6 S., R. 15 E.; T. 6 S., R. 16 E.; T. 6 S., R. 17 E., secs. 5-9, and 14-36; T. 6 S., R. 18 E., secs. 29-36; T. 6 S., R. 19 E., secs. 31-36; T. 6 S., R. 20 E., secs. 31-34; T. 7 S., R. 11 E., sec. 1; T. 7 S., R. 12 E., secs. 1-6, 9-15, and 23-25; T. 7 S., R. 13 E., secs. 1-30 and 31-36; T. 7 S., R. 14 E.; T. 7 S., R. 15 E.; T. 7 S., R. 16 E.; T. 7 S., R. 17 E.; T. 7 S., R. 18 E.; T. 7 S., R. 19 E.; T. 7 S., R. 20 E., secs. 3-10, 14-23, and 26-35; T. 8 S., R. 13 E., secs. 1, 2, and 11-14; T. 8 S., R. 14 E., secs. 1-18, and secs. 21-26; T. 8 S., R. 15 E., secs. 1-30 and 34-36; T. 8 S., R. 16 E.; T. 8 S., R. 17 E.; T. 8 S., R. 18 E.; T. 8 S., R. 19 E.; T. 8 S., R. 20 E.,

secs. 3-10, 15-22, and 28-33; T. 9 S., R. 15 E., sec. 1; T. 9 S., R. 16 E., secs. 1-17, 20-29, and 32-36; T. 9 S., R. 17 E.; T. 9 S., R. 18 E.; T. 9 S., R. 19 E.; T. 9 S., R. 20 E., secs. 5-8, 17-20, and 29-33; T. 10 S., R. 16 E., secs. 1-5, 9-16, and 22-26; T. 10 S., R. 17 E.; T. 10 S., R. 18 E.; T. 10 S., R. 19 E.; T. 10 S., R. 20 E., secs. 3-36; T. 10 S., R. 21 E., secs. 18-21 and 28-34; T. 10 ½ S., R. 21 E., secs. 31-33; T. 11 S., R. 17 E., secs. 1-5 and 8-15; T. 11 S., R. 18 E., secs. 1-24; T. 11 S., R. 19 E., secs. 1-26, 35, and 36; T. 11 S., R. 20 E., secs. 1-23 and 26-34; T. 11 S., R. 21 E., secs. 4-8; T. 12 S., R. 19 E., secs. 1, 2, 11-14, 23-26, 35, and 36; T. 12 S., R. 20 E., secs. 3-10, 15-22, and 27-34; T. 13 S., R. 19 E., secs. 1, 2, 11, 12, 22-27, and 34-36; T. 13 S., R. 20 E., secs. 3-10, 14-23, and 26-34.

BILLING CODE 4310-65-P

MAP 5



BILLING CODE 4310-65-C

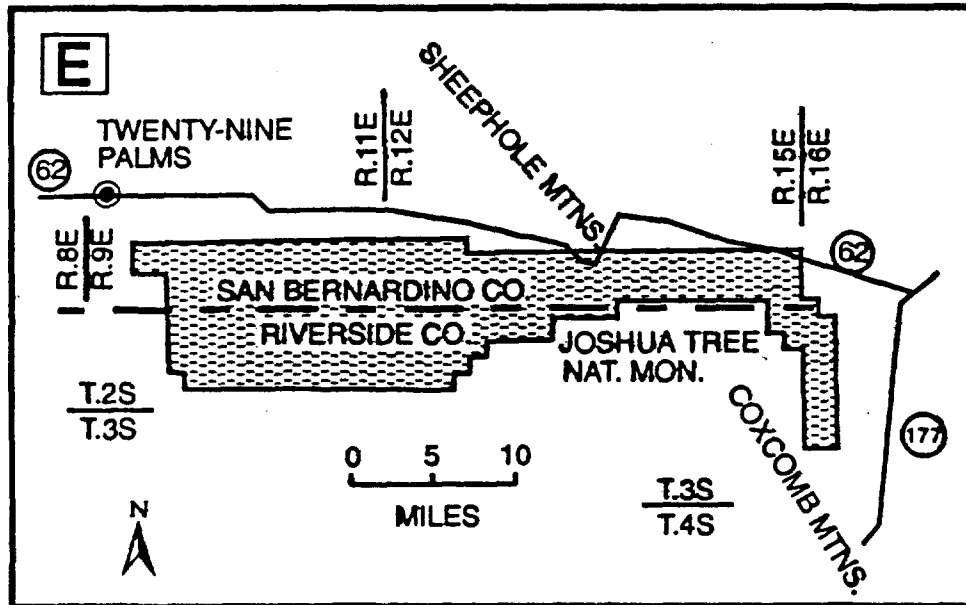
5. Pinto Mountain Unit. Riverside and San Bernardino Counties. From BLM Maps: Yucca Valley 1982, Sheep Hole Mountains 1978, Chuckwalla 1978, and Palm Springs #17 1978. (Index map location E).

San Bernardino Meridian: T. 1 S., R. 9 E., secs. 10-15, 24, 25, and 36; T. 1 S., R. 10 E., secs. 7-36; T. 1 S., R. 11 E., secs. 7-36; T. 1 S., R. 12 E., secs. 7-36 except sec. 12; T. 1 S., R. 13 E., secs. 13-36; T. 1 S., R. 14 E., secs. 13-32; T. 1 S., R. 15 E., secs. 13-30 and 36; T. 1 S., R. 16 E., secs. 18, 19, and 30-32; T. 2 S., R. 9 E., secs. 1, 12, and 13; T.

2 S., R. 10 E., secs. 1-24; T. 2 S., R. 11 E., secs. 1-24; T. 2 S., R. 12 E., secs. 1-22 except sec. 13; T. 2 S., R. 13 E., secs. 3-6; T. 2 S., R. 15 E., sec. 1; T. 2 S., R. 16 E., secs. 4-9, 16, 17, 20, 21, 28, 29, 32, and 33; T. 3 S., R. 16 E., secs. 4, 5, 8, and 9.

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MAP 6



BILLING CODE 4310-65-C

6. *Chemehuevi Unit*. San Bernardino County. From BLM Maps: Sheep Hole Mts. 1978, Parker 1979, Needles 1978, and Amboy 1991. (Index map location F).

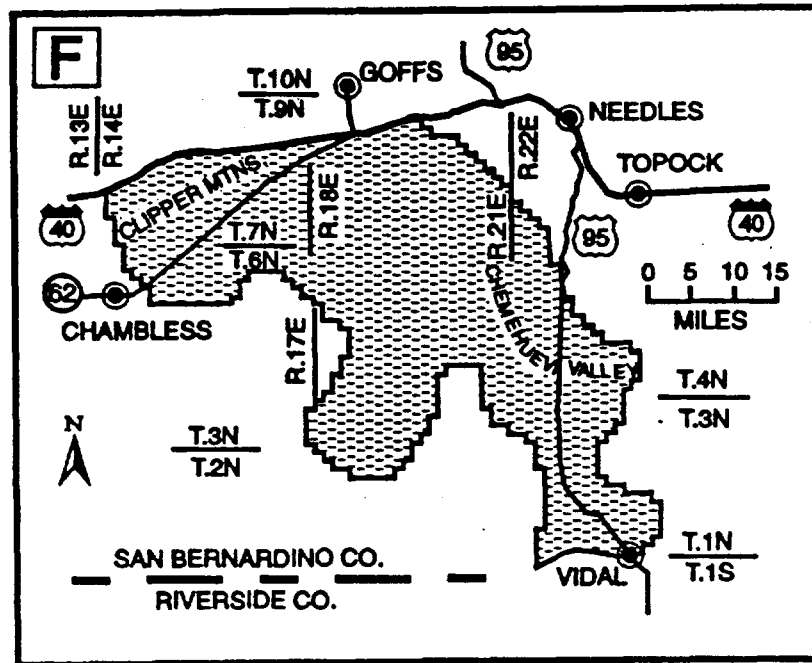
San Bernardino Meridian: T. 1 S., R. 22 E., those portions of secs. 3-5 lying northwesterly of the Atchison Topeka and Santa Fe Railroad; T. 1 S., R. 23 E., those portions of secs. 1-3 lying northerly of the Atchison Topeka and Santa Fe Railroad except that portion of sec. 1 lying easterly of U.S. Hwy. 95; T. 1 N., R. 22 E., secs. 1-4, 9-16, 20-29, and 32-36 except those portions of secs. 34-36 lying southerly of the Atchison Topeka and Santa Fe Railroad; T. 1 N., R. 23 E., secs. 1-36 except those portions of secs. 31-34 lying southerly of Atchison Topeka and Santa Fe Railroad; T. 1 N., R. 24 E., secs. 4-9, 16-21, and 29-31; T. 2 N., R. 18 E., secs. 1-5, and 9-14; T. 2 N., R. 19 E., secs. 2-10, and 16-18; T. 2 N., R. 22 E., secs. 1-5, 8-16, 21-28, and 33-36; T. 2 N., R. 23 E., secs. 5-8, 17-21, and 26-36; T. 2 N., R. 24 E., secs. 31 and 32; T. 3 N., R. 17 E., secs. 12, 13, 24, and 25; T. 3 N., R. 18 E.; T. 3 N., R. 19 E.,

secs. 1-35; T. 3 N., R. 20 E., secs. 5-8, 18, and 19; T. 3 N., R. 21 E., secs. 1-5, 9-18, 23, and 24; T. 3 N., R. 22 E., secs. 1-36 except sec. 31; T. 3 N., R. 23 E., secs. 2-11, 14-22, and 28-32; T. 4 N., R. 18 E., secs. 1, 2, 10-15, 21-28, and 32-36; T. 4 N., R. 19 E.; T. 4 N., R. 20 E., secs. 1-12, 16-20, and 29-32; T. 4 N., R. 21 E., secs. 1-17, 20-29, and 32-36; T. 4 N., R. 22 E.; T. 4 N., R. 23 E., secs. 1-35; T. 4 N., R. 24 E., Secs. 6, 7, 18, and 19; T. 5 N., R. 15 E., secs. 1-6; T. 5 N., R. 16 E., secs. 4-6; T. 5 N., R. 18 E., secs. 1-6, 8-17, 22-26, 35, and 36; T. 5 N., R. 19 E.; T. 5 N., R. 20 E.; T. 5 N., R. 21 E.; T. 5 N., R. 22 E., secs. 2-36; (Unsurveyed) T. 5 N., R. 23 E., protracted secs. 19, and 29-33; T. 6 N., R. 14 E., secs. 1-3, 10-15, and 23-25; T. 6 N., R. 15 E.; T. 6 N., R. 16 E., secs. 1-23, and 27-34; T. 6 N., R. 17 E., secs. 1-18, 22-26, and 36; T. 6 N., R. 18 E.; T. 6 N., R. 19 E.; T. 6 N., R. 20 E.; T. 6 N., R. 21 E.; T. 6 N., R. 22 E., secs. 3-10, 15-23, and 26-35; T. 7 N., R. 14 E., secs. 1-5, 8-17, 21-28, and 33-36; T. 7 N., R. 15 E.; T. 7 N., R. 16 E.; T. 7 N., R. 17 E.; T. 7 N., R. 18 E.; T. 7 N., R. 19 E.; T. 7 N., R. 20 E.; T. 7 N., R. 21 E.; T. 7 N., R. 22 E., secs. 18-20, and 26-34; T. 8 N., R. 14

E., secs. 13, 23-28, and 31-36 except those portions of secs. 13, 23, 24, 26, 27, 28, 31, 32, and 33 lying northwesterly of Interstate Hwy. 40; T. 8 N., R. 15 E., secs. 9-36 except those portions of secs. 9-12, 17, and 18 lying northwesterly of Interstate Hwy. 40; T. 8 N., R. 16 E., secs. 1, 2, and 7-36 except those portions of secs. 1, 2, and 7-10 and 11 lying northerly of Interstate Hwy. 40; T. 8 N., R. 17 E., secs. 1-36 except those portions of secs. 1-6 lying northerly of Interstate Hwy. 40; T. 8 N., R. 18 E., secs. 1-36 except that portion of sec. 6 lying northerly of Interstate Hwy. 40; T. 8 N., R. 19 E.; T. 8 N., R. 20 E.; T. 8 N., R. 21 E., secs. 7, 17-21, and 27-35; T. 9 N., R. 18 E., those portions of secs. 31-36 lying southerly of Interstate Hwy. 40; T. 9 N., R. 19 E., secs. 23-29 and 31-36 except those portions of secs. 23, 24, 26-29, 31, and 32 lying northerly of Interstate Hwy. 40; T. 9 N., R. 20 E., secs. 19, 20, and 29-33 except those portions of secs. 19 and 20 lying northerly of Interstate Hwy. 40 and S $\frac{1}{2}$ S $\frac{1}{2}$ sec. 27, SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 26, and W $\frac{1}{2}$ W $\frac{1}{2}$ sec. 35.

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MAP 7



BILLING CODE 4310-65-C

7. *Ivanpah Unit*. San Bernardino County. From BLM Maps: Amboy 1991, Ivanpah 1979, and Mesquite Lake 1990. (Index map location G).

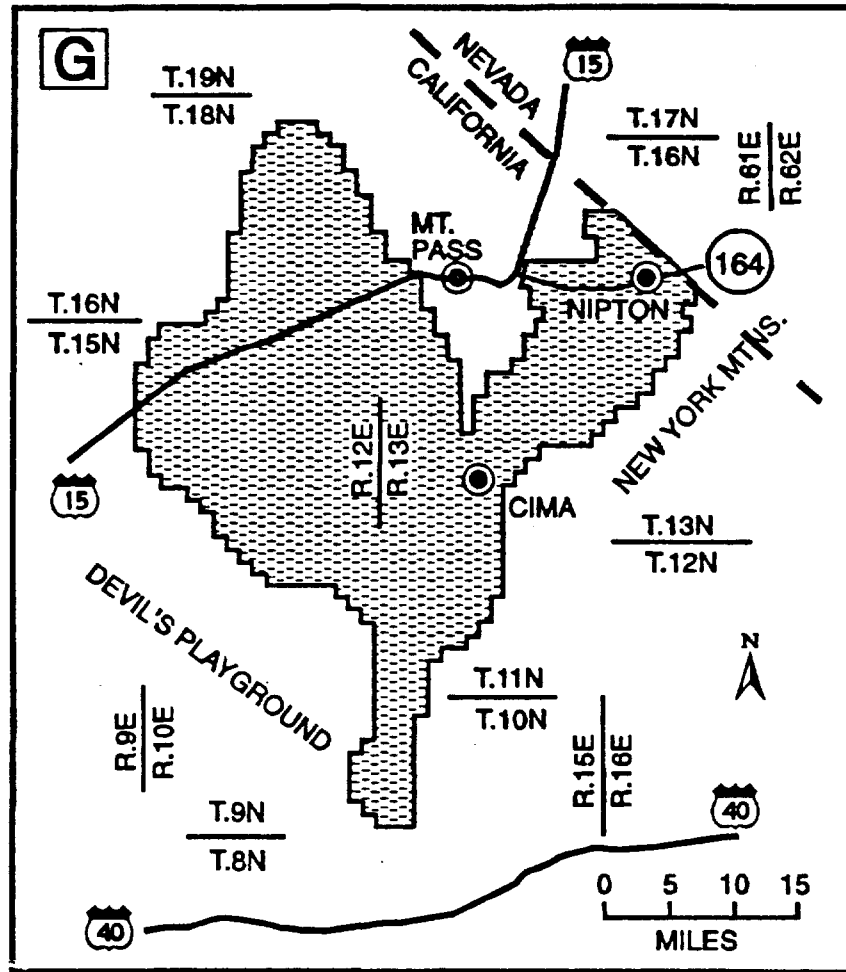
San Bernardino Meridian: T. 9 N., R. 12 E., secs. 1, 2, 11-14, and 24; T. 9 N., R. 13 E., secs. 4-9, 16-21, and 28-30; T. 10 N., R. 12 E., secs. 25, 35, and 36; T. 10 N., R. 13 E., secs. 3-10, 16-21, and 28-33; T. 11 N., R. 12 E., secs. 1, 12, 13, 24, 25, and 36; T. 11 N., R. 13 E., secs. 1-12, 15-21, and 28-33; T. 11 N., R. 14 E., sec. 6; T. 12 N., R. 11 E., secs. 1-5 and 9-15; T. 12 N., R. 12 E., secs. 1-18, 21-27, 35, and 36; T. 12 N., R. 13 E.; T. 12 N., R. 14 E., secs. 4-9, 16-21, and 29-32; T. 13 N., R. 10 E., secs. 1-5, 10-14, 24, and 25;

T. 13 N., R. 11 E.; T. 13 N., R. 12 E.; T. 13 N., R. 13 E.; T. 13 N., R. 14 E., secs. 3-9, 16-21, and 28-33; T. 14 N., R. 9 E., secs. 1, 12, 13, and 24; T. 14 N., R. 10 E.; (Unsurveyed) T. 14 N., R. 11 E., Protracted secs. 1-35; T. 14 N., R. 11 E., sec. 36; T. 14 N., R. 12 E.; T. 14 N., R. 13 E.; T. 14 N., R. 14 E., secs. 1-5, 8-17, and 19-35; T. 14 N., R. 15 E., secs. 1-12, and 14-22; T. 14 N., R. 16 E., sec. 6; T. 15 N., R. 9 E., secs. 24, 25, and 36; T. 15 N., R. 10 E., secs. 1-36 except sec. 6; T. 15 N., R. 11 E.; T. 15 N., R. 12 E.; T. 15 N., R. 13 E., secs. 3-11 and 14-36; T. 15 N., R. 14 E., secs. 12, 13, 23-28, and 33-36; T. 15 N., R. 15 E.; T. 15 N., R. 16 E., secs. 1-11, 14-22, and 28-33; T. 15½ N., R. 14 E., secs. 24 and 25; T. 15½ N., R. 15 E., secs. 19-36; T.

15½ N., R. 16 E., secs. 19-35; T. 16 N., R. 10 E., secs. 25, 35, and 36; T. 16 N., R. 11 E.; T. 16 N., R. 12 E.; T. 16 N., R. 12½ E., secs. 12, 13, 24, 25, and 36; T. 16 N., R. 13 E., secs. 7, 17-20, and 29-33; T. 16 N., R. 14 E., secs. 24, 25, 35, and 36 except those portions of secs. 24 and 35 lying northwesterly of Interstate Hwy. 15; T. 16 N., R. 15 E., secs. 1-3, 10-14, and 23-36; T. 16 N., R. 16 E., secs. 6-8, 16-22, and 26-36; T. 17 N., R. 11 E., secs. 1-5, 8-17, 20-29, and 31-36; T. 17 N., R. 12 E., secs. 3-10, 14-23, and 26-36; T. 18 N., R. 11 E., secs. 13, 14, 22-28, and 33-36; T. 18 N., R. 12 E., secs. 18-20, and 28-33.

BILLING CODE 4310-65-P

MAP 8



BILLING CODE 4310-65-C

8. Piute-Eldorado Unit. San Bernardino County. From BLM Maps: Amboy 1991, Needles 1978, and Ivanpah 1979. (Index map location H).

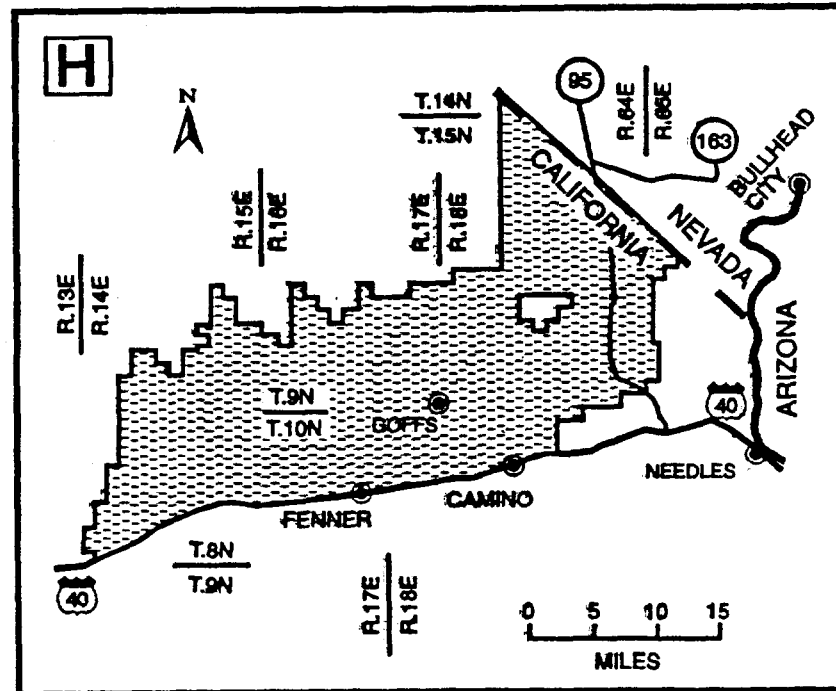
San Bernardino Meridian: T. 8 N., R. 14 E., secs. 1-4, 8-17, 19-24, 26-30, 32, and 33 except those portions of secs. 13, 23, 24, 26-28, 32, and 33 lying southeasterly of Interstate Hwy. 40; T. 8 N., R. 15 E., secs. 1-12, 17, and 18 except those portions of secs. 1, 8-12, 17, and 18 lying southeasterly of Interstate Hwy. 40; T. 8 N., R. 16 E., secs. 1-10 except those portions of sections 1-3 and 6-10 lying southerly of Interstate Hwy. 40; T. 8 N., R. 17 E., those portions of secs. 1-6

lying northerly of Interstate Hwy. 40; T. 9 N., R. 14 E., secs. 1-3, 10-15, 22-28, and 33-36; T. 9 N., R. 15 E.; T. 9 N., R. 16 E.; T. 9 N., R. 17 E., secs. 1-36 except that portion of sec. 36 lying southerly of Interstate Hwy. 40; T. 9 N., R. 18 E., secs. 1-36 except those portions of secs. 31-36 lying southerly of Interstate Hwy. 40; T. 9 N., R. 19 E., secs. 1-24 and 26-32 except those portions of secs. 26-29, 31, and 32 lying southerly of Interstate Hwy. 40; T. 9 N., R. 20 E., secs. 3-8 and 17-20 except those portions of secs. 19 and 20 lying southerly of Interstate Hwy. 40; T. 10 N., R. 14 E., secs. 11-14, 22-27, and 34-36; T. 10 N., R. 15 E., secs. 1-3, 9-16, and 18-36; T. 10 N., R. 16 E.; T. 10 N., R. 17 E.;

T. 10 N., R. 18 E.; T. 10 N., R. 19 E.; T. 10 N., R. 20 E.; T. 10 N., R. 21 E., secs. 3-10, 15-22, and 28-31; T. 11 N., R. 15 E., secs. 9, 15, 16, 21, 22, 25-29, and 33-36; T. 11 N., R. 16 E., secs. 9, 15, 16, 21-23, 25-28, 31, and 33-36; T. 11 N., R. 17 E., secs. 8, 12-17, and 19-36; T. 11 N., R. 18 E., secs. 1-4 and 7-36; T. 11 N., R. 19 E., secs. 1-13, 18, 19, 23-27, and 29-36; T. 11 N., R. 20 E., secs. 1-11, 14-23, and 26-35; T. 12 N., R. 19 E.; T. 12 N., R. 20 E., secs. 3-11 and 13-36; T. 12 N., R. 21 E., secs. 19, 30, and 31; T. 13 N., R. 19 E., secs. 3-11 and 13-36; T. 13 N., R. 20 E., secs. 19 and 29-33; T. 14 N., R. 19 E., secs. 19 and 29-33.

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MAP 9



BILLING CODE 4310-55-C

Nevada. Areas of land as follows:

9. *Piute-Eldorado Unit*. Clark County. From BLM Maps: Mesquite Lake 1990, Boulder City 1978, Ivanpah 1979, and Davis Dam 1979. (Index map location H).

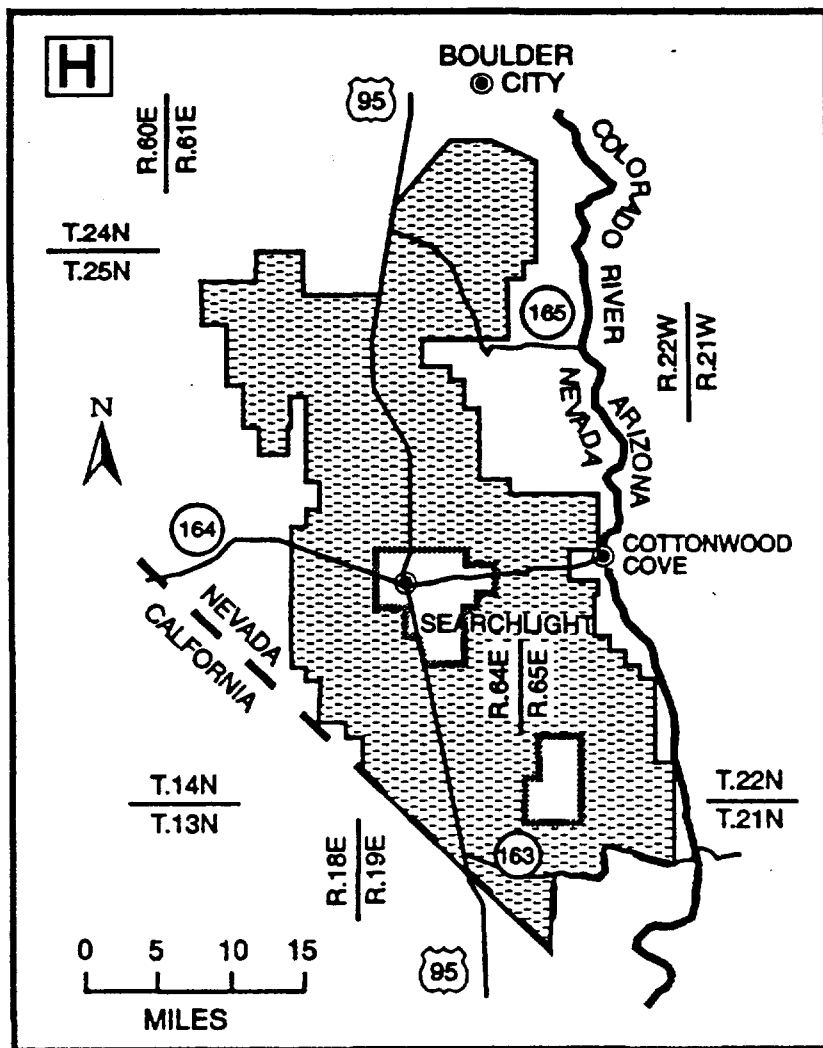
Mt. Diablo Meridian: T. 23 S., R. 64 E., secs. 31-36 except that portion of sec. 31 lying northwesterly of the powerline and also except those portions of secs. 34-36 lying northeasterly of the powerline; T. 23 1/2 S., R. 64 E., secs. 31-36 except that portion of sec. 31 lying northwesterly of the powerline; T. 23 1/2 S., R. 65 E., that portion of sec. 31 lying southwesterly of the powerline; T. 24 S., R. 63 E., secs. 1, 2, 11-15, 22-28, and 33-36 except those portions of secs. 1, 2, 11, 14, and 15 lying northwesterly of the powerline and those portions of secs. 22, 27, 28, and 33 lying northwesterly of U.S. Hwy. 95; T. 24 S., R. 64 E.; T. 24 S., R. 65 E., secs. 6, 7, 18, 19, 30, and 31; T. 25 S., R. 61 E., secs. 13-15, E 1/2 sec. 16, E 1/2 sec. 21, secs. 22-27, E 1/2

sec. 28, secs. 35 and 36; T. 25 S., R. 62 E., secs. 4-9, and secs. 16-36; T. 25 S., R. 63 E., secs. 1-4, 9-16, and 19-36 except those portions of secs. 4, 9, and 16 lying northwesterly of U.S. Hwy. 95; T. 25 S., R. 64 E., secs. 1-35 except secs. 13, 24, and 25.; T. 25 S., R. 65 E., sec. 6; T. 26 S., R. 61 E., secs. 1, 2, 11-14, 24, 25, and 36; T. 26 S., R. 62 E., secs. 1-36 except secs. 28 and 33; T. 26 S., R. 63 E., secs. 2-36 except sec. 12; T. 26 S., R. 64 E., secs. 18-20, and 29-33; T. 27 S., R. 62 E., secs. 1-3, 5-8, 10-15, 22-26, 35, and 36; T. 27 S., R. 62 1/2 E., secs. 1, 12, 13, 24, 25, and 36; T. 27 S., R. 63 E.; T. 27 S., R. 64 E., secs. 4-9, 16-21, and 26-36; T. 27 S., R. 65 E., secs. 31-35; T. 28 S., R. 62 E., secs. 1-3, 9-16, 21-28, and 33-36; T. 28 S., R. 63 E., secs. 1-20, and 29-32; T. 28 S., R. 64 E., secs. 1-18, 21-26, 35, and 36; T. 28 S., R. 65 E., secs. 2-11, 14-21, and 28-35; T. 29 S., R. 62 E., secs. 1-4, 9-16, 21-28, 34, 35 and 36; T. 29 S., R. 63 E., secs. 5-10, 15-23, and 26-36; T. 29 S., R. 64 E., secs. 1-3,

9-16, 21-28, and 31-36; T. 29 S., R. 65 E., secs. 2-36 except secs. 12 and 13; T. 29 S., R. 66 E., secs. 30-32; T. 30 S., R. 62 E., secs. 1, 2, and 11-14; T. 30 S., R. 63 E., secs. 1-36 except secs. 30 and 31; T. 30 S., R. 64 E.; T. 30 S., R. 65 E., secs. 1-26, 30, 31, 35, and 36; T. 30 S., R. 66 E., secs. 4-9, 16-21, and 28-33; T. 31 S., R. 63 E., secs. 1-5, 8-16, 22-26, and 36; T. 31 S., R. 64 E.; T. 31 S., R. 65 E., secs. 1, 2, 6, 11-14, and 23-36 except that portion of sec. 36 lying southwesterly of State Hwy. 163; T. 31 S., R. 66 E., secs. 3-10, 15-22, and 27-34 except that portion of sec. 31 lying southwesterly of State Hwy. 163; T. 32 S., R. 64 E., secs. 1-6, 8-16, 22-26, and 36; T. 32 S., R. 65 E., secs. 1-12, 17-20, and 29-32 except those portions of secs. 1 and 9-12 lying southeasterly or easterly of State Hwy. 163; T. 32 S., R. 66 E., those portions of secs. 3-6 lying northerly of State Hwy. 163; T. 33 S., R. 65 E., sec. 5.

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MAP 10



BILLING CODE 4310-65-C

10. *Mormon Mesa Unit*. Clark and Lincoln Counties. From BLM Maps: Pahrangat 1978, Clover Mts. 1978, Overton 1978, Indian Springs 1979, Lake Mead 1979, and Las Vegas 1988. (Index map location I).

Mt. Diablo Meridian: T. 9 S., R. 62 E., secs. 13-15, 22-27, and 34-36 except those portions of secs. 15, 22, 27, and 34 lying westerly of the easterly boundary line of the Desert National Wildlife Range; T. 9 S., R. 63 E., secs. 18, 19, 30, and 31; T. 10 S., R. 62 E., secs. 1, 2, 11-14, 23-25, and 36 except those portions of secs. 14, 23, 35, and 36 lying westerly of the easterly boundary line of the Desert National Wildlife Range; T. 10 S., R. 63 E., secs. 6, 7, 13-15, 18-20, and 22-36; T. 10 S., R. 64 E., secs. 13-24 and 26-34; T. 10 S., R. 65 E., secs. 18, and 19; T. 11

S., R. 62 E., that portion of sec. 1 lying easterly of the easterly boundary line of the Desert National Wildlife Range; T. 11 S., R. 63 E.; T. 11 S., R. 64 E., secs. 4-9, 17-20, 30, and 31; T. 11 S., R. 66 E., secs. 31-36; T. 12 S., R. 63 E.; T. 12 S., R. 64 E., secs. 6, 7, and 25-36; T. 12 S., R. 65 E., secs. 1, 12, 13, and 24-36 except those portions of secs. 1, 2, 13, and 24 lying westerly of Union Pacific Railroad; T. 12 S., R. 66 E.; T. 12 S., R. 67 E., secs. 6-8, 16-22, and 27-33; T. 12 S., R. 68 E., secs. 23-29 and 31-36; T. 12 S., R. 69 E., secs. 1-5, 8-17, and 19-36; T. 12 1/2 S., R. 62 E., that portion of sec. 36 lying easterly of the easterly boundary line of the Desert National Wildlife Range; T. 13 S., R. 62 E., those portions of secs. 1, 12, 13, 24, and 25 lying easterly of the easterly line of the Desert National Wildlife Range; T. 13 S., R. 63 E.; T. 13 S., R. 64 E.; T. 13 S., R. 65 E., secs. 1-

24, N 1/2 26, N 1/2 27, N 1/2 and SW 1/4 sec. 28, 29-32, and W 1/2 33; T. 13 S., R. 66 E., secs. 1-26, W 1/2 sec. 27, 35, and 36; T. 13 S., R. 67 E.; T. 13 S., R. 68 E., secs. 1-36 except those portions of secs. 25 and 33-36 lying southeasterly of Interstate Hwy. 15; T. 13 S., R. 69 E., secs. 1-30 except those portions of secs. 25-30 lying southerly of Interstate Hwy. 15; T. 13 S., R. 70 E., secs. 6, 7, 18, 19, 30, and 31 except those portions of secs. 30 and 31 lying southerly of Interstate Hwy. 15; T. 13 1/2 S., R. 63 E., secs. 31-36; T. 13 1/2 S., R. 64 E., secs. 31-36 except that portion of sec. 36 lying southwesterly of State Hwy. 168; T. 14 S., R. 63 E., secs. 1-23, and 26-35; T. 14 S., R. 64 E., secs. 2-6, 8-11, 15, and 16; T. 14 S., R. 66 E., secs. 1, E 1/2 sec. 2, 12, E 1/2 sec. 13, and E 1/2 sec. 24; T. 14 S., R. 67 E., secs. 1-12 and 14-22 except those portions of secs. 12, 14, 15, 21,

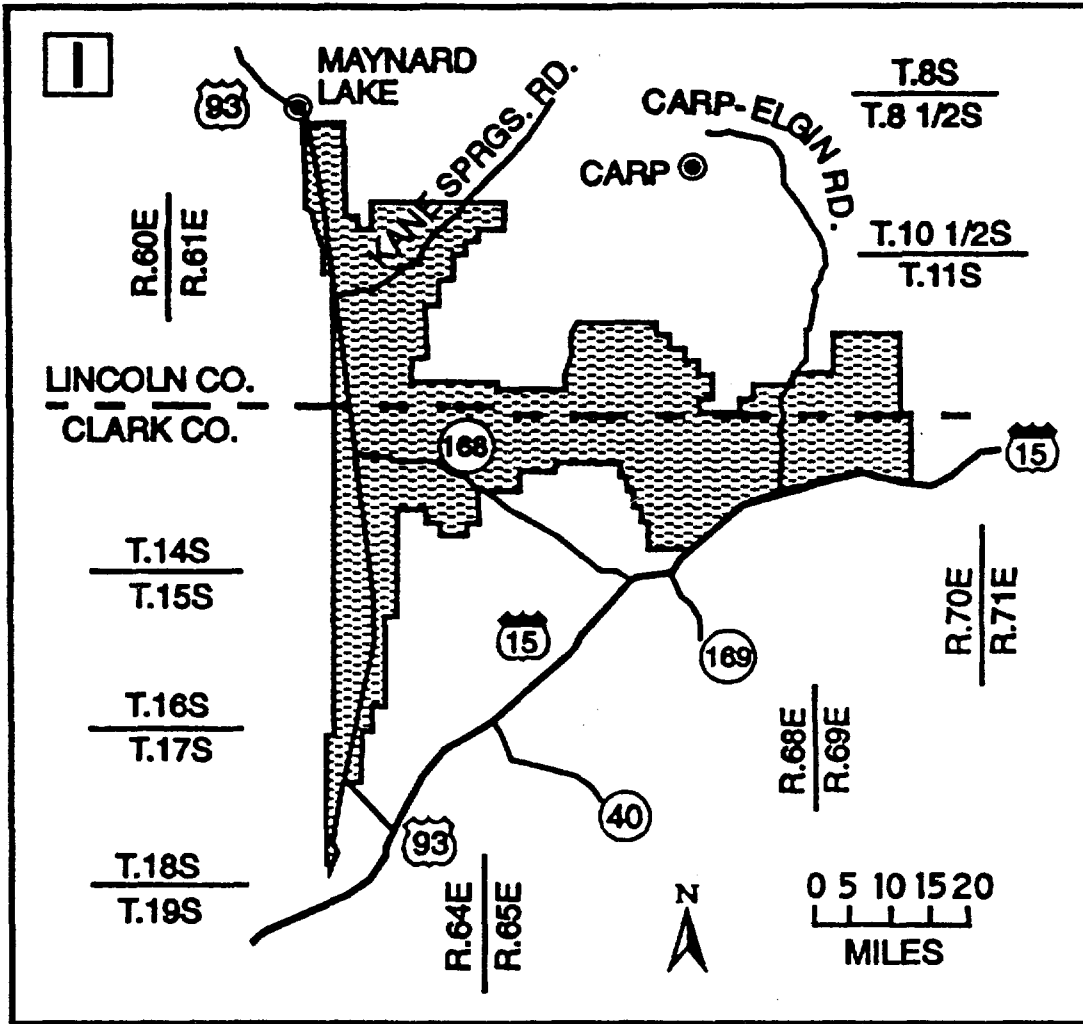
and 22 lying southerly of Interstate Hwy. 15; T. 14 S., R. 68 E., those portions of secs. 4-7 lying northwesterly of Interstate Hwy. 15; T. 15 S., R. 63 E., secs. 2-11, 14-22, and 27-34; T. 16 S., R. 63 E., secs. 3-10, 15-22, and 28-33; T. 17 S., R. 63 E., secs. 7-9, 16-21,

and 28-32 except those portions of secs. 29 and 32 lying easterly of the westerly boundary line of the Apex Disposal Road; T. 18 S., R. 63 E., secs. 5-8, 17-19, and 29-31 except those portions of secs. 5, 8, 17-19, and 29-31 lying easterly of the westerly boundary

line of the Apex Disposal Road and that portion of sec. 31 lying westerly of the easterly boundary line of Desert National Wildlife Range.

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MAP 11



BILLING CODE 4310-55-C

11. *Gold Butte-Pakoon Unit*. Clark County. From BLM Maps: Overton 1978 and Lake Mead 1979. (Index map location).

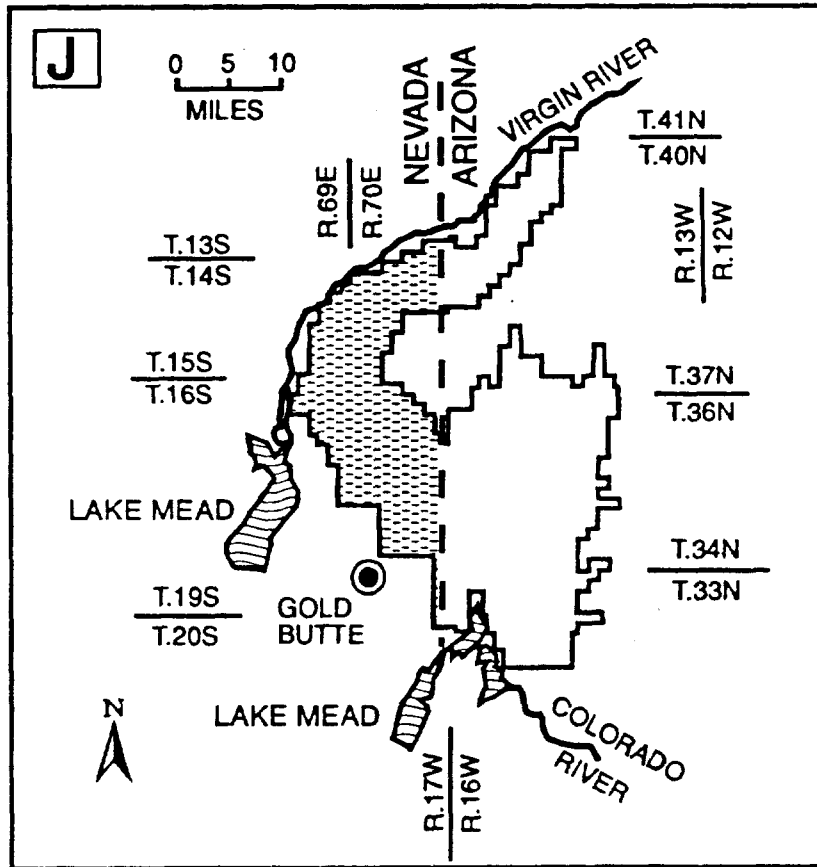
Mt. Diablo Meridian: T. 13 S., R. 71 E., secs. 32-34; T. 14 S., R. 69 E., secs. 24-26, and 34-36; T. 14 S., R. 70 E., secs. 1, and 10-36; T. 14 S., R. 71 E., secs. 3-10, 15-22, and

27-34; T. 15 S., R. 69 E., secs. 1-3, 9-16, 21-28, and 33-36; T. 15 S., R. 70 E., secs. 2-11, 15-22, and 28-33; T. 16 S., R. 69 E., secs. 1-36 except secs. 6, 7, and 29-32; T. 16 S., R. 70 E., secs. 4-36 except sec. 12; T. 16 S., R. 71 E., secs. 19, and 29-32; T. 17 S., R. 69 E., secs. 1-3, 11-14, 24, 25, and 36; T. 17 S., R. 70 E.; T. 17 S., R. 71 E., secs. 4-10, 15-22,

and 27-34; T. 18 S., R. 69 E., sec. 1; T. 18 S., R. 70 E., secs. 1-6, 10-15, 22-27, and 34-36; T. 18 S., R. 71 E., secs. 3-10, 15-22, and 27-34; T. 19 S., R. 71 E., secs. 3, 4, 9, 10, 15, 16, 21, 22, 27, 28, 33 and 34; T. 20 S., R. 71 E., secs. 3 and 4.

BILLING CODE 4310-55-P

MAP 12



BILLING CODE 4310-55-C

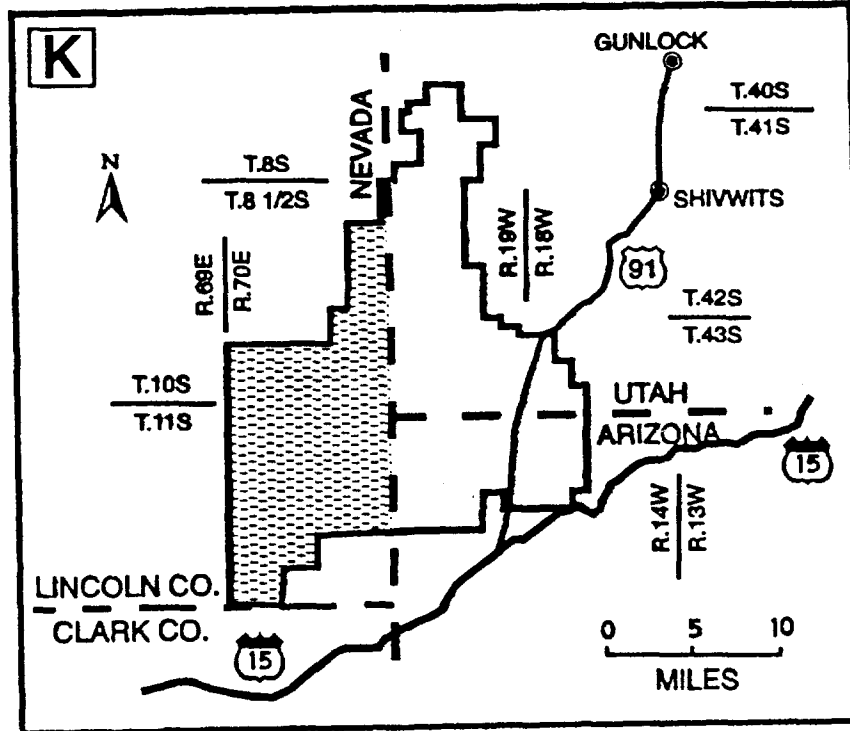
12. *Beaver Dam Slope Unit*. Lincoln County. From BLM Maps: *Clover Mountains* 1978 and *Overton* 1978. (Index map location K).

Mt. Diablo Meridian: T. 8 1/2 S., R. 71 E., that portion of sec. 34 lying south of a westerly extension of the north line of sec. 26, T. 41 S., R. 20 W. (Salt Lake Meridian). Washington County, Utah; T. 9 S., R. 71 E., secs. 3, 10, 15-17, 20-22, 27-29, and 32-34; T. 10 S., R. 70 E., secs. 19-36; T. 10 S., R.

71 E., secs. 3-5, 7-10, 15-22, and 27-34; T. 11 S., R. 70 E.; T. 11 S., R. 71 E., secs. 3-10, 15-22, and 27-34; T. 12 S., R. 70 E., secs. 1-12, 14-23, and 28-33; T. 12 S., R. 71 E., secs. 3-10.

BILLING CODE 4310-55-P

MAP 13



BILLING CODE 4310-65-C

Utah. Areas of land as follows:

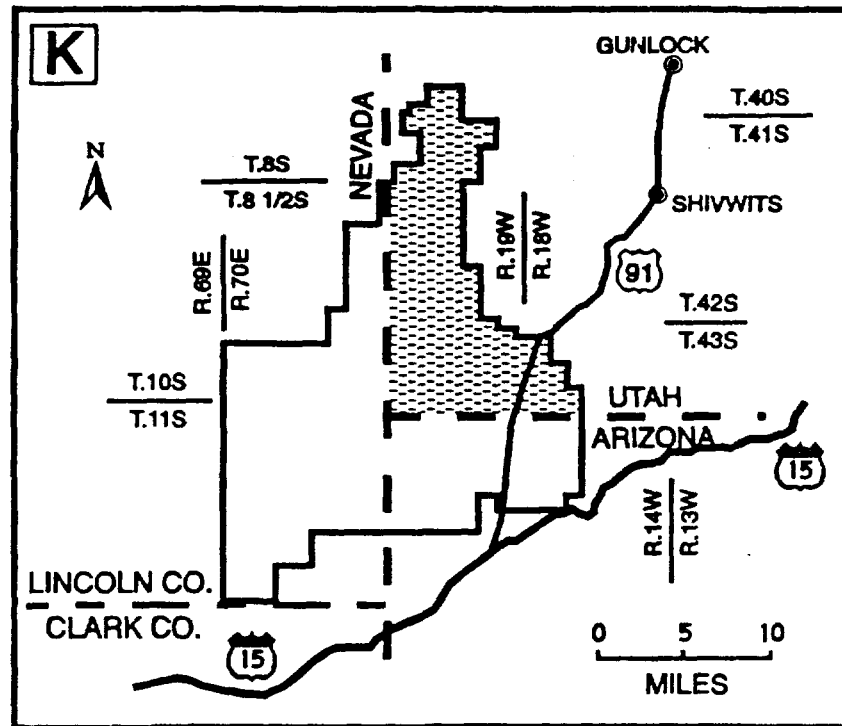
13. *Beaver Dam Slope Unit*. Washington County. From BLM Maps: St. George 1980 and Clover Mts. 1978. (Index map location K).

Salt Lake Meridian: T. 40 S., R. 19 W., S 1/2 sec. 28, S 1/2 sec. 29, S 1/2 sec. 31, secs. 32 and 33; T. 41 S., R. 19 W., S 1/2 sec. 2, S 1/2 sec. 3, secs. 4, 5, 6, E 1/2 sec. 7, secs. 8-11, 15-17, E 1/2 sec. 18, and secs. 19-22, and 28-33; T. 41 S., R. 20 W., E 1/2 sec. 1, secs. 24-26, 35, and 36; T. 42 S., R. 19 W.,

secs. 4-9, 16-22, and 27-34; T. 42 S., R. 20 W., secs. 1, 2, 11-14, 23-26, 35, and 36; T. 43 S., R. 18 W., secs. 7, 8, S 1/2 sec. 16, secs. 17-21, and 27-34; T. 43 S., R. 19 W., secs. 1-36 except N 1/2 sec. 1; T. 43 S., R. 20 W., secs. 1, 2, 11-14, 23-26, 35, and 36.

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MAP 14



BILLING CODE 4310-65-C

14. *Upper Virgin River Unit*. Washington County. From BLM Map: St. George 1980. (Index map location L).

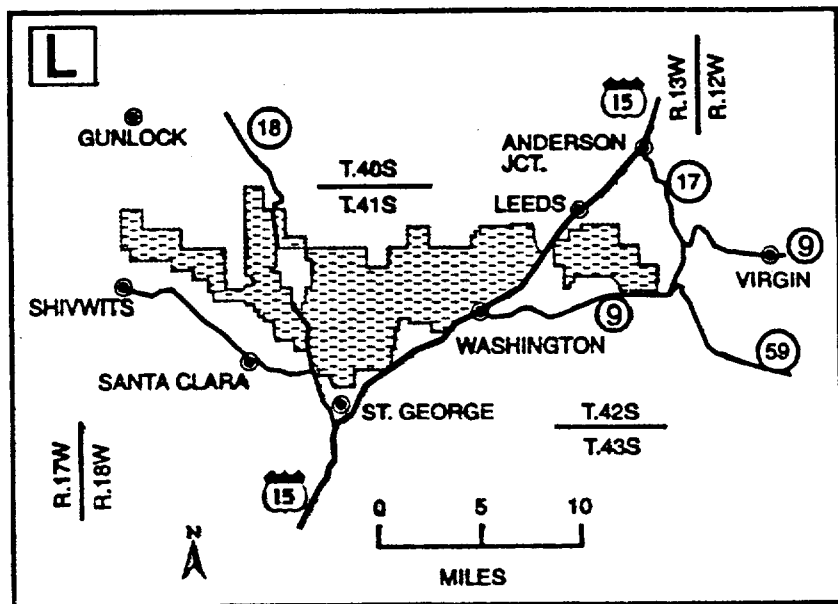
Salt Lake Meridian: T. 41 S., R. 13 W., secs. 17-21 except NW 1/4 NW 1/4 sec. 18, also W 1/2 and W 1/2 E 1/2 sec. 27, sec. 28 except that portion lying westerly of Gould Wash, N 1/2 sec. 29, N 1/2 sec. 30, N 1/2 N 1/2 sec. 33 except that portion lying westerly of Gould Wash, and N 1/2 NW 1/4 and NW 1/4 NE 1/4 sec. 34; T. 41 S., R. 14 W., S 1/2 S 1/2 and NE 1/4 SE 1/4 and SE 1/4 NE 1/4 sec. 13, that portion of sec. 14 lying westerly of Red Cliff Road, secs. 15-17 except N 1/2 NW 1/4 and SW 1/4 NW 1/4 sec. 17, secs. 19-22, that portion of sec. 23 lying westerly of Red Cliff Road and westerly of Interstate Hwy. 15, sec. 24, E 1/2 and N

1/2 SE 1/4 and SW 1/4 SE 1/4 sec. 25, and those portions of secs. 26, 27, and 32-34 lying northwesterly of Interstate Hwy. 15; T. 41 S., R. 15 W., secs. 14, 19, 20, and 22-36; T. 41 S., R. 16 W., secs. 4, 9, 10, S 1/2 sec. 14, 15-16, 19, 21, W 1/2 sec. 22, secs. 24-25 except W 1/2 SW 1/4 sec. 24 and W 1/2 NW 1/4 and NW 1/4 SW 1/4 sec. 25, and W 1/2 W 1/2 sec. 25, SW 1/4 NE 1/4 and NW 1/4 NW 1/4 and S 1/2 NW 1/4 and SW 1/4 and W 1/2 SE 1/4 sec. 27, E 1/2 and E 1/2 W 1/2 and NW 1/4 NW 1/4 and SW 1/4 SW 1/4 sec. 28, N 1/2 and SE 1/4 and E 1/2 SW 1/4 sec. 30, NE 1/4 sec. 31, N 1/2 sec. 32, N 1/2 and SE 1/4 and N 1/2 SW 1/4 sec. 33, sec. 34, SE 1/4 SE 1/4 and that portion of sec. 35 lying westerly of State Hwy. 18, and sec. 36; T. 41 S., R. 17 W., secs. 9, 14-16, NE 1/4 sec. 21, N 1/2 sec. 22, NW 1/4

and E 1/2 sec. 23, sec. 24, and NE 1/4 sec. 25; T. 42 S., R. 14 W., those portions of secs. 5 and 6 lying northwesterly of Interstate Hwy. 15; T. 42 S., R. 15 W., sec. 1, N 1/2 and N 1/2 S 1/2 sec. 2, NE 1/4 and W 1/2 sec. 3, secs. 4-9, W 1/2 W 1/2 sec. 10, N 1/2 N 1/2 sec. 12, secs. 16-18, N 1/2 and N 1/2 SE 1/4 and NE 1/4 SW 1/4 sec. 19, and W 1/2 NW 1/4 and NW 1/4 SW 1/4 sec. 20, except those portions of secs. 1 and 12 lying southeasterly of Interstate Hwy. 15; T. 42 S., R. 16 W., secs. 1-2, NW 1/4 and E 1/2 sec. 3, NE 1/4 NE 1/4 sec. 4, NE 1/4 sec. 10, NW 1/4 and E 1/2 sec. 11-12, E 1/2 and NW 1/4 and N 1/2 SW 1/4 sec. 13 except that portion lying westerly of State Hwy. 18, and N 1/2 NE 1/4 sec. 24.

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MAP 15



BILLING CODE 4310-55-C

Arizona. Areas of land as follows:

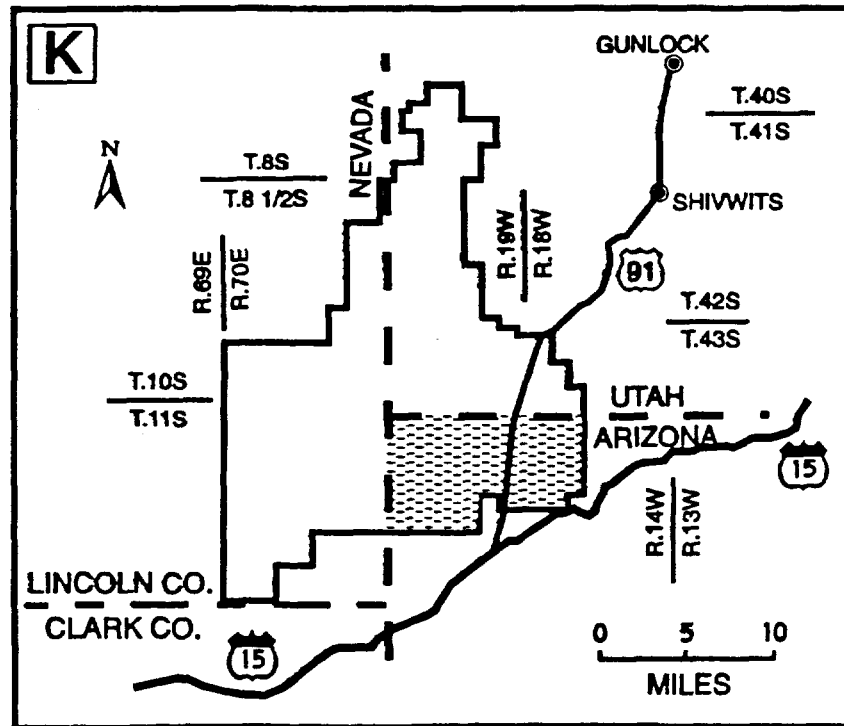
15. *Beaver Dam Slope Unit*. Mohave County. From BLM Maps: Overton 1978 and Littlefield 1987. (Index map location K).

Gila and Salt River Meridian: T. 41 N., R. 14 W., secs. 6, 7, 18, and 19; T. 41 N., R. 15 W., secs. 1-24, 26-28, 30, and 31; T. 41 N., R. 16 W., secs. 1-5, 8-17, 20-29, and 32-36; T. 42 N., R. 14 W., sec. 31; T. 42 N., R. 15

W., secs. 31-36; T. 42 N., R. 16 W., secs. 32-36.

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MAP 16



BILLING CODE 4310-65-C

16. *Gold Butte-Pakoon Unit*. Mohave County. From BLM Maps: Overton 1978, Littlefield 1987, Mount Trumbull 1986, and Lake Mead 1979. (Index map location J).

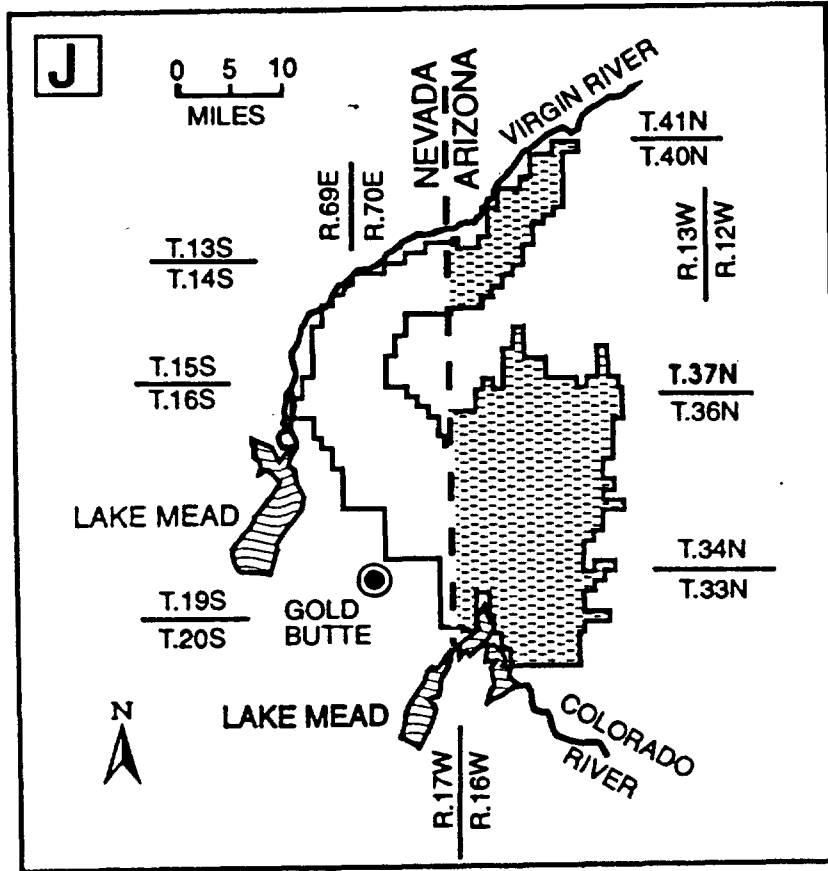
Gila and Salt River Meridian: T. 32 N., R. 15 W., secs. 1-18 except those portions of secs. 13-18 lying south of the Lake Mead National Recreation area boundary line; T. 32 N., R. 16 W., secs. 1, 2, 12, and 13; T. 32 1/2

N., R. 15 W., secs. 31-36; T. 32 1/2 N., R. 16 W., secs. 35 and 36; T. 33 N., R. 14 W., secs. 4-8, 18, 19, and 28-31; T. 33 N., R. 15 W.; T. 33 N., R. 16 W., secs. 1-14, 17-20, 23-26, 29-32, 35, and 36; T. 34 N., R. 14 W., secs. 4-9, 17-19, 30, 31, 33, and 34; T. 34 N., R. 15 W.; T. 34 N., R. 16 W.; T. 35 N., R. 14 W., secs. 3-9, 16-22, and 28-35; T. 35 N., R. 15 W.; T. 35 N., R. 16 W.; T. 36 N., R. 14 W., secs. 2-11, 14-22, and 27-34; T. 36 N., R. 15 W.; T. 36 N., R. 16 W., secs. 1-36

except secs. 4-9; T. 37 N., R. 14 W., secs. 15, 22, 27, 31, and 33-35; T. 37 N., R. 15 W., secs. 5, 8, 17-22, and 27-36; T. 37 N., R. 16 W., sec. 35; T. 38 N., R. 15 W., sec. 6; T. 38 N., R. 16 W., secs. 1-12 and 14-22; T. 39 N., R. 15 W., secs. 2-10, 16-21, and 29-32; T. 39 N., R. 16 W., secs. 1, 12, 13, 20, 23-29, and 32-36; T. 40 N., R. 14 W., sec. 6; T. 40 N., R. 15 W., secs. 1, 10-15, and 21-36.

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MAP 17



BILLING CODE 4310-55-C

Primary constituent elements: Desert lands that are used or potentially used by the desert

tortoise for nesting, sheltering, foraging, dispersal, or gene flow.

Dated: December 20, 1993.

Richard N. Smith,
Acting Director, U.S. Fish and Wildlife Service.

[FR Doc. 94-2694 Filed 2-7-94; 8:45 am]

BILLING CODE 4310-55-P